

RURAL DEVELOPMENT AND AGRICULTURAL GROWTH

in Indonesia, the Philippines and Thailand

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Takamasa Akiyama & Donald F. Larson (eds)

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Edited by
Takamasa Akiyama and Donald F. Larson

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ABBREVIATIONS USED IN TABLES

n.a.	not applicable
..	not available
	zero
	insignificant

ABBREVIATIONS

ABRI	<i>Angkatan Bersenjata Republik Indonesia</i> [Indonesian armed forces]
ACIAR	Australian Centre for International Agricultural Research
ACPC	Agricultural Credit Policy Council
A&D	alienable and disposable
ADB	Asian Development Bank
AFMA	Agriculture and Fisheries Modernization Act
AFTA	APEC Free Trade Agreement
AIDS	almost ideal demand system
APEC	Asia-Pacific Economic Cooperation
ARDL	autoregressive distributed lag
ARP	Agricultural Rehabilitation Plan
ASEAN	Association of Southeast Asian Nations
BAAC	Bank of Agriculture and Agricultural Co-operatives
BAPPENAS	<i>Badan Perencanaan Pembangunan Nasional</i> [National Development Planning Agency]
BD	Bank Desa
BHS	basic human needs
BOI	Board of Investments
BOT	Bank of Thailand
BPS	<i>Badan Pusat Statistik</i> [Central Statistics Agency]
BRI	Bank Rakyat Indonesia
BULOG	<i>Badan Urusan Logistik</i> [State Logistics Agency]
BUUD	<i>Badan Unit Usaha Desa</i>
CALF	Comprehensive Agricultural Loan Fund
CARD	Center for Agricultural and Rural Development
CARP	Comprehensive Agrarian Reform Program
CBN	cost of basic needs
CCSF	Coconut Consumer Stabilization Fund
CDA	Cooperative Development Authority

CDD	Community Development Department
CSIS	Center for Strategic and International Studies
CMSA	constant market share analysis
CP	<i>Charoen Pokphand</i>
CPT	Communist Party of Thailand
CRIS	Cooperative Information System
CTRP	Comprehensive Tax Reform Program
DOF	Department of Factory
DOL	Department of Land
DPA	<i>Dewan Pertimbangan Agung</i> [Supreme Advisory Council]
DTI	Department of Trade and Industry, the Philippines
ECM	error correction model
ERP	effective rate of protection
ESCAP	Economic and Social Commission for Asia and the Pacific
Facoma	Farmers Cooperative Marketing Associations
FAO	Food and Agriculture Organization
FIES	Family Income and Expenditures Survey
FM-OLS	fully modified Hansen–Phillips least squares approach
GATT	General Agreement on Trades and Tariffs
Golkar	<i>Golongan Karya</i> [Joint Secretariat of Functional Groups]
GVA	gross value added
HPAE	High Performing Asian Economies
HYV	high-yielding varieties
IADP, CRC	Institute of Agribusiness Development and Policy, Center for Research and Communication
IFAF	Integrated Farmers' Aid Fund
IID	independent identically distributed
ILP	import liberalisation program
IOCR	incremental output–capital ratios
IPP	Investments Priorities Plan
IPT	Indonesia, Thailand and the Philippines
IRRI	International Rice Research Institute
ISH	Integrated Survey of Households
IS	import substitution
ISI	import substitution industrialisation
JETRO	Japan External Trade Organization
KUD	<i>Koperasi Unit Desa</i> [Village Unit Cooperative]
LFS	Labor Force Survey

LKMD	<i>Lembaga Ketahanan Masyarakat Desa</i> [Village Council for Development Planning and Guidance]
LMD	<i>Lembaga Musyawarah Desa</i> [Village Consultative Council]
MAV	minimum access volume
MDU	Mobile Development Unit
MOA	Ministry of Agriculture
MOAC	Ministry of Agriculture and Cooperatives, Thailand
MOC	Ministry of Commerce, Thailand
MOF	Marketing Organization for Farmers
MOF	Ministry of Finance, Thailand
MOI	Ministry of Interior, Thailand
MPR	<i>Majelis Perrnusyawaratan Rakyat</i> [People's Consultative Assembly]
NAIC	newly agro-industrialising country
NASUTRA	National Sugar Trading Corporation
NEDA	National Economic and Development Authority
NEDR	National Economic Development Board
NESDB	National Economic and Social Development Board
NFA	National Food Authority
NGA	National Grains Authority
NGO	non-government organisation
NPR	nominal protection rate
NRDP	National Rural Development Program
NSCB	National Statistical Coordination Board
OAE	Office of Agricultural Economics
OLS	ordinary least squares
OUSS	Office of the Under-Secretary of State, Thai Ministry of Agriculture
PAP	Poverty Area Program
PC	principal components
PCMS	Philippine Coalition for Microfinance Standards
PKI	<i>Partai Komunis Indonesia</i> [Indonesian Communist party]
PNB	Philippine National Bank
PO	people's organisations
PRRM	Philippine Rural Reconstruction Movement
PWO	Public Warehouse Organization
RAPS	Restructuring and Production System Plan for Agriculture

RBP	real border prices
RCA	Rice and Corn Administration
RFD	Royal Forestry Department
ROSCAS	rotating savings and credit association
RT	<i>rukun tetangga</i> , or precinct-level neighbourhood association
RW	<i>rukun warga</i> [ward-level neighbourhood association]
SACOP	Social Action Center of Panpangas
SHG	self-help group
SN	<i>Samahang Nayon</i>
SRA	Social Reform Agenda
SSR	self-sufficiency ratio
SUR	seemingly unrelated regressions
TAO	Tambon Administrative Organization
TDRI	Thailand Development Research Institute
TFP	total factor productivity
TRI	Cane Intensification Program
TRP	tariff reform program
TSC	Thailand Sugar Corporation
TSEG	two-step Engle–Granger
TSTC	Thai Sugar Trading Corporation
UNDP	United Nations Development Programme

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FOREWORD

This volume, the culmination of more than a half-decade of research, provides convincing evidence that agriculture is 'back on the agenda' of developing countries and donor agencies alike. The evidence comes in two forms. First, the volume was sponsored by the World Bank, with Japanese funding, with the explicit objective of correcting a major oversight in *The East Asian Miracle* (1993): the failure to explain the role of agricultural and rural development in the spectacular success of these economies in the latter third of the 20th century.

Second, the chapters in the volume themselves demonstrate just how important that role was—in both positive and negative ways—in stimulating the rest of the economy. Much of the analysis focuses, appropriately, on different policy settings. Importantly, the historical and ecological contexts for the choices available, described by Yujiro Hayami, are clearly not determining. Even within these constraints, the three countries treated in detail in this volume pursued widely varying approaches to their rural economies. This variance, explained by the country authors primarily on social and political grounds, nonetheless had powerful, long-run consequences. In some sense, all three countries are living today with policy choices made decades before.

Why should this be? One of the great challenges in economic history—and development economics—is to explain the apparent contradiction between a positive role for agriculture in the development process, and the resulting structural transformation. In this transformation, the share of agriculture in the economy declines while industry rises and urbanisation takes place, especially because of rural to urban migration. It is easy to see how agriculture would get short-changed in the policy process if only the end points of the transformation are understood, not its dynamics.

Both the detailed country studies and the cross-country analyses demonstrate the power of the structural transformation and the complexity of its dynamics. Some very basic forces must be at work, but these forces play out in their own country-specific ways. This volume is especially helpful in providing the reader a detailed panorama of this specificity.

Still, it is useful to review briefly the basic role of agriculture in this process, to set the stage for the detailed studies. An easy way to organise the

discussion is in terms of a 'development trilogy', a triangle with 'rapid economic growth' at one apex, 'poverty reduction' at a second, and food 'security' at the third. In the middle of the triangle, connecting all three topics, is the agricultural sector.

Food security is equally important to national leaders and heads of households, and so is a good place to start. A powerful lesson from economic history is that no country has sustained the economic growth process without guaranteeing food security to the great majority of its citizens. Food security has two basic dimensions: at the national, or market level; and at the household, or consumer level.

At the national level, the main concern is for reliable availability, which in a market economy is signalled by the level of prices for the staple food—rice in Asia—in the major urban markets. There is a secondary concern for the stability of these prices. Historically, stabilising rice prices has been a serious and difficult problem in Asia, but attempted by all countries nonetheless, including the three treated here. Instability of rice prices has been much less of a problem in the past decade because the world rice market has become much more heavily traded and stable, like the world markets for wheat and maize.

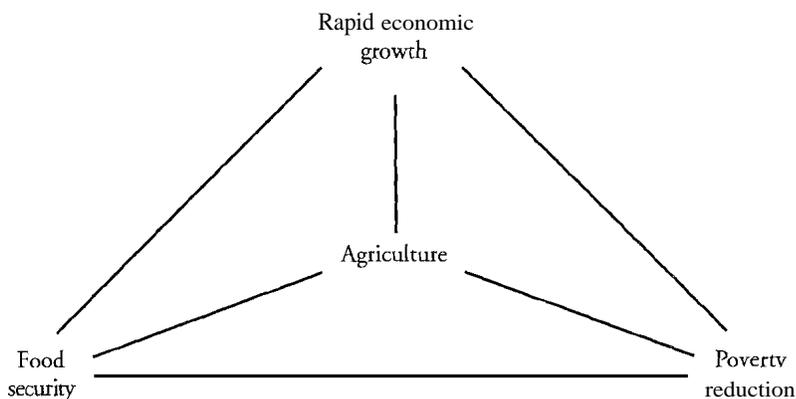
The issues of both the price level and price stability also emphasise that food security is a trade-related topic, not just a production topic. Indeed, 'food self-sufficiency' as either an analytical topic or political objective should be eliminated from the language! Only desperately poor people are truly self-sufficient.

At the household level, food security is a matter of reliable access to food, from own production or from the market. This access to food is primarily a function of household incomes, of food prices, and of nutrition knowledge of the mother. This knowledge is what translates 'food access' into meals for the family and nutritional well-being for individuals.

The link between the household and market levels of food security, and the link to economic growth and poverty reduction, is the productivity of domestic agriculture. To re-emphasise the point about trade, this does not necessarily mean how much rice the country grows. In poor countries, the majority of the population, and most of the poor, live in rural areas. Their primary vehicle for sustaining food security—at household and national levels—is rising agricultural productivity.

In the long run, this means increasing labour productivity, and non-farm employment and migration are important mechanisms. But in the

Figure E1 The 'Development TrilogY': three 'spheres' of activity, held together by agriculture



short run, the main vehicle for raising agricultural productivity is to raise the value of output per hectare. And this almost always means using new agricultural technology: high yielding varieties (HYVs) of seeds, improved livestock genetics and feeds, fertiliser, mechanical equipment, farmer knowledge and management skills, especially in diversifying into higher-value activities.

This train of logic has been verified historically—including in the chapters presented in this volume—and tested econometrically. It runs from improved agricultural technology to higher productivity, to food security in markets *and* households, and from there to sustained economic growth and the reduction in poverty.

RURAL DYNAMICS AND ECONOMIC GROWTH

There is a good deal of evidence about these links from agriculture to economic growth, and about why a dynamic rural economy makes this growth more 'pro-poor'. First, it is important to remember that almost anything that speeds up the long-run rate of growth will also speed up the reduction of poverty—the record of economic history is very clear on this relationship.

Second, agriculture can play a key role in this process, especially in poor countries where it has a heavy weight in GDP and in the labour force.

There are three sets of linkages between agriculture and economic growth discussed in the literature: direct, indirect, and roundabout.

The direct linkages work through markets. The factor market mechanisms, often called the 'Lewis Linkages' because W. Arthur Lewis analysed them in his 'surplus labour' model of development, involve labour and capital. The product market mechanisms, often called the 'Johnston–Mellor Linkages' because of their early analysis of them, involve providing food for cities, demand for domestic industrial goods, supply of raw materials to industry, and the earning of foreign exchange to import capital equipment and technology. Perhaps the most important market effect has been the declining rural–urban terms of trade—cheaper food—which is hugely important to the poor. This link should probably be named after D. Gale Johnson, because he documented its impact so clearly and stressed its importance.

The indirect linkages work through higher total factor productivity (TFP). As emphasised in the chapter by Mundlak, Larson, and Butzer, growth in TFP is the ultimate source of *sustained* economic growth and higher standards of living. Agriculture contributes in three ways. First, the efficiency of decisionmaking in farm households is higher than in the rest of the economy, a point stressed by T.W. Schultz. Farmers allocate their *scarce* resources very carefully, and get maximum output from new resources. Second, there is low opportunity cost to resources available in abundance to rural households, especially their labour. This means that finding more productive activities for rural labour costs the economy very little. Third, farmers are able to circumvent the low capacity for financial intermediation in rural areas by investing directly in productive activities on their farms. This leads, at the margin, to rising output with little measured capital input, but can only happen when farming is profitable. Higher output with few measured inputs is a sure way to raise total factor productivity!

The roundabout linkages work primarily through the removal of urban bias, and should be named after Michael Lipton, for his work, *Why Poor People Stay Poor: urban bias in developing countries*. Urban bias has a profound impact on both the rate of economic growth and its distribution. Urban bias is a political economy problem, where rent-seeking and urban-based governance sharply distort the allocation of resources. The evidence shows that it is not just agriculture that suffers from urban bias; so too does the entire economy and, especially, the poor in both rural and urban areas.

MAKING GROWTH PRO-POOR

Why would 'Getting Agriculture Moving', to use the title of a famous book in the 1960s by Art Mosher, not only speed up economic growth, for the reasons just listed, but also make it more pro-poor, at least in Asia? To answer this question, John Mellor has modelled the growth experience seen in these economies. His model emphasises the role of producing rural *non-tradables* that are locally consumed—processed foods, construction, trade, and small-scale manufactures—as the 'ladder' for underemployed workers in agriculture to begin the climb to modern jobs at higher wages.

In most poor, rural economies this non-tradable sector is demand-constrained. That is, expanding it, and the number of jobs it creates, does not depend on better access to capital or to management skills, but to greater purchasing power among local consumers. Thus Mellor points to rising profitability of agriculture—through higher productivity, not higher prices (because higher prices just choke off demand except for farmers with significant surpluses to sell)—and also to the wages of workers in a rapidly growing manufacturing export sector.

This Mellor model is basically a 3-sector version of the standard Lewis model of the dual economy. In his version there are two 'commercial' sectors—industry and agriculture (which now uses modern technology and is market-driven)—and the 'non-tradable' sector (mostly rural but also urban and informal). The commercial sectors are the 'engines of growth', but connecting them to the 'non-tradable' sector is the key to a high 'elasticity of connection' between overall economic growth and rapid poverty reduction.

A rapidly growing rural non-tradables sector absorbs surplus labour from agriculture and causes wages of unskilled labour to rise. This is the key to rapid reductions in poverty, and clearly, agriculture is half the story. The structural transformation emphasises the importance of the industrial sector in the long-run growth process, rightly, but it is important not to forget the role of agriculture as well.

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LESSONS ON RURAL DEVELOPMENT AND AGRICULTURAL GROWTH FROM INDONESIA, THE PHILIPPINES AND THAILAND

Takamasa Akiyama and Donald F. Larson

Central to the study of development is the understanding of economic growth, of which rural economic growth is almost always an important aspect. Historically, rural agriculture has employed most people in most countries; in many countries it continues to do so to this day, especially in poor countries, where most households either live in or have familial ties to agricultural areas. Nevertheless, the causal relationships between economic growth and growth in agriculture remain poorly understood. The lack of understanding stems partly from a more general debate concerning the relative contributions of geography, technology, private and public investment, trade and institutions to economic growth. These factors, well studied at the national level, take on distinctive characteristics and links in rural areas, where accumulations of human capital, infrastructure and governing institutions are often limited. Untangling the causal relationships between economic growth and growth in agriculture is made all the more difficult by the constantly evolving ways in which the above-mentioned factors shape and are shaped by policy.

The chapters in this volume explore the many aspects of economic growth in the agricultural sectors of Indonesia, the Philippines and Thailand. The study period is generous, allowing the researchers to draw comparisons across time as well as space. The countries themselves invite comparison, sharing a monsoon climate conducive to rice cultivation on smallholder farms and a particular organisation of rural households and communities. These factors meant that the three countries' agricultural sectors were well positioned to take advantage of the emerging technologies of the Green Revolution. Hard-won gains in productivity made food more abundant. Exports, especially of perennial crops, became important sources of revenue, and developed along with evolving technologies. The ways in which these factors interacted with policy, investments, resource constraints and the reallocation of agricultural labour are the underlying theme of this volume.

Looking back 40 years, the three countries' similarities become even more striking. The Philippines was largely rural, and Indonesia and Thailand overwhelmingly so. Incomes in all three countries were similarly low, and the then-new technologies of the Green Revolution spurred growth. Growth in agriculture led to declining rates of poverty; in this respect the three countries initially followed similar paths. Differences emerged in the 1980s, when growth in agriculture and the economy as a whole faltered in the Philippines, but continued in Indonesia and Thailand, to the point where both countries participated in what became known as the 'East Asian Miracle' (World Bank 1993).

As the following chapters describe, these countries' similar characteristics and similar early growth experiences masked eventual constraints on growth and other differences among them. Implemented policies and their supporting institutions (including regime type, state ideology and political system) are rooted in specific political and socio-economic histories. For example, Indonesia and the Philippines have a long history of colonial rule, while Thailand remained largely independent. The populations of Thailand and the Philippines are roughly the same, while Indonesia's is nearly three times this size. The ethnic makeups of the countries differ. Indonesia has more than 200 ethnic groups, while Thailand and the Philippines are more ethnically homogeneous, though what inter-ethnic tensions exist are long-standing. For the study period, Indonesia was organised politically as a unitary republic under a strong presidency that emphasised unity and centrally controlled economic development. For much of the study period, the Philippines was organised politically as a unitary republic, but with

numerous political parties; however, the country also experienced a sustained period when political participation was limited. Meanwhile, Thailand was governed largely as a constitutional monarchy, with a government dominated by military and bureaucratic elites.

These differences were reflected in differing national and sector policies, thus they became apparent even as governments pursued similar objectives. In turn, the consequences of policy accumulated in agriculture's productive factors—especially human and physical capital. Since policies also have political consequences, when the East Asian economies faltered in 1997, the sustainability of growth came into question.

The chapters that follow document the interplay of endowments, technology, the accumulation of productive factors, policy, and advocacy in the rural sectors of these three countries. Each contributes in its own way to an explanation of the past, and it is the editors' hope that they also provide insights into how appropriate policy can improve the lives of rural people.

ECOLOGY AND INSTITUTIONS

The process of growth follows a path, and any study of growth must find a starting point at which to begin on this path. Because agriculture is a natural process, natural endowments of climate and geology and their interactions with production technologies and commerce play a crucial role in the choice and organisation of rural economic activity. In turn, choice and organisation of rural economic activity give rise to traditions and institutions, and come to be embedded in accumulated factors of production. These relationships are dealt with in Chapter 2 by Yujiro Hayami, who examines the ecological and historical roots of agrarian structure in the three countries. Hayami begins his analysis with a description of the practices that prevailed in rural Indonesia, the Philippines and Thailand prior to the 1860s, when new transportation technologies gave the region's goods better access to international markets. At the time, wet rice production was the dominant agricultural practice in the rural communities of the region, and, from an ecological perspective, the three countries' differences related primarily to vast areas of unused land.

With the development of new transportation technologies came new sources of demand and incentives to open up previously inaccessible tracts of land. Thus, previously unused resources acquired new value, and economic growth occurred. In insular Indonesia and the Philippines, the

combination of ecology and prevailing technologies promoted the development of tree crops, while in Thailand it was rice exports that grew. For the past three decades, the ratio of permanent crops to paddy rice has remained higher—and more stable—in Indonesia and the Philippines than in Thailand. As Hayami points out, certain permanent crops—for example, sugar and bananas—require scale economies in processing and marketing which promote plantation agriculture over smallholder agriculture and thus lead to the concentration of rural land use. In a similar way, the expansion of canals required to access remote areas of cultivatable land in Thailand also led to a concentration of land ownership. Hayami argues, however, that prevailing institutions and policies—their roots both pre-colonial and colonial—also influenced the interplay of ecology and technology. In Thailand, methods of rice production and storage worked together with traditional land policies to limit the concentration of agricultural land and tenant farming. In contrast, in the Philippines, the colonial Spanish policy of asserting property rights over uncultivated and communal lands led to higher levels of landlessness. Meanwhile, in Indonesia, Dutch land policies established long-term leases for plantations but also left in place traditional communal land-sharing arrangements giving smallholders greater access to land.

Twentieth-century advances in agriculture led to scarcer land resources and more intensive production. Hayami argues that these developments affected plantations and smallholders differently, with smallholders suffering less in terms of constraints on productivity than plantations. Consequently, the more smallholder-friendly land policies of Thailand and Indonesia allowed agriculture to continue to expand, whereas in the Philippines growth stalled. Moreover, Hayami argues, policies in Thailand and Indonesia were more favourable for agriculture than policies in the Philippines, partly reflecting differences in political power structures with their roots in differences in the distribution of wealth and land.

In Chapter 3, Takamasa Akiyama asks if additional factors, whether related to or independent of the region's ecological characteristics, distinguish Southeast Asia's agricultural sectors from those of other developing regions. In doing so, he revisits some of the themes discussed by Hayami and introduces new themes as well. For Southeast Asia as a whole, growth in agricultural income was sustained for nearly 40 years into the twentieth century. Within the region, Indonesia, Thailand and China experienced consistent growth, while income in every country grew faster than

agricultural labour supplies, though growth in the Philippines after 1981 was slow. The only other developing region where per capita agricultural income grew more rapidly was Latin America.

Akiyama notes that the rapid growth of agriculture in the region as a whole was due in part to the importance of rice and the effects of rice-specific new technologies. He also points out, however, that in Indonesia and Thailand expanding exports played a similarly important role. Among these expanding exports, Akiyama highlights palm oil, rubber and cocoa; for Thailand he could have mentioned sugar as well. He attributes Thailand's success to its ability to shift into higher-value production, while for Indonesia he identifies expanding volumes as the crucial factor. It is also worth noting that both these countries successfully matched smallholder production with the centralised processing usually associated with plantation crops. Examples include rubber and sugar in Thailand, and, from the 1980s onward, palm oil in Indonesia.

Akiyama also notes that the agricultural sectors of Southeast Asia have tended to build up their capital stocks, even as arable land per worker has declined because of rapidly expanding populations. He claims that equity also played a role, with land distribution occurring generally more evenly in East Asia than in other regions, and growth in the region as a whole having a larger impact on poverty than in other regions.

In Chapter 4, Maria Amelina uses case studies of sugar and rice policies, which were very similar in the three countries, to examine the relationship between agricultural policies and the bases of political power. For rice in particular, the similarities among the three countries derived partly from the technical aspects of opportunities provided by the Green Revolution. In time, key features of the policies' implementation diverged. Amelina characterises the relationship between technical progress and political power in Indonesia and the Philippines as the 'authoritarian bargain', implying regime legitimacy based on the ability to deliver development. For Thailand, on the other hand, she describes a more pluralistic system in which traditional support for the King and parliament serve as a basis of political power. All three regimes lent support to the development of new technologies and took measures to benefit from them. In Indonesia and the Philippines, however, the success of such development depended directly on public support for regimes that lacked both traditional and democratic legitimacy. Moreover, the evolving bureaucratic controls developed to deliver technical

progress actually came to be used to redirect public resources to supporters. According to Amelina, this abuse of power created both the urgent need for success and obstacles to success at the same time. In Thailand, the checks and balances of pluralism limited the capacity of agricultural policies to place demands on public resources, and unsuccessful programs were allowed to end. Once the authoritarian bargain has been struck and internal support bargained for, however, any admission of failure will shake the very foundations of the regime's legitimacy.

In Chapter 5, at the other end of the political spectrum, Shinichi Shigetomi examines self-organising rural organisations. Rural areas are organised administratively, and the resulting administrative units become the formal conduits for governance. Voluntary rural organisations, however, can occur in a multitude of settings and, since they are self-organising, need not correspond to spatially defined administrative units. Shigetomi compares micro-finance organisations in the three countries to draw inferences about underlying relationships. He finds that formal and informal institutions critically affect the structure, size, management style and performance of rural organisations. Mainly because of differences among their respective institutions and government policies, the three countries' micro-finance organisations differ significantly in spite of the similarities in their rural financing market conditions.

In Thailand, because the administrative village coincides with the traditional indigenous village, most of the saving groups have relatively large memberships and management guided by collective consent, and can utilise formal institutions in their decision making. In the Philippines and Indonesia the situation is quite different. In the Philippines, the micro-finance organisations are predominantly of the *Grameen* type and small in membership (usually about five), and are guided mainly by collective consent. The development of this form of organisation stemmed from the difficulty of forming larger organisations in the Philippines, one reason for which was divergence of the administrative village unit from traditional community lines. In Indonesia, besides the formal and highly institutionalised administrative-level financial organisations, there also exist numerous informal organisations with membership of between 20 and 30. In many parts of Indonesia, traditional locality-based communities developed into micro-finance organisations, which, because of the mismatch between the administrative village unit and traditional communities, tended to establish linkages with large formal institutions.

COUNTRY STUDIES

The next three chapters of the book describe agriculture's changing role in each of the three study countries, with each of the authors providing a different perspective on the topic.

In Chapter 6, Toshihiko Kawagoe examines the political economy of rural development in Indonesia, through a review of the development process since the colonial period and a look at current rural development policies. Kawagoe argues that the ideas of Indonesian policymakers in the early stages of the New Order rule were affected by the cultural, historical and ideological factors of the idea of rural pessimism, anti-colonial sentiments and the state ideology of *pancasila*, as well as the social and ideological factors of state nationalism, the potential for cooperatives to bring benefit to economically weak groups, and family farming, as proclaimed in the 1945 constitution.

Over the study period, Kawagoe notes, agriculture declined in relative economic importance. Politically, the sector was treated with ambivalence. Formerly Dutch-owned plantations were expropriated and managed to the benefit of the state or ruling coalitions, while smallholder export crops, for example coffee and coconuts, were largely ignored up until the 1980s.' Kawagoe argues that this historical neglect influenced policymakers' ideas, encouraging rural pessimism, export pessimism and anti-colonial sentiment. In contrast, rice was accorded a special place in policy, and significant political and financial resources were exploited to bring the benefits of the Green Revolution to Indonesian rice farmers. Rice yields increased dramatically, and rice self-sufficiency was attained in the mid 1980s. Kawagoe argues that the support given to rice had an emotional aspect, partly explainable by the family principles that prevailed in rural areas. He also argues, however, that agricultural policy implementation was hampered by factors such as the state's distrust of markets and promotion of village cooperatives, and that the all-out drive towards national unification led to the neglect of regional diversity in agricultural production planning.

In Chapter 7, Arsenio Balisacan, Nobuhiko Fuwa and Margarita Debuque examine agricultural development in the Philippines, and discuss what they describe as policy failures. In spite of the successes it achieved in the 1950s and early 1960s, during the subsequent four decades the Philippines lagged far behind the other study countries in overall economic growth, poverty reduction, human capital development and structural transformation. A marked difference between rural development performances before and after

the mid 1980s is discernible. During the 1960s and 1970s, both the overall economy and the agricultural sector recorded respectable growth rates. As a result of capital-intensive and foreign debt-driven growth and political turmoil, the 1980s experienced a series of booms and busts accompanied by macro-stabilisation attempts and political instability. Agricultural growth also slowed during this period, because of a combination of factors such as stagnation in public investment, the apparent exhaustion of Green Revolution potentials, and negative price incentives due to government policies. Unlike the rates of overall and agricultural growth, the pace of rural poverty reduction was disappointingly slow, though it appeared to pick up at the end of the 1980s, despite the boom-and-bust cycle and relatively low average growth rates of that decade.

The authors argue that the heavy emphasis placed in development strategies on import-substituting industrialisation was a source of rural discrimination and that additional anti-smallholder policies compounded the effects of this discrimination. Treating such policies as natural outcomes of the Philippines political and economic system, which had long suppressed competition and pluralism, the authors trace the roots of the system to the creation of a landed oligarchy during the Spanish colonial era.

In Chapter 8, Shinichi Shigetomi discusses key aspects of rural development in Thailand. In his analysis of agricultural commodity exports, Shigetomi highlights Thailand's strong export crop performance and its contributions in sustaining growth and reducing poverty. Attributing export success in general to the private sector's capacity to respond to market conditions, Shigetomi does not treat the role of the Thai government as negligible or negative, but on the contrary asserts that some governmental policies had positive and even crucial effects on some commodities. Beneficial policies include programs of credit provision in rural areas and extension services on new crops, especially for high value-added and processed products; provision of services unavailable through market transaction, such as seed improvement of open-pollinated plants and irrigation; investment promotion, tax exemption/reduction, and negotiation with foreign governments to reduce import duty; subsidies to reward improved productivity, for example in rubber re-plantation programs; and establishment of quality standards and export crop inspection systems. Agribusiness responded positively to these policies, and the composition of agricultural exports shifted from traditional to more value-added crops.

Another successful aspect of rural development in Thailand was the reduction of rural poverty in absolute terms. Before the 1970s, both agricultural and non-agricultural development helped bring about reductions in poverty. From the 1980s onwards, however, farm income decreased in real terms, while non-farm income increased. Shigetomi argues that this income structure is the cause of the Thai government's failure to narrow the income gap between the rural and urban sectors. This followed naturally from the Thai farm sector's reliance on the market mechanism for development. At the end of the 1980s, world commodity prices stagnated, and Thailand's farm sector, which relied heavily on the export market, was hit particularly hard. Meanwhile, the private sector actively led industrialisation throughout this entire period. Currently, the Thai rural sector finds itself in unfavourable conditions, and Shigetomi argues that rural Thai people need to develop their skills as farm operators or wage earners in order to overcome the difficulties facing them.

THE ROLE OF TRADE

Trade is widely viewed as East Asia's primary engine of growth. This view usually focuses on the region's growing manufacture exports; however, sustained agricultural growth in Thailand and Indonesia is also associated with the steady expansion of commodity exports, especially sugar, rubber and rice in Thailand and palm oil in Indonesia. Like domestic production and consumption, trade depends on a combination of factors, some related to internally determined policies and others to externally determined policies. Examinations of domestic trade policy and external determinants are taken up in two complementary chapters.

In Chapter 9, Takamasa Akiyama and Kei Kajisa analyse agricultural protection rates and find that indirect protection rates have remained relatively stable and negative over time, while direct protection rates for many commodities have increased since the early 1980s. By the mid 1990s, total average protection rates for Indonesia and Thailand had become positive. However, indirect protection in the Philippines dropped to very low levels, making total average protection rates negative in the late 1990s. Akiyama and Kajisa also find that, over the study period, direct protection rates for many commodities in the Philippines and Thailand converged to zero, bringing domestic agricultural commodity prices more into line with international prices. This reflects these countries' liberalisation of agricultural

commodity markets and reduced protection due to the achievement of self-sufficiency. Conversely, protection rates in Indonesia tended to increase over time, reflecting the Indonesian government's policies promoting self-sufficiency in food as opposed to palm oil and rubber exports.

Comparison of the three countries' total agricultural protection rates suggests that one of the reasons the Philippines lags behind Indonesia and Thailand in agricultural production and export growth is the heavy taxes the government has imposed on the agricultural sector over time. While total protection rates in Indonesia and Thailand have declined substantially, the Philippines' agricultural sector still suffers from significant negative protection. Akiyama and Kajisa's analyses indicate that the main characteristic of the three countries' agricultural pricing policies is their price-stabilising effects, especially on food crops, in both the short and the long run. Price stabilisation was achieved over time through effective progressive taxation of border prices, apparently shielding both consumers and producers from abrupt price changes in the world commodity markets in the short run.

In Chapter 10, Masayoshi Honma and Takehiko Hagino examine the study countries' agricultural export performances in the light of changes in both external and internal factors that have occurred over the past four decades. Using a model that relates the growth and pattern of agricultural exports to external market conditions, competitiveness and commodity diversification, Honma and Hagino measure each factor's quantitative impact on export growth rates. In Indonesia, commodity diversification has played the most significant role in this respect. In Thailand, competitiveness has been the most important factor. In the Philippines, the growth rate of exports depended most heavily on the expansion of markets.

Honma and Hagino go on to explore the structure of demand for exports in selected markets using a formal demand system model. Agricultural exports are often considered less promising because demand for them is inelastic to price and income. At the level of trade flows, however, exports present many opportunities, and the authors find the price elasticity of demand for the three countries' major exports to be significantly large in many importing markets. They also undertake a statistical examination of the transmissibility of export prices to import markets, and find that transmission elasticity between export and import prices was significantly less than unity in 24 out of 38 trade flows. For exporting countries to ensure maximum gains from exports, international and domestic distribution systems must become more efficient and transparent.

Whether agricultural exports can continue to contribute to economic growth and rural welfare improvement depends on the sector's ability to adjust to changes in relative resource scarcity and comparative advantage in the course of economic development. Thai agriculture showed it had this ability in increasing exports even during a period of rapid industrial growth that lasted four decades. In recent decades, Indonesian agriculture showed it could also adjust to changes in external and internal factors. Philippines agriculture, however, failed to adjust the composition of its exports to shifts in comparative advantage, hence the country fell far behind Thailand and Indonesia in export levels.

DETERMINANTS OF PRODUCTIVITY AND RESOURCE FLOWS IN AGRICULTURE

This book's final two chapters make quantitative comparisons of the determinants of growth and the reallocation of agricultural labour in the three countries, and show how similar improvements in technology can produce different results, partly because of naturally constraining factors. Importantly, these papers also show how policy can help minimise constraining factors and government investments in infrastructure and education can enhance growth. Because new technologies tend to reward land and capital more than labour, they also encourage the movement of rural labour out of agriculture, a process universally associated with economic development.

In Chapter 11, Yair Mundlak, Donald F. Larson and Rita Butzer use extended time-series data to measure growth and productivity in the three study countries. They find that the new technologies associated with the Green Revolution affected returns to fertilisers, irrigated land and capital so that all came to prove scarce in varying degrees. Public and private investment, in part policy-driven, complimented these technology-related changes. The authors find that factor accumulation played an important role in output growth, and that accumulations from policy-driven investments in people and public infrastructure were important sources of productivity gains. They conclude that policies that ease constraints on factor markets and promote public investment in people and infrastructure provide the best opportunities for agricultural growth, though in this respect significant differences exist among the three countries and in time for the Philippines and Thailand.

Two distinct periods characterise the Philippine experience. From 1961 to 1980, the agricultural sector experienced rapid growth driven by improved

technologies, increased use of fertilisers, cultivation of new areas and expansion of irrigated areas. Private investments in agriculture grew significantly, and gains were made in education. From 1980 to 1998, both public and private investment in agriculture tapered off. Sectoral growth slowed, and was driven primarily by a growing and better-educated labour force and continuing but slower growth in fertiliser use.

The Thailand experience is also characterised by two distinct periods, though during both these periods agriculture experienced significant growth. Improvements in education, the health of the population and infrastructure were important sources of growth, as were high levels of private investment. From 1981 onwards, the growth rates of cultivated land and agricultural labour dropped off considerably. Private capital growth, however, accelerated, thus aggregate resources devoted to agriculture increased. Consequently, output continued to grow at higher than 3 per cent per annum, even as the labour growth rate fell to 0.42 per cent.

In Indonesia, up until the recent period of financial and political instability, agriculture grew consistently for many years. From 1971 to 1998, the sector expanded at higher than 3 per cent per annum. Improvements in education and infrastructure and a declining mortality rate were consistent sources of growth. Capital accumulation was fuelled in part by large investments in tree crops. Growth in agricultural labour was a much more important factor in Indonesia than in Thailand and the Philippines, because average returns to labour in Indonesia were high. The authors speculate that high average returns to labour could have been due to the constraints placed by scarcity of labour on agricultural expansion in Indonesia's outer islands.

In Chapter 12, Butzer, Mundlak and Larson analyse sectoral migration within each of the study countries, and confirm earlier findings that the process of change for an agriculture-based labour supply is a lengthy one that occurs over generations. Nonetheless, differences in opportunities matter, and the authors find significant responses to income differentials in all three countries. Moreover, in all three countries, despite increasing agricultural productivity and persistent out-migration, average incomes in non-agricultural sectors have always been substantially higher than in agriculture. The differences are greatest in Thailand, where significant out-migration did not occur prior to the 1990s.

CONCLUSION

The papers in this volume describe a sustained agricultural and economic growth, rare among developing countries, from a variety of perspectives. They show how a natural comparative advantage in wet-rice cultivation put the three study countries in good positions to benefit from the Green Revolution. In all three countries, policymakers made the most of new opportunities, and new technologies helped bring about growth in rural incomes and created new demands for resources—especially fertiliser, irrigation and other forms of capital. Initial constraints boosted the shadow prices of these scarce resources and in some cases reduced the potential for growth. Better management and more intensive use of land brought great rewards, and supported the development of a type of smallholder land ownership more typical of Thailand and Indonesia than the Philippines. Even in the outer islands of Indonesia, where land remained relatively abundant and labour scarce, smallholders engaged in new production of traditional plantation crops such as palm oil.

Implementation of the new technologies of the Green Revolution became an important political objective in all three countries. In Indonesia, the drive towards rice self-sufficiency became a nationally unifying goal and also a measure of political legitimacy. All three countries, however, pursued macroeconomic policies that largely discriminated against tradable agriculture. At the same time, governments implemented commodity-specific policies reflecting the special political economy associated with each crop. Rice received special treatment in all three countries. Historically rooted institutions also facilitated adaptation, the evidence suggesting that more pluralistic governments constrained ill-advised policies at the same time as local self-organising political institutions helped farmers overcome constraints on credit.

While the effects of the Green Revolution were dramatic, it was the accumulation of productivity factors that determined the sustainability of growth. Private sector activity and public investments contributed to the build-up of physical and human capital, with the incentives shaping private sector activities located partly in global events and partly in domestic policy. Importantly, the associated accumulation of wealth and private capital was not independent of the three countries' initial ecological conditions, since so many of the rewards made possible by the new technologies accrued to land owners.

An important lesson to be drawn from these studies is that sustained agricultural growth is a lengthy process that occurs over generations, partly because of the slow pace at which labour can practically move from agriculture to other sectors. It follows that sustained agricultural growth requires a sustained effort by governments to contribute to this process materially —through investments in people, infrastructure and policies and institutions that assist rather than penalise rural communities.

NOTE

- ¹ For a discussion of the ways in which this *laissez-faire* approach actually proved beneficial, see Akiyama and Nishio (1997).

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2

AN ECOLOGICAL AND HISTORICAL PERSPECTIVE ON AGRICULTURAL DEVELOPMENT IN SOUTHEAST ASIA

Yujiro Hayami

Ecology and history are no doubt the fundamental constraints on the current course of economic development. Few studies, however, have investigated the process by which different ecological conditions and historical trajectories have interacted to forge different social and cultural systems, resulting in major differences in development across economies. Drawing on agricultural development experience in Southeast Asia, this paper aims to shed light on this process.

Southeast Asia's relatively strong agricultural growth during the last three–four decades is generally considered one of the factors underlying the 'economic miracle' in the region (World Bank 1993). Performances within the region, however, have varied significantly. This paper attempts to explain the variations mainly in terms of differences in the agrarian structures that were created by colonial regimes living in diverse ecological environments.

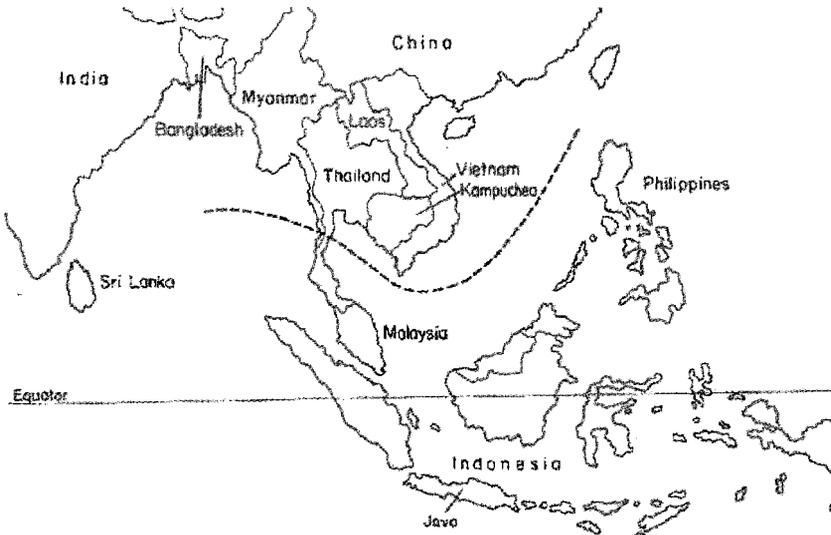
Southeast Asia can be classified into two major ecological zones—the continental region, including Thailand, Vietnam and Myanmar; and the insular and peninsular region (henceforth called the 'insular' region), including Indonesia, Malaysia and the Philippines (Figure 2.1). The former is characterised by major river deltas and the latter by tropical rain forests, among other attributes. Before the 1860s, when new transportation technology integrated the region with the rapidly industrialising West, people in Southeast Asia had made their living from wet rice production in small valleys or shifting cultivation in upland forests. A large part of the major deltas and thick rain forests remained unused, until growing demands

from the West for tropical products lead to the conversion of deltas into paddy fields for commercial rice production and rain forests into plantations for export cash crops, establishing the basis for 'vent-for-surplus' growth.'

Deltas continued to be dominated by peasants or small family farms, while insular areas were split between peasants cultivating rice in small valleys and coastal plains, and large plantations worked by hired labour. These differences in agrarian structure were rooted in significantly different ecological conditions. Equally significant were differences in land policies across political regimes. For example, the distribution of land ownership in the Philippines under Spanish colonialism became far more skewed than in Indonesia under Dutch colonialism, despite the fact that both these countries were located in the insular region.

The far-reaching influence of these differences in agrarian structure, formed along different historical trajectories under different ecological conditions, on agricultural development across Southeast Asia is the focus of this paper. While variables other than the agrarian structure, for example government

Figure 2.1 Map of Southeast Asia, indicating the continental and insular regions



policies relating to rural development, may also be important, the possibility that present policy choices are significantly influenced by the structure of the political economy, of which the agrarian structure forms a major component, must not be overlooked.

The first section of this paper provides an overview of the resource characteristics, agrarian structures, growth in aggregate agricultural output, and major exports of the three economies. The second section reviews the process of vent-for-surplus development in Southeast Asia during the late nineteenth and early twentieth centuries, and examines the critical roles of major river deltas in the continental part of Southeast Asia and tropical rain forests in the insular part, along with the related trade patterns.

The third section investigates the evolution of different agrarian structures in the three economies, and argues that the pre-emption of uncultivated but cultivable land by the power élite was the major force that skewed land distribution. The fourth section explains differences in agricultural growth rates across the three economies in terms of their different agrarian structures.

The final section discusses government policy choices in relation to the formation of the three countries' political economies. In concluding, it argues that the approach taken in this paper may be applicable to comparisons not just within Southeast Asia but across regions, such as Africa and Asia, to provide insights into broader development issues.

RECENT DEVELOPMENTS

This section provides an overview of the resource characteristics, agrarian structures and agricultural production growth of Indonesia, the Philippines and Thailand over the past three decades.²

Table 2.1 compares area of agricultural land in relation to population and labour force. Cropland includes both arable (annual) and perennial crops, as defined by the Food and Agriculture Organization of the United Nations (FAO). Arable land includes both lowland paddy and upland annual crops. Data on lowland paddy, based mainly on aerial photography, only recently became available, and has begun to appear in national statistical reports.³ The area of upland annual cropland is the difference between arable land and lowland paddy areas.

In 1996, per capita cropland area in Thailand was more than twice as large as in Indonesia and the Philippines; per farm worker, however, it was only marginally larger. From 1965 to 1996, cropland area increased by about 20 per cent in Indonesia, 40 per cent in the Philippines and 60 per

Table 2.1 Land endowments for agricultural production in Indonesia, the Philippines and Thailand, 1965–96

	Indonesia			Philippines			Thailand		
	1965	1996	1996/1965 ratio	1965	1996	1996/1965 ratio	1965	1996	1996/1965 ratio
No. of farm workers ('000) ^a	29,006	47,713	1.64	7,363	12,128	1.65	12,450	20,824	1.67
Cropland ^b									
Total ('000 ha)	26,000	30,987	1.19	6,660	9,520	1.42	12,600	20,445	1.62
Per capita (ha)	0.24	0.15	0.63	0.21	0.14	0.67	0.41	0.35	0.85
Per farm worker (ha)	0.90	0.65	0.72	0.90	0.78	0.87	1.01	0.98	0.97
Percentage of cropland									
Lowland paddy ^c	n.a.	27	n.a.	n.a.	32	n.a.	n.a.	53	n.a.
Annual upland crops ^d	n.a.	31	n.a.	n.a.	22	n.a.	n.a.	31	n.a.
Permanent crops	31	42	1.35	38	46	1.21	11	16	1.45

^a Economically active population

^b Arable (annual) land area plus area under permanent crops

^c Lowland paddy areas are for 1995 in Indonesia, 1991 in the Philippines, and 1993 in Thailand

^d Arable land area minus lowland paddy area

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>; except for lowland paddy areas, which are taken from Indonesian Statistical Yearbook 1996 (8,484,000 ha in 1995), Philippine Statistical Yearbook 1998 (3,001,000 ha in 1991) and Agricultural Statistics 1995/96 for Thailand (10,934,000 ha in 1993).

cent in Thailand. In all three countries, however, the expansion rate of cropland was lower than the growth rates of both the population and the agricultural labour force. Thus, from 1965 to 1996 cropland area relative to population in Thailand decreased by 15 per cent; in Indonesia and the Philippines it decreased by more than 30 per cent. Meanwhile, cropland area relative to agricultural labour force remained about the same in Thailand, but decreased by about 30 per cent in Indonesia and about 10 per cent in the Philippines. These data suggest that until recently Thailand has been endowed with better conditions for expanding cropland than Indonesia and the Philippines.

The important characteristic distinguishing Thailand from Indonesia and the Philippines is the high share of paddy in total cropland area—more than 50 per cent in Thailand compared to only about 30 per cent in Indonesia and the Philippines in 1996. On the other hand, more than 40 per cent of cropland in Indonesia and the Philippines is under permanent crops, compared to less than 20 per cent in Thailand. Permanent crops in these economies include tropical cash crops such as coffee, coconuts and rubber.

The comparative share of tree crops in total cropland remains the same today as 30 years ago—much higher in Indonesia and the Philippines than in Thailand. These data reflect ecological differences between the continental part of Southeast Asia, represented by Thailand, and the insular part, represented by Indonesia and the Philippines. That is, the continental region has major river deltas that are used almost exclusively for paddy, while the insular region was originally covered by tropical rain forests that could profitably be converted to plantations for tropical cash crops.

The different types of agricultural production that arose in response to different environmental conditions in turn gave rise to different agrarian structures in the two regions. Like cereal production in other parts of the world, rice production in Thailand is dominated by peasants or small family farms. In contrast, tropical cash crops are mainly grown on plantations or large estate farms worked by hired labour, though many peasants also grow cash crops. Table 2.2 compares distribution of operational farm size and incidence of tenancy across the three countries for the period 1973–78, before the influence of Philippine land reform became significant.

In all three economies, farms smaller than 5 hectares in area accounted for between 70 and nearly 100 per cent of all farms and cultivated 40–70

per cent of all farmland. Farms larger than 50 hectares in area, considered to be agribusiness plantations, were few in number but accounted for 14 per cent of all farmland in Indonesia and the Philippines; in Thailand, however, they accounted for less than 1 per cent of all farmland. It is clear then that the agricultural sector in the insular region was divided between peasants subsisting on small parcels of land and large plantations with hired labour, while in the continental region it was characterised by a unimodal distribution of self-employed family farmers. In the Philippines, plantations were privately owned and managed, while in Indonesia they were mostly state enterprises expropriated from Dutch planters after independence. Incidence of tenancy also varied widely, being distinctly higher in the Philippines than in the other two countries, especially in terms of percentage area under pure tenancy.

Table 2.2 Distribution of operational farm size and incidence of agricultural tenancy in Indonesia, the Philippines and Thailand, 1973–78

	Indonesia	Philippines	Thailand
Year of survey	1973	1971	1978
Average operational farm size (ha)	1.1	3.6	3.7
Percentage of farms and farmland			
< 5 ha			
Farms	98	85	72
Land area	69	48	39
> 5 ha			
Farms	0 ^a	0.2	0 ^a
Land area	14	14	0.9
Gini coefficient of land concentration	0.56	0.51	0.45
Percentage of tenanted area in total farmland			
Pure tenancy	2	21	6
Total ^b	24	33	16
Percentage of share tenancy in tenanted land	60	79	29

^a Less than 0.05 per cent

^b Area in pure tenancy farms plus area in owner/tenant farms

Source: Hayami and Otsuka, Keijiro, 1993. *The Economics of Contract Choice*, St Martin's Press, New York:10–11 (based mainly on FAO, 1971. *1970 World Census of Agriculture: analysis and comparison of the results*, Food and Agriculture Organization of the United Nations, Rome).

Table 2.3 compares agricultural growth in the three economies from 1965 to 1995. Growth rates for total agricultural output were about the same for Indonesia and Thailand, but in Indonesia the per capita and per worker growth rates were somewhat higher. The growth rates for all three measures were lowest in the Philippines. In production per hectare, Thailand's growth was much slower than Indonesia's and comparable to the Philippines'. Thailand's slow growth in land productivity was partially a result of a major expansion of the cultivation frontier in the northeast, a region characterised by poor soil and unstable rainfall, and partially due to the relatively low diffusion rate of HYV rice.⁴

In terms of both environmental conditions and resource availability, Thailand's traditional comparative advantage was in rice production, while that of Indonesia and the Philippines was in tropical cash crops. It should not be surprising then that Thailand has long been the world's largest rice exporter, with its market share rising continually from 1961–65 to 1991–95

Table 2.3 Growth of agricultural production in Indonesia, the Philippines and Thailand, 1961–95

	1961/65	Index		Growth rate (per cent per year)		
		1976/80	1991/95	1961/65– 1976/80	1976/80– 1991/95	1961/65– 1991/95
Indonesia						
Total	100	157	309	3.0	4.5	3.8
Per capita	100	111	165	0.7	2.6	1.7
Per farm worker	100	138	232	2.1	3.5	2.8
Per ha ^a	100	157	263	3.0	3.4	3.2
Philippines						
Total	100	177	239	3.8	2.0	2.9
Per capita	100	116	111	1.0	–0.3	0.3
Per farm worker	100	134	156	2.0	1.0	1.5
Per ha ^a	100	137	165	2.1	1.2	1.7
Thailand						
Total	100	190	277	4.3	2.5	3.4
Per capita	100	123	140	1.4	0.9	1.1
Per farm worker	100	145	199	2.5	2.1	2.3
Per ha ^a	100	129	163	1.7	1.6	1.6

^a Per hectare of cropland (arable land plus land under permanent crop)

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

(Table 2.4). In contrast, Indonesia and the Philippines have remained net rice importers, though their import margins were significantly reduced by the Green Revolution. The effect of the Green Revolution was especially positive in Indonesia, where it made possible a high rate of growth in aggregate agricultural output despite relatively slow growth in cropland area (Tables 2.1 and 2.3).

Thailand's surprising rise as an exporter of certain tropical cash crops was associated with declines in exports from Indonesia and, more conspicuously, the Philippines. Sugar is a typical example. Before the Second World War Thailand was a net importer of sugar and in the early 1960s was barely self-sufficient. By the 1990s, however, it had become the third-largest exporter of sugar in the world, after Brazil and Australia. Meanwhile, Indonesia and the Philippines, two traditional Asian exporters of sugar, almost completely lost their significance in the international market. Thailand had also exceeded Indonesia in rubber exports and the Philippines in exports of pineapple products by the 1990s. Indonesia, however, achieved a major increase in its world market share of coffee, and maintained high shares of palm oil and rubber exports. Meanwhile, the Philippines was the loser in most of the tropical cash crops in which its traditional comparative advantage was supposed to lie, especially from the 1970s onwards. The strengthening of Thai agriculture's competitive position and weakening of the position of Philippine agriculture are clearly revealed in market share data (though comparative cost data are not available).

In the East Asian economic miracle that began in the 1960s and ended in the financial crisis of 1997, Indonesia and Thailand were 'high-performing economies' (World Bank 1993). The Philippine economy, however, staggered, especially in the 'lost decade' of the 1980s. Thus, per capita GNP in Thailand, about the same as that in the Philippines in the 1970s, had doubled by the early 1990s. At the same time, Indonesia's per capita GNP increased from about one-half that of the Philippines to about the same level.

It would be reasonable to expect that the differences among the agricultural performances of the three economies, as summarised here, would be one of the significant factors underlying the differences in their growth rates. The following sections aim to identify ecological and historical determinants of the agrarian structure unique to each of the three countries, and discuss how their different agrarian structures might be related to their different agricultural and economic growth rates.

Table 2.4 Net exports as a percentage of total world exports of selected agricultural commodities from Indonesia, the Philippines and Thailand, 1961–95

	Share of world market (percent)		
	1961165	1976180	1991195
Rice			
Indonesia	-11.0	-17.6	-3.5
Philippines	-3.0	0.5	-0.3
Thailand	19.4	18.7	26.1
Maize			
Indonesia	-0.1	-0.1	-0.8
Philippines	..	-0.2	-0.1
Thailand	3.6	2.9	0.3
Sugar ^a			
Indonesia	0.3	-1.4	-1.1
Philippines	7.3	4.0	0.6
Thailand	0.2	2.7	6.9
Coffee ^b			
Indonesia	1.0	4.5	4.9
Philippines	..	0.3	..
Thailand	-0.1	..	0.8
Coconut Oil			
Indonesia	..	-1.0	15.8
Philippines	39.8	69.4	60.4
Thailand	-0.1	-0.2	
Palm Oil			
Indonesia	17.8	14.5	13.9
Philippines	-0.9	-0.1	-0.1
Thailand		-0.6	
Rubber			
Indonesia	23.3	23.7	27.9
Philippines	-0.3	0.1	0.3
Thailand	8.8	12.9	32.6
Pineapple ^c			
Indonesia	7.8
Philippines	12.9	20.7	15.0
Thailand		16.9	45.9
Banana			
Indonesia	0.1
Philippines	..	8.0	5.4

^a raw sugar equivalent

^b green and roasted coffee

^c canned pineapple

Note: Negative numbers represent imports.

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT FAO

The basis of vent-for-surplus development

A basic element in this analysis is the classification of Southeast Asia into continental and insular regions, the former characterised by major river deltas and the latter by tropical rain forests. Of course, such characterisation is subject to the hazard of oversimplification, since it disregards wide ecological variations within each region.⁵

In Thailand, for example, the major delta of the Chao Phraya River encompasses only a part of the Central Plain, one of the country's four regions. The North is characterised by small river valleys amidst hills and mountains rising towards the Myanmar–China border, where irrigated rice farming *can* easily be practiced by tapping small streams, a system on which early Thai dynasties were built. The Northeast, which borders Laos, is characterised by undulating plateaux with sporadic rainfall and poor soil. It had remained relatively unsettled until recently, when Lao migrants settled in the region to take up risky rain-fed farming. The South, which borders Malaysia, was originally covered by rainforest has an environment similar to the insular region originally covered by rainforest.

Ecological variations within the insular region are equally wide. Especially pronounced is the difference in Indonesia between Java (and Bali) and Outer Islands such as Kalimantan and Sumatra. While much of the land in the Outer Islands is typically covered by tropical rain forest, the environment of Java and Bali is characterised by volcanic slopes with fertile soil and a steady water supply, which make much of these islands suitable for irrigated rice farming. The environment of the Philippines is largely similar to that of Indonesia's Outer Islands but is mixed with volcanic terrain similar to that of Java.

Despite these wide variations within the regions, in general it *can* be said that the continental region is characterised by major river deltas and the insular region by tropical rain forests. Despite the differences between them, both the continental and the insular regions formed the basis for economic development in Southeast Asia from the late nineteenth century to the early twentieth century. When expanded trade opportunities opened, it was the deltas of major rivers, such as Chao Phraya in Thailand, Irrawaddy in Myanmar and Mekong in Vietnam, that became the basis for vent-for-surplus development in continental Southeast Asia. In the insular region, on the other hand, it was rain forests that provided the basis for economic development.

Because the major river deltas in the continental region are very flat and low relative to sea level, they are almost completely submerged by floods during the rainy season but unable to store water in the dry season. Until the mid nineteenth century, floodplains in the major deltas defied human settlement, literally remaining empty land. Through major civil engineering works aimed at controlling flooding, the deltas were transformed into habitable and agriculturally productive land. In Thailand, water control was achieved through the development of a network of canals connected to the Chao Phraya River. These canals guide floodwater more evenly over wider areas, facilitating rice production, while their banks offer farmers usually flood-free living areas.

Canal construction in the Chao Phraya delta was begun by the government of the enlightened King Mongkut (Rama IV of the Chakri dynasty), shortly after the 1855 signing of the so-called Bowring Treaty with Britain, which opened the kingdom to trade with the West. Soon, increased foreign demand for Thai rice significantly raised both the price of rice and the value of rice-producing land, and attracted private investment. In 1889, the Siam Canals Land and Irrigation Company, established by a group of influential courtiers and wealthy Chinese traders, secured a concession to dig canals in a vast tract of swampy land northeast of Bangkok, along with rights to land reclaimed alongside the canals. The company's operation was managed by the Chinese business élite and its construction work was carried out by Chinese migrant labourers who worked for wages, unlike the *corvée* labour used in the King's previous projects. The farmers who settled on reclaimed land as tenants, however, were Thais who had migrated from other regions.⁶ There is little doubt that the opening of the Chao Phraya delta to rice production established the basis of the vent-for-surplus growth of the Thai economy, which in the late nineteenth century specialised in rice production. In the period 1905–09, the area planted to rice in the Central Plain was as large as 6.8 million rai,⁷ or 85 per cent of the kingdom's total rice-producing area. Although comparable data for earlier years are not available, this was certainly larger than the 1850 total rice-producing area of 5.8 million rai (Ingram 1971). The opening of the Irrawaddy and Mekong deltas to cultivation was no less important in the development of the Myanmar and Vietnamese economies in the same period.

A comparable role in the vent-for-surplus development of the insular part of Southeast Asia was played by tropical rain forests. Long before the

mid nineteenth century, rain forests had supplied valuable products for trade, such as cinnamon, cloves, birds nests, deer horn, and hides. The high incidence of malaria and other tropical diseases, however, prevented human settlement inside thick tropical forests at low elevation. Typically, native people lived on sea coasts and occasionally entered the forests to collect and extract natural products for sale to foreign traders or their agents who sailed the coasts. It wasn't until the late nineteenth century that Western capital and entrepreneurship began to convert the forests to plantations of tropical export crops, relying heavily on migrant workers from China for labour. Prior to this period, Western colonial powers had attempted to collect tropical products from the natives by tax and other coercive means; it was largely after the mid nineteenth century, however, that Western colonisers themselves began to produce export crops by establishing plantations in Southeast Asia.

Greater integration of Southeast Asia into the world economy in the late nineteenth century led to concurrent exploitation of continental deltas and insular forests. Even greater integration occurred when a free trade regime was established under the hegemony of Britain and ocean transport was revolutionised. Britain forcefully imposed the free trade system on native economies, either directly in its colonies or indirectly by forcing liberalisation on local sovereign and other colonial powers. Under the Bowring Treaty, Thailand conceded to Britain not only extraterritoriality but also lost financial autonomy. Export and import duties were fixed at the flat rate of 3 per cent ad valorem, and internal taxes such as excise taxes, transportation tolls and even land taxes were not allowed to change by will of the kingdom alone. Advisors from Britain carefully monitored public finance. For several decades after signing the Bowring Treaty, the Kingdom of Siam was effectively something like a British protectorate. The free trade system, both internationally and internally, was imposed on the kingdom in a way similar to that in which it was imposed on British colonies like Burma and Malaya.

Britain also pressed other Western colonies to adopt the free trade system. For example, its occupation of Manila from 1762 to 1764 during the Seven Years' War broke Spain's monopoly in the re-export of Chinese goods from Manila to Mexico. Manila was then opened up to other nations for transportation and commerce, and Britain continued to apply pressure on the Philippines to open up its ports until the mid nineteenth century (Larkin 1972).

The reason behind Britain's strong drive for free trade was its high manufacturing capacity, which established it as the 'workshop of the world' after the Industrial Revolution. During this period, British industries sought both markets for their products and sources of raw materials. Having established a modern factory system that could produce industrial products at lower costs than local cottage industries in the tropics, Britain found it advantageous to trade their manufactured commodities for tropical agricultural products and raw materials. This trade met import demands and replaced the forced collection of tropical commodities through taxes and other means, common under earlier colonial regimes such as those of the Spanish conquistadors in the Philippines and the Dutch East India Company in Indonesia. The British approach soon came to be adopted by other Western nations as they followed Britain in industrialisation.

As the West's industrial production capacity expanded, its demand for raw materials such as cotton, rubber and tin also increased. Moreover, as incomes and wages in the West rose, tropical delicacies such as pepper, coffee and tea, hitherto available only to the high-income élite, became common on the tables of ordinary working people. Thus, demand in the West for primary products from the tropics in general became incomparably larger.

This tendency was strengthened by major developments in ocean transport, that is, the introduction of the steamship and the opening of the Suez Canal in 1869. These two milestones made transportation costs from Bangkok to major ports in Europe lower than those from Bangkok to Thailand's old capital, Chiang Mai (Ingram 1971). If such developments had not occurred, it would have been impossible for bulky Southeast Asian commodities such as rice to find markets as far away as Europe (Furnivall 1948).

While advances in ocean transportation reduced the prices of Southeast Asian commodities in the West, they also reduced the prices of Western commodities in Southeast Asia. Thus, industrial commodities from the West flowed into Southeast Asia, out-competing local handicraft industries. De-industrialisation became common in the region (Resnick 1970). For example, Thailand, an exporter of cotton products prior to the 1850s, soon became a major importer (Ingram 1971). A corresponding shift of indigenous labour from manufacturing to primary production for export occurred. Together with labour migration from China and India, this shift facilitated the exploitation of previously unused natural resources, thus driving vent-for-surplus development.

The impact of international trade on specialisation in primary production can be seen in the development of sugar production in Negros, the Philippines. Prior to the opening of nearby Iloilo City as an international port in 1855, Negros Island was sparsely populated and largely uncultivated. From 1855 onwards, land on the island was rapidly developed for sugar plantations. At the same time, local weaving industries that made textiles for export in the environs of Iloilo were devastated by imports of cheap British cloth (McCoy 1982).

Under the global trade system created in the late nineteenth and early twentieth centuries, exchange took place not simply between industrial commodities in the West and primary commodities in Southeast Asia. Rice produced in the continental region was originally brought to Europe as cheap food for industrial labourers (with some re-exported to Latin America). Later, however, as plantations developed in the insular region, demand for rice as the basic subsistence food of plantation labourers expanded so fast that it could no longer be met by local suppliers. Correspondingly, the share of rice exported from the continental region to the insular region within Southeast Asia increased. Thus, the trade flows that emerged during this period were triangular: rice produced in the continental region was exported to the insular region, while tropical cash crops produced in the insular region by labourers fed on rice from the continental region were exported to Europe in exchange for industrial products. In this triangular trade flow, comparative advantage dictated regional specialisation. For example, when trade opened, sugar appeared to be a promising export industry in Thailand, however it was soon destroyed by imports from Indonesia and the Philippines (Ingram 1971). Thus, vent-for-surplus development in Southeast Asia based on the exploitation of hitherto unused land was reinforced by comparative advantage within the region, which was largely determined by ecological conditions.'

EVOLUTION OF AGRARIAN SYSTEMS

How the process of vent-for-surplus development influenced the formation of agrarian structures in Indonesia, the Philippines and Thailand (Table 2.2) may be summarised as follows.

- Thailand is characterised by a unimodal distribution of peasants or family farms, while large estate farms or plantations are insignificant and the incidence of tenancy is relatively low.

- Indonesia and the Philippines are split between the peasant sector, which grows mainly subsistence crops, and the plantation sector, which grows tropical cash crops.
- In contrast to the other two countries, the incidence of tenancy in the Philippines is high.
- The share of the landless population in the rural sector is highest in the Philippines.

The persistence of the peasant mode of production in the face of the emergence of the plantation system is commonly explained by the differing technological production requirements of subsistence food crops and export cash crops. Some would argue, however, that different farm sizes and the problem of landlessness in Southeast Asia (as well as in other parts in the world) stem from the theft of land by colonial and domestic élites rather than the technological factors of agricultural production.

Conditions of the plantation system⁹

Conventional explanations for the emergence of the plantation system refer to the economies of scale inherent in the production of tropical export crops (Baldwin 1956). However, only a small number of crops are subject to sufficiently strong economies of scale at the farm level to make a plantation necessary (Pim 1946; Wickizer 1951, 1960; Lim 1968; Hayami et al. 1990).¹⁰ In fact, examples of the successful cultivation by peasants of every so-called plantation crop can be found at least somewhere in the world.

Significant returns emerge only at the levels of processing and marketing. For a large-scale central processing and/or marketing system to be supplied with raw materials according to schedule, it must be vertically integrated with a large estate farm. A typical example is fermented black tea. The manufacturing of black tea at a standardised quality for export requires modern machinery into which fresh leaves must be fed within a few hours of being picked (Wickizer 1951, 1960). The need for close coordination between farm production and processing underlies the traditional use of the plantation system for black tea manufacture. In contrast, unfermented green tea remains predominantly the product of Chinese and Japanese peasants."

In the case of bananas for export, harvested fruits must be packed, sent to the wharf and loaded onto a refrigerated boat within a day. A boatload of bananas that can meet the quality standards of foreign buyers must be

collected within a few days. The production process from planting to harvesting must therefore be precisely controlled so as to meet shipment schedules. Although the plantation system has a decisive advantage over peasants in producing bananas for export, bananas for domestic consumption are usually produced by peasants.

For crops that do not require centralised processing and marketing, on the other hand, plantations have no significant advantage over peasants. Typical examples are cocoa and coconuts. The fermentation of cocoa and the drying and smoking of coconut meat to make copra can be done in small lots with no large capital requirement beyond small indigenous tools and facilities. Thus, these two crops continue to be grown predominantly by peasants.

Sugar is frequently cited as a classic case of an economy of scale stemming from the need to coordinate between farm production and large-scale central processing (Binswanger and Rozenweig 1986). Efficient operation of a centrifugal sugar mill requires a steady supply of a large amount of cane. Coordination is required from planting to harvesting to processing; however, this coordination need not be as stringent as it is for tea and bananas. If cane processing is delayed, then the rate of sugar extraction decreases; the loss incurred, however, is in no way comparable to the devastating damage that delayed processing can cause to the quality of tea and bananas for export. Because sugarcane can be transported relatively long distances and stored for several days, the need for vertical integration is not as great, and the necessary coordination can be achieved through contracts with cane growers on the time and quota of cane delivery. In fact, efficient sugar industries with smallholders have developed in Australia, Taiwan and, more recently, Thailand.

Another explanation for the use of the plantation system is the advantage large estates farms have in access to capital. This access, it has been argued, gives plantations an advantage in tree crops that can take years to produce a saleable crop after planting (Binswanger and Rosenzweig 1986). However, the opportunity costs of labour and capital incurred by peasants in the production of tree crops are not necessarily high, because peasants typically plant trees on unused land. If this land is located near their home, they open new land for planting using family labour at low opportunity cost during the idle season for crops on land already in use. When peasants migrate to frontier areas, they typically slash and burn jungles and plant subsistence crops such as maize, potatoes and upland rice, together with tree seedlings. Under the plantation system such complex intercropping,

involving the monitoring of labourers over a wide and ecologically varied area, is very difficult to manage (Brewster 1950; Binswanger and Rosenzweig 1986; Hayami and Otsuka 1993).

Even during the colonial export boom of tropical cash crops in the nineteenth and early twentieth centuries, the plantation system failed to make inroads in regions where the indigenous population had established family farms (Lewis 1970). Western traders found it more profitable to purchase tropical agricultural commodities from peasant producers in exchange for imported manufactured commodities than to produce the tropical crops themselves on plantations.

The establishment of plantations in less developed economies became a necessity where regions physically suited to produce the tropical products for which demand in industrialised nations was rising had no significant peasant population that could produce them and trade in them. The opening of frontiers to produce new crops entailed high capital outlays: virgin land had to be cleared and developed, and physical infrastructure such as roads, irrigation systems, bridges and docking facilities constructed; capital in the form of machinery and equipment had to be imported and redesigned to suit local conditions; and labourers imported from more populous regions had to be trained.

Plantations thus required huge initial capital investment. For investors to internalise gains from infrastructure investments, farms had to be large. From this perspective, the plantation system can be seen to have emerged not because it was more efficient than the peasant mode of production, but because it was the mode of agricultural organisation that could most effectively exploit sparsely populated virgin areas, typically in the process of vent-for-surplus development. From this perspective, it is easy to understand why the same crop tends to be grown by peasants in one place and plantations in another. For sugarcane production in the Philippines, for example, the peasant mode is more common in the older settled areas of Luzon, while the plantation system predominates in the newly opened Negros (Hayami et al. 1990). Usually, the peasants' share of cash crop exports rises as the initial land-opening stage continues and infrastructure is established with increased population density (Booth 1988).

While the economic advantage of the plantation system at the vent-for-surplus stage is clear, plantations could not have been established if they had not been granted concessions to large tracts of virgin land for their exclusive use. Typically, such concessions were given by colonial governments

to Western planters. For example, in response to a sharp rise in demand for tropical cash crops in the late nineteenth century, the Dutch colonial government, which had traditionally regulated against land purchases by foreigners, implemented the Agricultural Land Law of 1870, granting Dutch planters long-term contracts to lease land owned by the government but used by native tribes. While this new institutional arrangement should have accelerated the development of 'empty land' for cash crop production, it served as an instrument to pre-empt land for the élite and close smallholders' access to land. Similar public land-leasing arrangements made under the American colonial administration on frontier land in the Philippines, especially in Mindanao, created the conditions for the establishment of large plantations managed by multinational corporations (Hayami et al. 1990).

Land pre-emption and tenancy

The incidence of land tenancy is closely related to pre-emption of land, but land tenancy relationships can emerge among peasants in the absence of pre-emption. If a rural community isn't disturbed by external forces, one would expect its land tenure institutions to evolve gradually from communal to private ownership. Increased relative scarcity of land under mounting population pressure necessitates intensified land use, typically through shifting from long furrows to short furrows, to annual cropping, and further to multiple cropping each year using irrigation (Boserup 1965). This process of agricultural intensification requires major investments in land improvement, from the removal of stones and roots from newly opened land, to land levelling and terracing, and irrigation and drainage. To encourage such investment, land users must be granted exclusive land-use rights. Thus, land tenure institutions normally evolve from communal ownership to private ownership by steps, from the periodic re-allotment of communal land among community members to the granting of life-long usufruct rights, inheritable usufruct rights and private property rights amenable to market transactions.

Because individual land tenure can bring about increased production efficiency by improving the relationship between land and labour (including entrepreneurship) as it becomes longer and more exclusive, land tenancy arrangements tend to become institutionalised over time. When a farmer

finds his family lacking the labour needed to cultivate a land parcel on which a long-term usufruct is established (because of illness or other reasons), he may rent a part of it to a farmer with an excess of labour relative to land. It is a Pareto improvement if the latter pays the former a rent equivalent to the marginal productivity of the land. At the same time, land tenancy associated with private property rights can work as an institution to increase inequality in income distribution and social hierarchy within a community. An entrepreneurial farmer may rent more land, increase his income and eventually buy the land. As he accumulates more land than his family labour can efficiently cultivate, he may rent out part of his land to someone who has become landless for whatever reason. The increased income from his rent revenue added to his farm income may motivate him to purchase more land to rent. This process could progress at an increasingly fast rate as the relative scarcity of land rises under mounting population pressure.

Indonesia

Usually, however, the autonomous evolution of land property rights and tenancy relationships does not result in large-scale absentee landlordism as observed in several developing economies. Rather, it tends to stratify the peasantry along a continuous spectrum between landlord/owner and owner/tenant farmer. Although land tenancy is common, a majority of land remains under owner cultivation, and both non-cultivating landlords and pure tenants are still a minority. This type of agrarian structure is typically found in the peasant sector in Indonesia. Unlike other colonial powers, the Dutch tried not to impose Western institutions such as private property rights, but rather to preserve and even strengthen traditional community institutions and organisations. The Agrarian Law of 1870 granted long-term leases of virgin public land to foreign planters, but did not allow them to purchase or rent cultivated land from individual peasants. Instead, sugar planters were allowed to lease rice land through contracts with village heads, normally extending for fewer than 20 years. The lessee was allowed to occupy only one-third of the village land, which had to be rotated over three crop seasons. This rotation was designed to prevent planters from gaining a permanent hold on village land. Periodic re-allocation of village land under the direction of village headmen strengthened traditional tendencies toward communal landholding (Pelzer 1945).

Philippines

The Philippines presents a sharp contrast to Indonesia. From the time of conquest, the Spaniards introduced the notion of legal title to land (McLennan 1969). In the Philippines they applied the same principle they applied in other new territories: all land except that officially proved to be private or communal property belonged to the Spanish crown. The crown's property rights were established over vast areas of uncultivated land, including areas used as commons by native people. Much of the royal domain was granted to conquistadors and monastic orders such as the Augustinian and Franciscan friars. This institutional development in the early Spanish era represented a wholesale pre-emption of usable land, closing access to native people. Later, as the population increased and foreign demand for Philippine products increased with trade liberalisation, large landholdings created from earlier royal grants became the basis of plantations in the uplands and rice haciendas manned by tenants in the lowlands. Native peasants, however, could gain no access to land ownership. For example, when the inner part of Central Luzon, previously covered by jungle and used only for cattle ranching, was finally converted to large rice haciendas in the late nineteenth century, many peasants migrated from the north in the belief that they had settled in no man's land. Having opened the jungle, they were told by the agents of landowners to pay rent as tenants on haciendas (Hesters and Mabun 1924).

Pervasive landlordism in the Philippines is also rooted in relatively free land transactions carried out under the Spanish regime. Chinese and Chinese mestizos who engaged in internal trade along littorals where native peasants held traditional land rights acquired land through money lending using land as collateral. A common arrangement had the borrower continuing to cultivate his land as sharecropper to his creditor during the loan period. If the borrower was unable to repay the loan at the end of the loan period, the land title shifted to the creditor and the borrower usually continued his sharecropping (McLennan 1969). The scale of landholding accumulated through this process in the coastal area was typically much smaller than that of haciendas in the inner part of Central Luzon (Hayami and Kikuchi 1981). Thus, before the Marcos land reform of the 1970s, most rice-producing land in the Philippines was cultivated by share tenants, who typically owned no land of their own. Pervasive landlordism in the rice sector and plantations in the cash crop sector characteristic of the traditional

indigenous agrarian structure were both rooted in the pre-emption of land that occurred during the Spanish period.

Thailand

Pre-emption also occurred in Thailand at the vent-for-surplus stage, when land concessions were granted to private canal builders in the Chao Phraya delta. As a result, there is a significant incidence of tenancy in the Central Plain, especially in the Rangsit area northeast of Bangkok, where the private company carried out intensive canal construction. Yet, tenancy in Thailand as a whole is of minor importance in comparison to tenancy in Indonesia and the Philippines, partly because of relatively abundant land but more importantly because of government policies. According to ancient Thai custom, every man had the right to take as much land from the state as he and his family could cultivate, normally 25 rai (equivalent to 4 hectares). This institution was maintained even after the opening of trade with the West. The Consolidated Land Act of 1908 did not specify an exact area, but in practice the area ranged between 20 and 50 rai. The Land Act of 1936 specified 50 rai as the maximum a farmer could take. These laws kept land access open to ordinary Thais." This situation was very different from that in the Philippines. Both the 1908 and 1936 Thai laws incorporated another old custom, which granted a cultivator title to land only after he had cultivated it for three years. This clause, along with land taxation applied to both cultivated and uncultivated land, discouraged the holding of idle land for speculation (Ingram 1971).

The major differences in land policies between the Philippines and Thailand stemmed from the different cultures or value systems of the Spanish colonial rulers and the rulers of the independent kingdom. The reason for the Dutch colonial rulers' attempts to preserve traditional village institutions in Indonesia might have been their understanding that they needed to maintain social stability in order to be able to extract tropical agricultural products from the colony at minimal administrative cost, as argued by Furnivall (1944, 1948).

It is also important to note that pre-emption of rice land through canal construction in Thailand foreshadowed the emergence of large-scale landlordism, but not the formation of plantations, as in the Philippines. The large holdings of landlords were usually subdivided into small parcels for rice cultivation by the family labour of landless peasants under tenancy

contracts. The owners of large tracts of rice land who had established their titles through land pre-emption, for example by obtaining canal-digging concessions in the Chao Phraya delta, preferred tenancy to plantation operations. One reason for this preference may have been the difficulty of task standardisation and hence of worker supervision in rice production. Another reason could have been the fact that paddy, unlike black tea and bananas for export, is storable, making close coordination between farm production and processing/marketing unnecessary. Although rice milling and marketing for export involve significant economies of scale, the operators of this business could secure an adequate supply of paddy through ordinary market transactions. As a result, there was no need to vertically integrate farm production with processing and marketing using a plantation or contract farming system.

It seems reasonable to postulate that if the nature of rice milling technology were such that it required close coordination with paddy production, large rice plantations would have been established in the Rangsit area, where territorial concessions were granted to private canal builders.

Outside the newly opened delta area, in the previously settled North region, the practice of tenancy is fairly common. The agrarian structure in Thailand's North, which did not experience pre-emption, is like the peasant sector in Indonesia in that it is characterised by a continuous spectrum from landlord/owner to owner/tenant farmers.

AGRARIAN STRUCTURE AND AGRICULTURAL GROWTH RATE

There is evidence to suggest that differences among the three economies' agricultural growth rates in recent decades can be explained, at least in part, by the differences among their agrarian structures, which emerged along different historical paths under different ecological conditions. This section addresses two questions.

- Why have Indonesia and the Philippines, which both had a strong comparative advantage in tropical cash crops such as sugar before the Second World War, lost ground to Thailand in world market share in more recent years (Table 2.4)?
- Why was the agricultural growth of the Philippines so much slower than Indonesia and Thailand's (Table 2.3)?

Losing ground to plantations

We have argued that the efficiency of the plantation relative to that of the peasant system during the early stages of land-abundant and labour-scarce economies is high. After land opening, however, as tropical economies shift from the land-abundant to the land-scarce stage, several negative aspects of plantations become significant.

Capital for labour. Because ecologically diverse farm operations are inherently difficult and supervision of wage labourers working over a wide area is problematic, and because plantations have relatively easy access to both private credit markets and government concessional loans, the plantation system tends to substitute capital for labour. However, in developing economies characterised by a high number of labourers relative to capital, this substitution can be socially inefficient.

Less intensive cultivation. In the plantation system, which mainly employs wage labour and usually practices monoculture, agricultural land tends to be cultivated less intensively. Complicated intercropping and crop-livestock combinations are more difficult to manage in the command system, thus both labour input and income per hectare on plantations tend to be lower.¹³ This is a source of inefficiency, since it means that with population growth land becomes scarce relative to labour. In contrast, small family farms tend to cultivate land more intensively.

Crop specialisation. Plantations tend to specialise in a single crop. This tendency reduces their capacity to respond to changing demand by shifting to other crops. Moreover, continual monocropping tends to degrade soil and increase pests. Fertiliser and chemicals put serious stress on the environment and on human health, and they are expensive.

Task specialisation. Specialisation of plantation workers in specific tasks inhibits the development of their managerial and entrepreneurial capacity (Baldwin 1956; Myint 1956; Beckford 1972).

Class conflict. The plantation system is a source of class conflict between labourers and managers/capitalists. The presence of a plantation enclave in rural economies where the peasant mode of production predominates has often strained relations in rural communities. From the standpoint of social stability, the plantation system is no match for the system of relatively homogeneous small-scale producers owning small assets, however small they might be.

Although Southeast Asia was traditionally endowed with relatively abundant land ready for resource exploitation, the explosive population growth experienced by developing economies after the Second World War led to the progressive closure of frontiers for opening new land. It seems reasonable to assume that the advantage of the plantation system declined while that of the peasant system increased correspondingly during this period. It is no wonder then that the smallholdings-based Thai agricultural sector began to perform better than the plantation-based Indonesian and Philippine agricultural sectors.¹⁴ Major increases in Thai exports of non-rice agricultural commodities such as rubber, kenaf (hibiscus cultivated for its fibre) and cassava tips were based entirely on smallholder production. While non-rice exports in Thailand were, to a significant extent, supported by open frontiers that enabled relatively fast increases in cultivation area (Table 2.1), the important point is that the frontiers were exploited by smallholders and not plantations.

Relative increases in the efficiency of the peasant system were not limited to Thailand. The dramatic rise in Indonesia's share of world coffee and cocoa markets was also based entirely on smallholder production (Akiyama and Nishio 1996). Although some Philippine coconut plantations continued to operate, especially in Mindanao, it was coconut oil extracted from copra produced by smallholders that contributed most to the Philippines' capacity to maintain its high world market share of coconut oil production.

One advantage of the plantation system is better coordination between large-scale processing and marketing and farm-level production. The peasant system could gain this same advantage by organising contract farming, in which an agribusiness firm manages processing and marketing but contracts peasant farmers to supply farm products. In return for their agreement to supply crops, the firm provides the peasants with technical guidance, credit and other services. In this way, the system can take advantage of peasants in farm production without sacrificing economies of scale in processing and marketing.

Contract farming depends not only on farmers' labour, but also on the management ability of rural people in developing economies. The system has enabled Thailand, a relative newcomer to canned pineapple production, to surpass the Philippines, the former leading exporter, whose pineapple production is based on large plantations in Mindanao.¹⁵

The dilemma of land reform

We now turn to the question of how landlessness in the Philippines and land reform programs might be related to the relatively poor performance of agriculture in this economy.

Attempts to mitigate social unrest rooted in pervasive landlordism in the Philippines by means of redistribution extend back to the US colonial regime. The framework of reform applied in the past four decades, however, was established by the Agrarian Land Reform Code of 1963, enacted under President Macapagal (Hayami et al. 1990).

The major feature of the Code was the creation of owner/cultivators in rice and maize. This involved two steps

- Operation Leasehold converted share tenancy to leasehold tenancy with rent fixed at 25 per cent of the average harvest value for the preceding three normal years
- Operation Land Transfer transferred land ownership to tenants.

In the latter operation, the government expropriated land in excess of a landlord's retention limit (75 hectares) and compensated landlords with 10 per cent of the land value in cash and the balance in interest-free redeemable Land Bank bonds. The land was then resold to tenants for annual amortisation payments, to be completed within 25 years. In 1971 under President Marcos, the Code was amended to extend land reform to the entire nation, with all share tenants being converted to leaseholders. The 1971 Code was enforced by Presidential Decrees No. 2 and No. 27 under the Martial Law proclaimed in 1972. The landlord's retention limit was successively reduced from 75 to 7 hectares, and the period for amortisation payments was shortened to 15 years. It is easy to enumerate the shortcomings of the land reform programs carried out in the Philippines, yet there is no denying that large haciendas in Central Luzon were broken up and most tenants acquired the status of leaseholders or amortising owners, although sizeable areas remained under the direct administration of landlords.

It is clear that the beneficiaries of land reform captured a large economic surplus because of increased rice yields due to irrigation development, new varieties and fertiliser, while rent and amortisation payments remained fixed. **Thus**, land reform has been successful in transferring much of the economic benefits from absentee landlords to former sharecroppers. **On** the other hand, land reform has created serious income inequality within village

communities, because strong population pressure has prevented wage increases despite agricultural productivity gains, and income of landless labourers has not risen.

The regulatory nature of the reform programs applied in a discriminatory manner to a certain agricultural sector resulted in major distortions in resource allocation. The application of land reform mainly to land with tenants gave landlords a strong incentive to evict their tenants and cultivate their land themselves. However, because it is difficult to supervise wage labourers, agricultural production and labour income per hectare in small family farms are usually higher than in large farms that use hired labour. The exemption of land under the direct administration of landlords, therefore, has reduced labour input per hectare to a below-optimum level and thereby reduced the income of labourers.

Equally serious were regulations on tenancy contracts—especially the prohibition of share tenancy and rent control—that reduced the incentive of large landholders to rent their land in small parcels. These regulations applied not only to landlords but also to the beneficiaries of land reform. As the income of former sharecroppers who had been converted into leaseholders or mortgising owners rose significantly, many of them retreated from arduous farm work, leaving it to landless labourers. However, because their formal titles required them to work the land themselves, they hesitated to sublet their holdings to the labourers, since if the sub-lessees proved to the agrarian reform office that they actually tilled the land then the lease would be transferred.

Thus, land reform beneficiaries had to continue to use hired labour in cultivation, even if they could not work themselves because of sickness, old age or involvement in non-farm activities. Inevitably, then, an imbalance between land and labour arose.

The negative effects of land reform on production efficiency were also significant outside the rice and maize sectors. Although the cash crop sector was not covered by reform programs (the Comprehensive Agrarian Reform Law of 1988 intended to cover cash crops was not significantly implemented), landowners still fear the eventual expropriation of their land and thus have stopped investing in improvement of their land, including in tree planting. Some landowners have even preferred to leave their land lying idle rather than use it for agricultural production. This was often the case in frontier regions like Mindanao, which might be a reason for the Philippines' low rate of cropland expansion compared to that of Thailand (Table 2.1). Clearly,

the Philippines' poor performance in competition for world export markets is rooted in this uncertainty (Table 2.4).

TOWARD POLITICAL ECONOMY

It appears that major differences in agrarian structure have been a significant factor underlying the differences in agricultural growth among the three economies in recent years. As frontiers of new land for cultivation progressively closed, the initial advantage of the plantation system in large-scale land development began to be outweighed by its disadvantage in monitoring hired labour. Correspondingly, the advantage of family labour that needed little or no supervision in the peasant system increased. This trend seems to have manifested in more recent years in the growing share of world exports of tropical cash crops from Thailand, crops in which Indonesia and the Philippines formerly had comparative advantage. Furthermore, land reform programs in the Philippines designed to reduce inequality in land ownership have rendered land markets inactive, resulting in major distortions of resource allocation and serious underinvestment in agriculture.

There are, of course, many factors other than agrarian structure that have contributed to the three economies' differing agricultural growth rates. For example, one factor commonly cited to explain the poor growth rate of Philippine agriculture is the government's prolonged industrial protection policy geared to import substitution, under which the agricultural sector was penalised by high tariffs on manufactured commodities and overvalued exchange rates (Ariff and Hill 1985; Bautista 1987; Intal and Power 1989). Other obvious factors include a state monopoly in the trade of sugar and coconut products, heavily tinted with cronyism in the later stages of the Marcos regime (Hayami et al. 1990). In the 1980s, under the Aquino regime, political instability resulting from the downfall of the previous Marcos administration discouraged both domestic and foreign investment in agriculture as well as in other sectors.

In contrast, Thailand had already begun to shift its strategy from import substitution to export in the 1970s, almost two decades ahead of the Philippines (Warr 1993; Warr and Nidhiprabha 1995). Also, the Thai government intervened very little in private agricultural marketing activities. Government control on trade was largely limited to indirect measures such as an export tax on rice (rice premium). Traders, who ranged from small collectors of farm produce at the village level to large exporters to foreign markets, competed strongly and coordinated among themselves, and became

highly efficient at delivering imported goods to farmers. Their activities were facilitated by major public investments in infrastructure, especially highways. This free trade system, supported by government provision of public goods, both increased the competitiveness of Thai rice production and encouraged the production of new export crops, thus promoting agricultural diversification (Siamwalla et al. 1990; World Bank 1987).

Importantly, however, it is unlikely that such differences in government policies are ever independent of differences in agrarian structure, ecological conditions and historical development. For example, Hara (1994) argues that import substitution was pursued more strongly in the Philippines than in Thailand and other ASEAN economies because the business elite who benefited from industrial protection in the Philippines originated from the landed oligarchy, therefore little countervailing power was mobilised against industrial protection. In contrast, the rural countervailing power in Indonesia, Malaysia and Thailand was comparatively strong, because the urban business elite were predominantly ethnic Chinese. The rather harmonious division of labour between Thai farmers and Chinese traders that developed in the Siam kingdom may also have prevented the modern Thai government from adopting anti-market and anti-trader interventions.

Further evidence of the remarkable success of the Green Revolution in Indonesia can be found in the rapid growth of land productivity in the country, the fastest among the three economies. This growth was based largely on the Suharto government's strong support of the rice sector, which continued for three decades and took the form of investments in irrigation and agricultural research and extension, and subsidies for inputs and credits. These supports helped Indonesia overcome the sorts of problems that seriously damaged agriculture in oil-producing economies such as Nigeria in the 1970s–early 1980s (Hayami 1997). Apparently, Suharto's policy was designed to help maintain stability in the country by protecting peasants, regarded as the stabilising block of society

In the 1970s, the *Masagana 99* Program in the Philippines promoted the Green Revolution by distributing new varieties, subsidised fertiliser and other inputs to farmers. In the absence in the Philippines of 'peasant fundamentalism' comparable to Indonesia's, however, the program only lasted about 10 years (Hayami and Kikuchi 2000), and the rice self-sufficiency achieved in the Philippines in the 1970s could not be sustained in the 1980s. In contrast, Indonesia rose from being the world's largest rice importer in the 1970s to self-sufficiency in the 1980s (though, as a result

of the recent financial crisis associated with the downfall of Suharto, the country has again become a major importer). Meanwhile, in Thailand, under liberal trade policies, government support to promote fertiliser use was not effective (World Bank 1987).

Theories about political economies are now largely conjecture. Yet, a nation's agrarian structure and value system, created under unique historical and ecological conditions, should have a far-reaching influence on policy choices. Analysis of these relationships will be a major challenge for future research. If such analysis was extended beyond a single region and used to compare regions, it could shed light on major questions in world development, for example, why does Africa lag behind in adopting innovations in agricultural technology comparable to the Green Revolution in Asia?

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NOTES

- ¹ The 'vent-for-surplus' theory (Myint 1965, 1971) focused on the development of 'empty land' with low population density, large unused tracts and abundant natural resources, typically found in Southeast Asia and East Africa at the onset of Western colonisation. When these economies had been integrated into international trade, their natural resources (previously of no value to indigenous people) acquired market value, since they could be used to produce primary commodities of high demand in the West. In this way, previously 'unused' resources became the source of economic development.
- ² For a more comprehensive assessment of agricultural growth in Asia, including Southeast Asia, see the Asian Development Bank's five-volume *Study of Rural Asia* report. Especially relevant to this section are the report's overview: *Rural Asia: beyond the Green Revolution* (Asian Development Bank 2000); volume 1: *Transforming the Rural Asian Economy: the unfinished revolution* (Rosegrant and Hazell 2000); and volume 2: *The Growth and Sustainability of Agriculture in Asia* (Kaosa-ard and Rerkasem 2000). Another major study specifically addressed to Southeast Asian agriculture, entitled *Dynamism of Rural Sector Growth: policy lessons from East Asian countries*, is in progress at the World Bank.

- ³ Huke and Huke (1997) estimate paddy area in Indonesia, the Philippines and Thailand in the mid 1990s at 9,441,000, 3,456,000, and 9,806,000 hectares, respectively, though they do not specify to which years these figures pertain. The substitution of Hukes' estimates for the data used in Table 2.1 does not change the conclusion of this paper.
- ⁴ In Thailand's flood-prone Chao Phraya delta areas and the drought-prone areas in the country's northeast, short-statured modern varieties were difficult to grow. Also, Thai farmers were slow to adopt the modern varieties because of their low value as exports.
- ⁵ The descriptions of Southeast Asian ecological and environmental conditions given here are mainly based on Takaya (1985).
- ⁶ While the corvée obligation was replaced by tax-in-kind or money, slavery was also gradually phased out under the reigns of Kings Mongkut and Chulalongkorn, ending in 1905 (Ingram 1971; Feeny 1982). The elimination of slavery and the corvée should have been an important factor contributing to the allocation of a greater share of Thai labour to rice cultivation.
- ⁷ One rai equals 0.16 hectares.
- ⁸ Comparative advantage based on natural resource endowments was reinforced by colonial policies on farmlands and public investments in physical and institutional infrastructure. For example, a strong sugarcane research program organised by the Dutch colonial government significantly strengthened the international competitiveness of the Indonesian sugar industry (Evenson 1976).
- ⁹ This section draws heavily on Hayami (1994, 1996).
- ¹⁰ Absence of economies of scale in agriculture is also attested to by estimates of aggregate production based on inter-country, cross-sectional data (Hayami and Ruttan 1985).
- ¹¹ It is not imperative to employ the plantation system in the manufacture of black tea. In Taiwan, smallholders produce both green and black tea with small-scale equipment. It can also be argued that plantations have used the large fermentation plant as a device to enforce work schedules and standardise product quality for export. In fact, farm production by smallholders based on the system of contract farming has recently been developed in Kenya (Lamb and Muller 1982).
- ¹² All forestlands were state-owned but accessible to all, except valuable teak forests, which were an important source of the Kingdom's revenue (Feeny 1999).
- ¹³ Official statistics often record that yield per hectare of cash crops such as coffee and rubber are higher on plantations than when grown by smallholders. However, these statistics do not take into account various products intercropped by smallholders with principal cash crops, whereas monoculture is the common practice on plantations.
- ¹⁴ In addition to this disadvantage, the plantation sector in post-independence Indonesia, which expropriated the estates of Dutch planters, seems to have suffered from the inefficiency common to state enterprises. Attempts to solve this problem include the 'nuclear estate' scheme, by which a state plantation acts as a processing and marketing centre with a

demonstration farm for technical extension, and smallholders are organised as in contract farming. These attempts have often been marred by the direct application of plantation technology and practice without an understanding of smallholder conditions (Barlow and Tomich 1991). The case of Indonesia contrasts with that of Malaysia, where private plantations are relatively highly efficient and are well supported by a cooperative research and extension system.

¹⁵ However, a high degree of entrepreneurial and managerial skill is needed to organise and operate an efficient contract farming system. It is not easy to enforce contracts that stipulate quantity, quality and time of product delivery with a large number of smallholders. Agribusinesses that do not have the necessary skill often fail at contract farming. Thus, the performance of contract farming so far has been mixed, even in Thailand (Siamwalla 1992). The same operational necessities apply in other regions, including Africa, where it is reported that contract farming organised by government agencies is usually inefficient (Jaffee and Morton 1995).

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3

GROWTH OF THE AGRICULTURAL SECTOR: ARE THERE PECULIARITIES WITH SOUTHEAST ASIA?

Takamasa Akiyama

Agricultural growth, which in developing regions has differed significantly over the past four decades, is widely regarded as an important basis for economic growth (for example, Johnston and Mellor 1961; Hayami and Ruttan 1985; Mundlak 1986). For example, in most Asian countries the growth rate of agricultural GDP far exceeded that of the population, while in many African countries the reverse was the case. Also, during the period 1972–92, while some countries' agricultural exports tripled, many others' declined significantly (World Bank 1996:Chapter 4). Only a few studies have quantitatively examined regional differences in agricultural growth (for example, Hayami and Ruttan 1985; Stern 1996), however, and more are needed. Such research would help to identify some of the sector's regional and country-specific idiosyncrasies and some of the causes and consequences of its development, thus deepening our understanding of the mechanisms and dynamics of agricultural growth and its impact on overall economic growth and poverty reduction.

The main objective of this chapter is to identify prominent characteristics of agricultural growth in Southeast Asia in general and Indonesia, the Philippines and Thailand in particular, in comparison with other developing regions and countries. In the first section, we examine the movements of key statistics such as agricultural GDP, labour, production, land, and land and labour productivity in order to make a regional comparison of sectoral development over the past 30–40 years. We then evaluate some of the variables that have influenced sectoral development and corresponding

policies, and in the same context examine investment and capital accumulation in agriculture and direct protection rates. In the third section, we quantitatively examine some of the consequences of agricultural development with a focus on overall income growth and poverty.

THE SOUTHEAST ASIAN AGRICULTURAL SECTOR

Agriculture in Southeast Asia has performed considerably better than in other developing regions over the past four decades (Table 3.1). For the period 1961–98, agricultural value added in Southeast Asia increased at 3 per cent per year, the highest growth rate among developing regions. This growth was driven by both area expansion and land productivity increases, the former contributing to about one-third of growth and the latter to about two-thirds. This was achieved with a relatively small increase in agricultural labour (1.6 per cent per year), resulting in a high growth rate for agricultural labour productivity, at 1.5 per cent per year the second highest figure among developing regions after Latin America.

In the late 1990s, Southeast Asia's agricultural GDP per agricultural labourer was the second highest among developing regions after Latin America, and about double that of South Asia and West Africa and four times as much as that of East and Southern Africa (Table 3.2). The region's labour productivity, however, was much lower than that of Latin America, probably because of a considerably lower land-to-labour ratio (0.99 hectares per person in Southeast Asia and 17.1 hectares per person in Latin America). In Southeast Asia over the past two decades, despite a large increase in absolute terms, agricultural GDP's share of total GDP declined from 24 per cent to 15 per cent, a much larger decline than in other developing regions. This pattern of Southeast Asian agricultural growth and structural change matches the typical economic development pattern described by Timmer (1988) and Hayami (2001).

In order to analyse the components of agricultural labour productivity, we examine the growth of land productivity of, and area per, agricultural worker, a breakdown that indicates which components contributed to agricultural labour productivity growth. This can be expressed algebraically as follows

$$gr(q/l) = gr(q/a) + gr(a/l) \quad (3.1)$$

where gr is growth rate, q is agricultural GDP, l is agricultural labour, and a is agricultural land. The first term on the right-hand side of the equation is

Table 3.1 Annual growth rate of agricultural GDP by regions

	Growth rate of agricultural value added (per cent)			Growth rate of agricultural land (per cent)			Growth rate of agricultural labour (per cent)		
	1961	1981	1961	1961	1981	1961	1961	1981	1961
	-80	-98	-98	-80	-98	-98	-80	-98	-98
IPT ^a	4.03	2.75	3.28	0.82	0.54	0.83	1.54	1.54	1.67
Indonesia	3.84	3.13	3.70	-0.09	0.66	0.34	1.11	1.86	1.64
Thailand	4.71	3.28	4.05	2.67	0.46	1.67	2.22	1.02	1.69
Philippines	3.82	1.43	2.38	1.64	0.29	1.22	1.98	1.25	1.57
China	3.45	4.48	4.24	1.24	1.02	1.45	1.90	1.25	1.66
Southeast Asia	4.17	2.60	3.04	0.83	0.74	0.92	1.52	1.47	1.62
South Asia	2.32	3.21	2.83	0.24	0.02	0.12	1.61	1.28	1.41
West Africa	0.65	3.12	1.74	0.11	0.32	0.19	1.30	1.44	1.32
Southern and									
East Africa	2.39	1.98	2.14	0.17	0.07	0.14	2.15	2.35	2.36
Latin America	3.49	2.09	2.50	0.80	0.42	0.60	1.07	-0.17	0.51
	Growth rate of agricultural value added/agricultural land (per cent)			Growth rate of agricultural value added/agricultural labour (per cent)			Growth rate of agricultural land/agricultural labour (per cent)		
	1961	1981	1961	1961	1981	1961	1961	1981	1961
	-80	-98	-98	-80	-98	-98	-80	-98	-98
IPT ^a	3.22	2.23	2.55	2.50	1.21	1.74	-0.72	-1.02	-0.83
Indonesia	3.93	2.52	3.18	2.74	1.28	1.97	-1.19	-1.24	-1.29
Thailand	1.99	2.89	2.28	2.44	2.32	2.29	0.45	-0.57	0.01
Philippines	2.25	1.15	1.28	1.83	0.18	0.90	-0.42	-0.95	-0.35
China	2.28	3.57	2.79	1.67	3.34	2.55	-0.66	-0.23	-0.25
Southeast Asia	2.92	1.89	2.16	2.54	1.14	1.49	-0.69	-0.75	-0.70
South Asia	2.14	3.19	2.74	0.73	1.93	1.43	-1.37	-1.25	-1.31
West Africa	0.50	2.80	1.51	-0.30	1.67	0.45	-1.21	-1.12	-1.13
Southern and									
East Africa	2.20	1.91	2.05	0.18	-0.40	-0.26	-1.98	-2.31	-2.22
Latin America	2.80	1.67	2.02	2.42	2.26	2.31	-0.26	0.58	0.08

^a Indonesia, the Philippines and Thailand.

Notes: Southern and East Africa does not include South Africa. Latin America does not include Trinidad and Tobago. The growth rates were estimated using linear and semilog regression models and selecting the one with the highest R² statistic. In the linear case, the growth rates were calculated dividing the coefficient by the mean of the period considered. Estimates that involve agriculture value-added for Southeast Asia, West Africa, Southern and East Africa, and Latin America begin in 1970 and 1965 for South Asia.

Source: World Bank, n.d. *World Development Indicators Online*, <http://worldbank.org/data/online-databases/online-databases.html>; Food and Agriculture Organization, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

Table 3.2 Agricultural value added, land and labour

	Agricultural value added (dollars)		Agricultural value added (dollars/agricultural worker)		Agricultural value added (dollars/hectare)	
	1981–83	1996–98	1981–83	1996–98	1981–83	1996–98
IPT	48,149	71,922	747	884	705	965
Indonesia	22,555	35,887	620	744	595	851
Thailand	11,909	19,466	665	932	605	919
Philippines	13,685	16,569	1,348	1,350	1,276	1,478
China	75,721	156,273	179	307	167	292
Southeast Asia	57,302	83,868	861	1,007	779	1,017
South Asia	81,539	131,343	298	395	367	588
West Africa	14,666	23,263	364	465	53	80
Southern and East Africa	7,674	10,567	242	233	56	76
Latin America	94,138	129,788	1,211	3,112	140	182
	Agricultural land (ha/ag.worker)		Agricultural value added as share of total GDP (per cent)		Agricultural labour as a share of total labour (per cent)	
	1981–83	1996–98	1981–83	1996–98	1981–83	1996–98
IPT	1.0606	0.9159	23.8	15.4	59.0	50.6
Indonesia	1.0436	0.8740	27.0	16.8	57.3	50.4
Thailand	1.0982	1.0143	20.4	11.5	69.5	58.8
Philippines	1.0571	0.9136	22.8	20.5	51.0	41.4
China	1.0721	1.0522	39.5	18.8	73.5	68.3
Southeast Asia	1.1053	0.9903	24.1	14.8	58.0	49.1
South Asia	0.8113	0.6725	34.5	25.1	68.3	59.9
West Africa	6.8922	5.8045	29.3	31.6	65.2	54.6
Southern and East Africa	4.3370	3.0725	25.3	27.2	78.3	72.9
Latin America	15.7450	17.0867	7.9	7.3	32.9	21.4

Notes: Southern and East Africa does not include South Africa. Latin America does not include Trinidad and Tobago. All dollar figures are 1995 US\$ millions.

Source: World Bank, n.d. *World Development Indicators Online*, http://www.worldbank.org/data/online_databases/online_databases.html; Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

land productivity growth and the second term is the growth rate of area per agricultural worker.

These components are shown in Table 3.1, and they show that land productivity growth in Southeast Asia over the past four decades was second highest among regions after South Asia. Another characteristic of the Southeast Asian agricultural sector is that the growth rate of agricultural land per worker over the past four decades has declined at a rate of 0.7 per cent per year, much lower than the rates of South Asia (1.3 per cent), West Africa (1.1 per cent) and Southern and East Africa (2.2 per cent).

The trends of the land-to-worker ratio vary significantly among the three study countries. Thailand's ratio declined modestly (0.6 per cent per year), while the declines in Indonesia (1.2 per cent per year) and the Philippines (1.0 per cent per year) over the past two decades have been more significant.

Although the agricultural sector grew rapidly over the past four decades in Southeast Asia in general, important differences in sectoral development can be seen among the study countries. Thailand achieved the highest agricultural GDP growth rate of the three (Table 3.1) at 4.1 per cent per year, to which land expansion contributed 40 per cent. The contribution of land expansion to agricultural GDP growth in the Philippines was similar, but the rate of growth was much lower at 2.4 per cent per year. Conversely, Indonesia's growth of 3.7 per cent per year was almost all due to land productivity growth, which contributed 90 per cent.

One of the most prominent characteristics of the agricultural sectors of many countries in East Asia is that they are strongly influenced by heavy monsoon rains during the summer and relatively less rain during other periods of the year (Oshima 1987). Under this weather pattern, it is difficult to grow crops other than rice, hence rice is both the main crop and the main staple in these countries. The average rice share¹ of agricultural land was over 60 per cent for Southeast Asia in the late 1990s (Table 3.3). The shares in the three target countries ranged between 58 and 64 per cent. It is notable that Indonesia, traditionally a rice-importing country, increased its rice share from 39 per cent in the early 1960s to 64 per cent in the late 1990s. This reflects Indonesian efforts to gain self-sufficiency in rice. In contrast, Thailand, the world's largest rice exporter, reduced its rice share from 60 per cent to 58 per cent during the same period, the result of the diversification of Thai agriculture over the past four decades. The rice area share in the Philippines has remained relatively stable since the early 1960s at around 65 per cent. The rice share of South Asia was about one-half that

Table 3.3 Production, growth rate and land share for rice, by region

	Rice production (⁰⁰⁰ metric tons)			Rice share of land arable (per cent)			Rice production (metric tons/ hectare)		
	1961	1981	1996	1961	1981	1996	1961	1981	1996
	-63	-83	-98	-63	-83	-98	-63	-83	-98
IPT ^a	27,325	59,867	83,160	49.24	53.70	61.77	1.66	2.76	3.35
Indonesia	12,228	33,887	49,893	38.65	50.99	63.96	1.76	3.69	4.35
Thailand	11,190	18,067	22,899	60.24	53.85	57.90	1.75	1.96	2.36
Philippines	3,907	7,913	10,369	64.39	62.50	66.44	1.24	2.42	2.83
China	66,111	161,237	200,125	26.91	33.21	25.63	2.38	4.77	6.29
Southeast Asia	28,460	61,747	85,254	49.60	53.95	60.72	1.67	2.76	3.34
South Asia	72,309	111,191	166,534	25.43	27.91	30.07	1.54	2.04	2.85
West Africa	1,199	2,800	6,411	2.42	3.59	6.16	1.02	1.43	1.65
Southern and East Africa ^b	1,618	2,391	3,051	4.46	6.41	6.98	1.73	2.76	1.73
Latin America ^c	7,725	14,729	17,716	5.21	6.54	4.23	1.76	1.99	3.30
	Annual growth rate of rice production (per cent)			Annual growth rate of rice yield (per cent)					
	1961-80	1981-98	1961-98	1961-80	1981-98	1961-98			
IPT ^a	3.79	2.04	3.20	2.24	1.31	2.19			
Indonesia	4.77	2.45	3.95	3.50	1.08	2.76			
Thailand	2.26	1.29	1.99	0.25	1.24	0.82			
Philippines	3.88	1.75	2.81	3.01	1.09	2.58			
China	3.91	1.19	2.56	2.65	1.66	2.59			
Southeast Asia	3.79	2.02	3.14	2.23	1.31	2.15			
South Asia	2.26	2.65	2.57	1.41	2.22	1.97			
West Africa	3.76	5.41	4.83	1.34	0.77	1.45			
Southern and East Africa ^b	2.39	1.65	1.70	-0.49	0.60	-0.02			
Latin America ^c	3.31	1.23	2.30	0.46	3.24	1.85			

^a Indonesia, the Philippines and Thailand

^b Southern and East Africa does not include South Africa

^c Latin America does not include Trinidad and Tobago

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

of Southeast Asia in the late 1990s, but it has increased since the early 1960s. The shares for African regions and Latin America have been small, ranging between 4–7 per cent over the past four decades.

Because of the importance of this crop, productivity growth for rice has had a great impact on overall agricultural productivity and growth of the Southeast Asian region. Thanks to high-yielding varieties (HYVs), the region's rice production has increased substantially over the past four decades, especially in the 1960s and 1970s, at a rate of almost 4 per cent per year. It should be noted, however, that about 40 per cent of this growth was due to land expansion.

Thanks to the rapid growth of rice production, Southeast Asia achieved a growth rate of food supply in terms of calories/capita/day of 1.23 per cent per year, the highest among developing regions (Table 3.4). This rate is at least double that in other regions. This achievement was probably one of the foundations of Southeast Asia's overall economic growth. Among the three study countries and over time, however, the rates varied significantly. During the period 1961–98, Indonesia had the highest overall food supply growth rate, followed by the Philippines and Thailand. Thailand's low rate corresponds to the low growth rate of its rice production. The rate in the Philippines was high during the period 1961–80 (1.34 per cent per year), indicating the early introduction of H W rice, but declined significantly during the period 1981–98 (0.56 per cent per year).

Southeast Asia's monsoon climate and high population density have precluded development of animal husbandry in the region (Oshima 1987:25). Nor is there sufficient land to grow both food and feed. The region's pastureland share has been declining; by the late 1990s it was only 16 per cent (Table 3.5). Among the three countries, Indonesia has the largest share of pastureland, but its share has declined over time and by the late 1990s was down to 27 per cent. The pastureland shares of African regions and Latin America of almost 80 per cent are more than five times higher than that of Southeast Asia.

REGIONAL DIFFERENCES IN PRODUCTIVITY GROWTH

Agricultural productivity and its growth are critically dependent on climatic and soil conditions and cultural and historical developments (see Chapter 3 on the impact of historical developments on the agricultural performance of the three study countries). Other critical factors include government policies, both sector-specific and sector-neutral, and the politics and

Table 3.4 Food supply in calories per capita per day and growth rate of food supply

	Food supply (calories/capita/day)			Annual growth rate of food supply (per cent)		
	1961-63	1981-83	1996-98	1961-80	1981-98	1961-98
IPT	1,757	2,247	2,699	1.21	1.28	1.27
Indonesia	1,697	2,269	2,883	1.34	1.68	1.65
Thailand	2,011	2,228	2,439	0.65	0.60	0.33
Philippines	1,720	2,194	2,392	1.34	0.56	1.00
China	1,717	2,477	2,936	1.35	0.98	1.45
Southeast Asia	1,792	2,271	2,710	1.17	1.24	1.23
South Asia	2,030	2,107	2,422	0.06	0.87	0.55
West Africa	2,142	2,038	2,552	-0.39	1.73	0.46
Southern and East Africa	2,150	2,156	1,911	0.17	-0.83	-0.36
South America	2,329	2,594	2,808	0.59	0.53	0.47

Notes: West Africa does not include Central African Republic, Chad or Republic of the Congo, but now includes Cape Verde, Guinea and Liberia. The growth rates were estimated using linear and semilog regression models and selecting the one with highest R^2 statistic. In the linear case, the growth rates were calculated by dividing the coefficient by the mean of the period considered.

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

Table 3.5 Share of pastureland in agriculture by region (per cent)

	1961-63	1971-73	1981-83	1991-93	1996-98
IPT	23.4	22.4	20.1	18.7	17.8
Indonesia	32.6	32.2	31.5	28.5	26.5
Thailand	2.3	3.2	3.5	3.7	3.8
Philippines	10.4	11.6	10.2	11.4	11.4
China	62.0	65.5	68.5	67.2	66.6
Southeast Asia	22.1	21.1	18.9	17.3	16.4
South Asia	10.1	9.5	9.0	8.7	8.5
West Africa	79.9	79.0	77.4	75.8	74.7
Southern and East Africa	82.9	81.8	80.5	79.7	79.6
Latin America	82.7	81.7	80.1	79.4	78.8

Note: Southern and East Africa does not include South Africa.

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

institutions that underlie these policies. Details of these policies for the three study countries are discussed in other chapters in this volume.

In this section, we compare some of the quantifiable variables considered to affect growth of the agricultural sector—land distribution, investments and capital accumulation in the agricultural sector, pricing, and exchange rate policies.

Initial conditions

A number of studies have found initial conditions, especially those related to education, income and wealth inequality, to be extremely important in economic development in general and perhaps the most important factors in the rapid economic growth of East Asia in particular (Rodrik 1994). Clearly, in terms of educational levels and other human capital indicators, East Asia stands out (Rodrik 1994:17).

Another initial condition that seems to have profound influence on subsequent economic growth is wealth inequality usually measured by land ownership. Recent studies suggest that, although the relationship between income inequality and lower subsequent growth may be tenuous, wealth inequality appears to be a major determinant of economic growth (Deininger and Squire 1997; Deininger and Olinto 2000). Although these studies use land ownership as a proxy for asset or wealth ownership because of data availability, their findings still point to the importance of asset inequality in rural areas and hence the importance of rural areas to economic development.

These recent studies contrast with the well-known Kuznets' hypothesis and a number of past efforts to confirm the hypothesis (Deininger and Squire 1997; Griffin and Ickowitz 2000). Theoretical explanations for this relationship proceed through two channels, first that a high level of inequality in wealth implies that a large number of poor people are unable to obtain credit to make profitable investments, for example in schooling, and second that it implies that a large number of poor are unable to participate in political bargaining. Deininger and Squire (1997) consider the former to be more important.

Table 3.6 shows Gini coefficients for the initial land distribution for several regions and the three study countries. It is evident from these data that land distribution in the East Asia and the Pacific region is considerably more equal than in other regions. Among the three target countries, Thailand's land distribution is most equal, and its Gini coefficient declined

over time. This is probably due to the colonial histories of Indonesia and the Philippines and the importance of plantations to the agricultural sector, while Thailand was never colonised and has never had a plantation system.

Investment and capital accumulation

Agricultural productivity can be increased through the introduction of technologies and machines that are either land saving, labour saving, or both. This requires considerable investment. Mundlak et al. (1997) collected agricultural investment data for over 70 countries and analysed the relationship between agricultural capital and productivity growth. They found that the two variables are strongly related and that prices have limited direct effects on productivity in the short term but significant effects in the long run through their impact on investment.

Table 3.6 Gini coefficients for initial land distribution, by region, 1950–90 (decadal medians for regions and specific year data for individual countries)

	1950s	1960s	1970s	1980s	1990s
Sub-Saharan Africa		48.60	56.88	46.73	49.00
East Asia and Pacific	44.84	47.32	48.86	46.94	41.12
OECD and high-income countries	58.43	59.43	52.26	54.62	59.03
South Asia	67.81	59.56	61.96	61.44	58.35
Middle East and North Africa	78.30	64.56	71.90	67.53	
Latin America	82.00	81.19	81.33	80.47	77.42
Eastern Europe	62.03	52.41	75.13	97.97	91.95
Indonesia		55.35 ^a	55.59 ^b		
Philippines		50.76 ^c	50.93 ^d	52.84 ^e	
Thailand		45.85 ^c		40.90 ^g	

^a Data for 1963

^b Data for 1973

^c Data for 1960

^d Data for 1971

^e Data for 1980

^f Data for 1963

^g Average of data for 1980 and 1988

Source: Deininger, K. and Squire, L., 1997. 'Economic growth and income inequality: re-examining the links', *Finance and Development*, 34(1):38–41; World Bank, n.d. World Development Indicators Online, World Bank, Washington, DC. Available online at <http://www.worldbank.org/data/onlinebases/onlinebases.html>.

Growth rates for agricultural capital in several developing regions and the target countries are given in Table 3.7.² It appears that many developing countries invested much more in the agricultural sector during the 1970s than during the 1980s. All regions had positive trends in agricultural capital during the 1970s, but **all** except Southeast and East Asia turned negative during the 1980s. The sharp decline in world agricultural commodity prices that occurred throughout the 1980s could have been an important factor affecting the large negative growth rates for the African regions, South Asia, and Latin America. The rate of capital accumulation in Southeast Asia was high, although it declined from 6.9 per cent per year in the 1970s to 2.8 per cent per year in the 1980s. High capital accumulation was probably one of the main reasons for the high growth rates of agricultural production in Indonesia and Thailand during the 1980s. Conversely, the stagnant performance of the Philippine agricultural sector was probably due to the negative agricultural capital growth during the 1980s.

Protection policies

As discussed by Akiyama and Kajisa (Chapter 9, this volume), direct price intervention has a profound impact on the performance of the agricultural sector. Governments intervene in agricultural product pricing for various reasons, including food security, stabilisation of producer prices, and the necessity of taxation. These policies are often cited as critical in explaining

Table 3.7 Annual growth rate of agricultural fixed capital

	1970–92	1970–80	1981–92
IPT/Southeast Asia	1.75	6.92	2.81
Indonesia	3.58	9.78	4.77
Thailand	-0.93	-2.96	2.42
Philippines	-1.98	2.86	-2.49
East Asia	5.16	9.67	7.02
South Asia	0.59	4.37	-2.19
Southern and East Africa	-0.60	3.56	-2.57
Latin America	-1.32	1.69	-2.11

Note: Data for Thailand are from agricultural fixed capital because data for total agricultural capital are not available for Thailand. Furthermore, the calculation for IPT is based on this fixed capital data for Thailand, and total agricultural capital for Indonesia and Philippines. Source: Larson, D.F., Crego, A., Butzer, R. and Mundlak, Y., 2000. 'A cross-country database for sector investment and capital', *World Bank Economic Review*, 14(2):371–91.

differences among developing countries in the performance of agricultural production and exports (Schiff and Valdes 1992).

A straightforward evaluation of the extent of taxation and subsidies can be conducted by examining the ratio of domestic to border prices, ignoring domestic transportation and marketing costs (Table 3.8). For the period examined, average domestic agricultural prices in Southeast Asia have been higher than average border prices, and the ratios were considerably higher than those of African regions. The negative growth rate of this ratio during the 1970s indicates increasing taxation on exported products at a time of booming world commodity prices.

Another way to evaluate the extent of government intervention, as discussed by Mundlak and Larson (1992) and Akiyama and Kajisa (Chapter 9, this volume), is to perform the following regression equation to examine the relationship between domestic and border prices

$$\ln(DP) = a + b \cdot \ln(BP) \quad (3.2)$$

where DP is domestic price and BP is border price.

The coefficient b measures the extent of the response of domestic prices to border price—that is, how much domestic price changes in response to changes in border price. It also indicates the extent of price intervention—thus, the closer the value of b to unity, the lower the extent of intervention, and vice versa. Mundlak and Larson (1992) argue that the R^2 of the regression is another good indicator of the extent of the linkage between domestic and world prices and hence of government intervention. This statistic indicates how closely the two prices move together.

The regression in Equation 3.2 was run on the prices of a number of countries and commodities for the period 1961–95 (Table 3.9). The results show that the values of b for Southeast Asia and Latin America are much closer to unity than those for South Asia, East and Southern Africa, and West Africa. The values of the R^2 statistics for Southeast Asia are lower than those for East and Southern Africa and Latin America, but significantly higher than those for South Asia and West Africa. The transmission elasticity and R^2 are higher for the average of the three study countries than for Southeast Asia, because for the latter the averages are lowered by inclusion of Laos and Myanmar. The implication of this analysis is that agricultural product prices in Southeast Asia, especially the three target countries, and Latin America have been linked to world prices considerably more closely than those of South Asia and West Africa.

Table 3.8 General protection rate from agricultural domestic price per border price, by region

agriculture domestic price/ agriculture border price	Annual growth rate of Agriculture domestic price/ agriculture border price					
	1971-73	1981-83	1993-95	1971-80	1981-95	1971-95
IPT	0.92	0.99	1.12	1.05	0.78	1.39
Indonesia	0.85	1.08	1.18	2.79	0.36	1.68
Thailand	0.85	0.99	1.07	1.65	0.45	1.51
Philippines	1.06	0.90	1.11	-1.28	1.53	0.99
China	1.24	1.21	1.32	-1.82	-0.18	0.60
Southeast Asia	1.33	1.21	1.37	-2.99	-0.02	0.55
South Asia	1.27	0.96	0.70	-5.13	-1.64	-1.89
West Africa	0.88	1.10	1.14	4.40	0.12	1.47
Southern and East Africa	0.98	1.17	1.05	2.35	-2.35	0.40
Latin America	0.91	1.27	1.40	1.52	-0.66	1.59

Note: A price adjustment in Ghana at the beginning of 1980 prevents us from estimating the true characteristics of the economy, thus we have removed Ghana from the observation of West Africa in 1981-83. Data for Thailand are from agricultural fixed capital because data for total agricultural capital are not available for Thailand. Furthermore, the calculation for IPT is based on this fixed capital data for Thailand, and data for total agricultural capital for Indonesia and Philippines.

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

Table 3.9 Transmission of border to domestic price, by region

	Transmission elasticity	Average R2
IPT	1.02	0.83
Indonesia	0.95	1.00
Thailand	1.10	0.70
Philippines	1.00	0.79
China	1.00	0.79
Southeast Asia	1.02	0.76
South Asia	0.77	0.57
West Africa	0.78	0.69
Southern and East Africa	0.90	0.85
Latin America	0.97	0.81

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

CONSEQUENCES OF GROWTH IN AGRICULTURAL PRODUCTIVITY

A number of development economists consider development of the agricultural sector to be a prerequisite for development of the overall economy. Recognition from economists of the agricultural sector's importance, especially in terms of supplying food, dates back to Malthus and Ricardo. More recently, economists such as Ranis and Fei (1961), Jorgenson (1961), and Johnston and Mellor (1961) developed and confirmed the essence of this idea. Also, because the agricultural sector makes up a large part of the overall economy in most developing countries, it is difficult to achieve economic growth and subsequent economic structural changes without a certain period of healthy growth in the agricultural sector. In this section we examine the impact of agricultural sector performance on GDP, exports, and poverty in several developing regions.

Agricultural sector and GDP growth

According to classical economic thought on the theme of the agricultural sector's role in overall economic growth, such as that of Adam Smith, Thomas Malthus, John Stuart Mill and David Ricardo, an economy will not develop if there is not an adequate and increasing food supply to meet the demand arising from population growth. This 'Ricardian trap' may be avoided through international trade. However, as Hayami (2001) shows using cross-country data for the period 1965–95, there is a strong correlation between per capita growth of GDP and per capita food production. As discussed above, the per capita calorie supply in developing regions shown in Table 3.4 also supports the importance of food availability to economic development.

To examine the relationship between the agricultural sector and overall economic growth rates, we conducted a cross-section regression on the growth rates of GDP and manufacturing GDP using agricultural GDP as an explanatory variable for the periods 1966–98 for 60 developing countries and 1980–98 for 73 developing countries (Table 3.10). It is clear that the growth rates of overall economic and non-agricultural activities are closely correlated with those of the agricultural sector. Statistically, the agricultural sector growth variable is highly significant for all the cases examined. In the more recent period, however, the significance and hence the relationship weakened. This is probably because the non-agricultural sector's share of GDP in many developing countries has increased substantially in recent years, reducing the impact of the agricultural sector on the overall economy.

Table 3.10 Relationships among growth rates of agricultural GDP, manufacturing GDP, and GDP

Dependent variable	GDP		GDP		Manufacturing GDP	
	Agricultural GDP		Non-agricultural GDP		Agricultural GDP	
Explanatory variable	1966–98	1980–98	1966–98	1980–98	1966–98	1980–98
Coefficient	1.15	0.44	0.8	0.75	1.55	0.7
t-value	6.79	3.03	32.51	35.2	3.88	2.3
Observations	49	68	49	68	34	53
R ²	0.5	0.12	0.9	0.95	0.32	0.09

Source: Author's calculations.

Performance of agricultural product exports

At the pre-industrialisation stage of development, agricultural products are often the main earner of foreign exchange, which is necessary for many developing countries to import capital goods and products to enhance their welfare. High agricultural productivity growth is usually necessary to support high growth of agricultural exports. Southeast Asia achieved high agricultural export value growth not only through high export volumes made feasible by high agricultural production growth, but also through switching to higher-value agricultural products. For the period 1961–97, agricultural export volume from Southeast Asia increased at the highest rate among developing regions, though for the period 1981–97 it was surpassed by South Asia (Table 3.11). There are significant differences in the export performance of agricultural product volume among the three study countries—that of Indonesia and Thailand increased at over 5 per cent per year during 1961–97, while that of the Philippines recorded a low rate of 1.1 per cent per year during the same period. The figures for the more recent period of 1981–97 indicate that differences were even greater—Indonesia increased at 7.6 per cent per year while the rates for Thailand and the Philippines were 0 per cent and 4.6 per cent per year, respectively.

Significant differences in the growth of export unit values among regions and countries are influenced by the movements of world prices for major exports. Southeast Asia recorded the highest export value growth among all regions during all the periods examined. It is clear from Table 3.11 that these high export value growths were achieved by high growth in export volume and relatively stable unit values. In contrast, export unit values of

Sub-Saharan Africa and Latin America fluctuated wildly. The large difference in the export unit values of Sub-Saharan Africa and Latin America between the periods 1961–80 and 1981–97 reflects the large share of coffee and cocoa in these regions' agricultural exports and the sharp declines in these commodities' prices in world markets between the two periods. It is impressive that Thailand achieved such high growth in its agricultural export unit value during 1981–97, while other regions suffered from sharp price declines for many major commodities throughout the 1980s and early 1990s.³

The trends of export values and average unit values show interesting differences among the three study countries. Indonesia achieved high growth of export value through high export volume growth, including palm oil, rubber, and cocoa. Conversely, Thailand's high export value growth was due to increases in the average unit value, suggesting a shift of export products from low to high value. It appears that Thailand's agricultural export growth followed Myint's (1965) 'vent for surplus' theory and Watkins' (1963) 'staple theory'.⁴

Table 3.11 Annual trends for agricultural exports, by region

	Growth rate of value			Growth rate of quantities			Growth rate of unit values		
	1961–80	1981–97	1961–97	1961–80	1981–97	1961–97	1961–80	1981–97	1961–97
IPT	11.1	5.6	8.4	6.47	1.99	4.70	4.59	3.13	3.59
Indonesia	10.8	7.7	8.8	5.35	7.57	5.17	5.16	0.33	3.32
Thailand	12.7	5.7	10.1	8.53	-0.09	5.96	3.95	5.53	3.86
Philippines	9.5	0.7	4.3	4.42	-0.62	1.09	5.15	0.75	2.99
China	11.6	5.7	8.7	6.79	3.23	5.51	4.42	1.71	2.52
Southeast Asia	11.2	5.5	8.5	6.68	3.25	5.41	4.22	1.64	2.52
South Asia	5.8	3.5	5.1	2.05	4.66	2.66	3.78	-1.44	2.29
West Africa	9.1	1.0	4.5	-0.84	2.64	0.34	10.28	-1.87	4.03
Southern and East Africa	8.8	2.3	4.7	1.39	1.24	0.46	7.22	1.07	4.23
Latin America	11.2	3.2	7.1	3.47	2.79	3.08	5.56	-0.51	2.73

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fio.org/>.

Poverty reduction

Poverty reduction has recently come to be recognised as one of the most important goals of economic development (World Bank 2001). The link between economic development and poverty reduction, however, has been hotly debated, especially since Kuznets proposed his now famous Kuznets' Curve. Recent findings suggest that economic growth and poverty reduction are compatible even in developing countries (World Bank 2001:Chapter 2), and that agricultural/rural sector development is critical in reducing poverty because 'nearly three quarters of the poor will continue to live in rural areas well into the next century' and '[t]he significant majority of the rural poor depend on agriculture' (World Bank 1997:1). Analyses by Ravallion and Datt (1996) on Indian data, and Gallup et al. (1998) and Timmer (1997) on cross-country data show that agricultural/rural sector growth tends to have a more significant impact on poverty reduction than the growth of other sectors. Further, Timmer argues that the impact on poverty is less significant when income inequality is severe.

An interesting recent finding is that 'high initial inequality reduces the poverty impact of a given economic growth' (World Bank 2001:56; see also Timmer 1997). In the context of the agricultural sector, the initial condition effect may be due in part to the difference in the agrarian system. Rural and overall income inequality is usually larger in countries with a plantation system than in countries where agriculture is carried out predominantly by smallholders. In a plantation system, a large portion of agricultural income growth usually benefits large-scale landowners. Conversely, in a smallholder system, poor smallholders benefit more directly from agricultural growth. As Hayami (Chapter 2, this volume) argues, smallholder farming tends to be more labour intensive than the plantation system, meaning sectoral growth benefits landless farmers more under the former system, thus making a greater contribution to poverty reduction in rural areas.

We analysed the impact of agricultural and non-agricultural sector growth on poverty by regions using the data and approach of Timmer (1997) (Table 3.12). The results show the income elasticities of five income quintiles for agricultural and non-agricultural GDP growth in several developing regions. The first income quintile represents the 20 per cent of the countries' population with the lowest income and the fifth income quintile represents the 20 per cent of the countries' population with the highest income. The income elasticities given in the table indicate the percentage change in income of a certain income quintile per percentage change in sectoral GDP.

For the estimation, fixed effects as country dummies are used to account for non-systematic differences between countries within regions. The estimation is restricted so that the average income elasticity for each region over both sectors (agriculture and non-agriculture) is equal to unity.

Two regions, Southeast Asia and Africa, show trends in the elasticities that indicate the impact of agricultural GDP growth on the poor is stronger than that of non-agricultural GDP growth. Also, agricultural GDP growth has a stronger impact on the poorer quintiles than on the richer quintiles. This is especially the case for Africa, where the impact of agricultural GDP growth is considerably larger than that of non-agricultural GDP growth on the first–fourth quintiles. These findings are consistent with the fact that the agricultural sector is the most important sector in this region and the majority of farming is conducted by smallholders. For Southeast Asia, the same trend can be found for the second–fourth quintiles, with the trend broken by the richest (fifth) and the poorest (first) quintiles. It must be noted, however, that these two quintiles represent the extremes of income distribution and are therefore more likely to show distorted results.

The other three regions under consideration do not show such trends. The trend in Latin America is in the opposite direction; for example,

Table 3.12 Elasticities of income growth and sectoral growth, estimated using country dummies as fixed effects

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile
Africa, agriculture	1.913	1.193	1.076	1.009	0.285
Africa, non-agriculture	1.355	0.967	0.900	0.880	0.420
Southeast Asia, agriculture	0.190	1.335	1.222	1.094	1.318
Southeast Asia, non-agriculture	0.457	1.122	1.108	1.008	1.146
East Asia, agriculture	0.647	0.655	0.821	1.178	1.814
East Asia, non-agriculture	0.757	0.784	0.871	1.064	1.410
South Asia, agriculture	1.101	0.965	0.973	1.031	0.898
South Asia, non-agriculture	1.189	1.049	0.963	0.915	0.916
Latin America, agriculture	0.410	0.938	1.192	1.383	1.221
Latin America, non-agriculture	0.483	0.911	1.102	1.359	1.001

Source: Author's estimates based on data and model used in T i m e r, C.P., 1997. *How Well Do the Poor Connect to the Growth Process?*, CAER II Discussion Paper No. 17, Harvard Institute for International Development, Cambridge, Massachusetts.

agricultural GDP growth has a larger impact on the income growth of the richer income quintiles. This probably reflects the prevalence of the plantation system in the region. South Asia does not seem to have any obvious trends.

The results of this analysis are consistent with previous studies that show the importance of agricultural sector growth to poverty reduction but also suggest that the degree of the agricultural sector's impact is dependent on the type of agrarian system.

CONCLUDING REMARKS

Examination of variables related to agricultural sector performance in various developing regions and countries over the past four decades suggests that agricultural sector growth is important for overall economic growth, especially at an early stage of development. Strong correlation among growth of the overall economy, agricultural sector, food production, and agricultural product exports suggests that it would be difficult for many developing countries to achieve sustainable economic growth with a weak agricultural sector.

The growth of Southeast Asia's agricultural sector over the past four decades was very high compared with that of other developing regions' agricultural sectors. Because rice has been the most important crop for all countries in the region, the rapid increase in rice yields due to adoption of HYVs in the 1960s and 1970s appears to have formed a basis for the high growth of the region's agricultural sector. Governments of Southeast Asian countries seemed to have played an important role by implementing policies encouraging the adoption of the new varieties through large investments in irrigation facilities and extension services. This contrasts with the situations of Sub-Saharan Africa and Latin America, where government policies have generally not favoured smallholder farmers. In addition, many farmers in Southeast Asia have been able to invest in agricultural land, probably because land tends to be distributed more equally in Southeast Asia than in other developing regions.

The performance of agricultural production and exports in Southeast Asia countries, especially Thailand, indicates that these countries not only increased production volumes of traditional crops but also succeeded in diversifying into commodities in high demand, especially higher-valued agricultural products. This enabled them to escape from the vagaries of fluctuating world agricultural commodity prices, as in the late 1980s and

early 1990s, and points to the importance for agricultural sector performance of flexibility and adaptability to changing market conditions.

Another difference between policies implemented by Southeast Asian countries and policies implemented in other regions is that the former appear to have introduced less distortion for agricultural product prices, except for a few commodities such as rice. Akiyama and Kajisa (Chapter 9, this volume) argue that direct protection policies in Southeast Asia were aimed more at short and long-run price stabilisation, in contrast to the heavily distortionist policies implemented in many Sub-Saharan African countries up until recently (see Bates 1981, Lipton 1977, Akiyama et al. 2001).

The differences among the regions in key statistics related to agriculture can also be observed in the three Southeast Asian countries studied in this volume. Agricultural sector performance has been considerably better in Indonesia and Thailand than in the Philippines. This can be traced to the larger investments in rural areas and more favourable protection policies in Indonesia and Thailand than in the Philippines.

Along with its impact on overall economic growth, the agricultural sector has significant effects on poverty because a majority of the poor in most developing countries live in rural areas. The effect is likely to be especially great in countries where the agricultural sector is large relative to other sectors, where the agricultural sector is predominantly smallholder-based, and where initial income inequality is small. Causes of Southeast Asia's greater success in reducing poverty relative to other developing regions are probably the high growth of its agricultural sector and the prevalence of smallholders in its agricultural sector.

The development of Southeast Asia's agricultural sector appears to have followed the path described by many development economists for its performance, role and impacts. Triggered by 'miracle rice', the sector contributed greatly to the region's plentiful food supply, which in turn allowed the sector to earn foreign exchange, reduce poverty and form an important base for the growth that followed in the industrial sector. Such processes were possible because of the flexibility and adaptability of government policies and private-sector stakeholders in the region.

NOTES

¹ Averages in this chapter are kept as simple algebraic ones to avoid the dominant influence of large countries.

- ² The number of countries for which data are available is considerably limited and there are no data for West Africa. Also, because the sources of most data are from each individual country, strict inter-country or inter-region comparisons might be difficult.
- ³ See, for example, various issues of the World **Bank** publication *Global Economic Prospects*.
- ⁴ See Chapter 10 of this volume for Honma and Hagino's analysis of changes in the three countries' agricultural exports.

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APPENDIX — DEFINITIONS

Agricultural area or agricultural land is arable land and land under permanent crops.

Agricultural GDP is drawn from a database at the World Bank. The base year is 1995.

Agricultural labour is defined as all persons depending for their livelihood on agriculture, hunting, fishing or forestry. This estimate comprises all persons actively engaged in agriculture and their non-working dependants. **Agricultural** production. Unless otherwise shown, the default multiplication factor for aggregate components is 1.00. Exceptions are displayed where they exist. The base year is the average from the period 1989–91.

Pasture is permanent pasture (thousands of hectares) in the FAO element 131. It is land used permanently (for five years or more) for herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land). The dividing line between this category and the category 'Forests and woodland' is rather indefinite, especially in the case of shrubs, savannah and so on, which may have been reported under either of these two categories. For 1995 and all later years, there will be no data for this element.

Rice area is rice paddy *oryza* spp., mainly *oryza sativa*. Rice is grain after threshing and winnowing, also known as rice in the husk. Data refer to the area from which a crop is gathered. This harvested area, therefore, excludes the area from which, whether sown or planted, there was no harvest due to damage, crop failure, and so on. It is usually net for temporary crops and gross for permanent crops. Net area differs from gross area insofar as the latter includes uncultivated patches, footpaths, ditches, headlands, shoulders, shelter belts and so on.

Rice production refers to actual harvested production from the field or orchard and gardens, excluding harvesting and threshing losses and that part of a crop not harvested for any reason. Production therefore includes quantities sold in the market (marketed production) and quantities consumed or used by producers. When the available production data refers to a production period falling in two successive calendar years and it is not possible to allocate the relative production to each of them, it is usual to refer production data to that year in which the bulk of the production falls. Crop production data are stated in metric tons (MT).

DETAILS ON OBSERVATIONS

The following information describes the data used to construct the tables in this paper.

Agricultural GDP: 59 observations

IPT—Indonesia, Philippines, and Thailand

East hid—China, Fiji, Indonesia, South Korea, Malaysia, Papua New Guinea, Philippines, and Thailand.

Southeast hid—Indonesia, Malaysia, Philippines, and Thailand.

South hid—Bangladesh, India, Nepal, Pakistan, and Sri Lanka.

Southern and East Africa—Burundi, Democratic Republic of Congo, Kenya, Madagascar, Malawi, Mauritius, Rwanda, South Africa, Zambia, and Zimbabwe.

West Africa—Benin, Burkina Faso, Central African Republic, Chad, Republic of Congo, Cote d'Ivoire, Gambia, Ghana, Guinea-Bissau, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

Latin America—Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Republica Bolivariana de Venezuela.

Rice: 57 observations

As for Agricultural GDP, but excluding Zambia and Mauritius

Trade: 76 observations

As for Agricultural GDP, but *excluding* China, Fiji, Papua New Guinea and Zambia and including Mozambique, Sudan, Swaziland, Tanzania, Uganda, Cameroon, Gabon, Guinea, Sao Tome and Principe, Bahamas, Barbados, Bolivia, Cuba, Dominica, Grenada, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Suriname in Agricultural GDP.

Agricultural capital: 27 observations

Excluding China, Fiji, Malaysia, Papua New Guinea, Bangladesh, Nepal, Burundi, Democratic Republic of Congo, Rwanda, Zambia, Belize, Brazil, Ecuador, Haiti, Mexico, Nicaragua and Paraguay from Agricultural GDP

Including Tanzania, Sudan, Swaziland, Tanzania, Uganda, Cameroon, Gabon, Guinea, Sao Tome and Principe, Bahamas, Barbados, Bolivia, Cuba, Dominica, Grenada, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines and Suriname in Agricultural GDP.

Note that the Thailand observation uses fixed capital and there is no West Africa.

Border price: 75 observations

Excluding Fiji, Democratic Republic of Congo, Gambia, Argentina, Brazil, Mexico, Nicaragua, Peru, Uruguay, and Guinea-Bissau from Agricultural GDP

Including Brunei, Lao PDR, Myanmar, Afghanistan, Botswana, Mozambique, Namibia, Reunion, Sudan, Swaziland, Tanzania, Uganda, Cameroon, Gabon, Guinea, Liberia, Dominica, Guyana, Panama, and Suriname in Agricultural GDI?

Note that otherwise, observations are the same for agricultural GDP in pasture, agricultural land, and agricultural labour.

4

DO DIFFERENT REGIMES DISTORT DIFFERENTLY?

Maria Amelina

In the wake of the 1997 East Asian crisis, the 'miracle' of East and Southeast Asian development has been reassessed. Many Asian states were, to borrow the metaphors of Peter Evans, downgraded from successful 'midwives' of development to 'predators' that promoted crony capitalism (Evans 1995). However, as Evans has suggested, the crisis should not lead us to a wholesale disregard for three decades of very substantial economic achievement made by states in the region (Evans 1998). Rather, it should be taken as an occasion to try to understand with more precision and country-specific discretion 'what features of the multifaceted East Asian institutional context might constitute prerequisites for successful policy implementation' (Evans 1998:67).

This chapter explores one dimension of this institutional context—the relationships between political regimes, institutions of agricultural policymaking, and economic outcomes. The exploration of these relationships traverses three decades (mid 1960s–mid 1990s) of evolving commodity policy, specifically, sugar and rice policies in three Southeast Asian states: Indonesia, the Philippines and Thailand. For all three countries, sugar and rice are key economic commodities, and rice is also an emblematic and subsistence commodity. This chapter seeks to understand the effect of relatively pluralistic versus relatively authoritarian political structures on the more developmental versus more predatory forms of sectoral governance.

The relationships between regime type, economic reform, and economic outcomes have received much attention in recent years. Some authors have argued that authoritarian regimes may be more successful at implementing

reforms than democratic regimes because they are able to push through unpopular and painful stabilisation measures (Lipset 1959; O'Donnell 1973). Others have argued that such an 'authoritarian bargain' is ultimately unstable institutionally, and have questioned the ability of authoritarian states to deliver on the promise of accelerated development (Haggard and Kaufman 1995; O'Donnell and Schmitter 1986).

The evidence presented here supports the latter position and attempts to enrich it by examining specific institutions of sectoral governance in detail. It challenges the argument that authoritarian regimes are good for producers, pointing to the decrease in incentives to innovate and increase efficiency that stems from the lack of control over sector-generated resources observed in the two more authoritarian of the three countries. It is argued that in more pluralistic settings—here, Thailand—control over sectoral governance tends to be distributed between the producers and the state in a way that prevents both extreme predation on the part of the state bureaucracy and excessive extraction of rents by the sector.

By contrast, in more authoritarian settings—here, Indonesia and the Philippines—control over sectoral governance tends to be concentrated in the hands of executive power holders. As a result, agricultural policies suffer from state predation, while the limited access of sector insiders, here the producers and traders, to sectoral policymaking stunts the entrepreneurial drive for innovation, cost saving and diversification. The central contention, then, is that the divergent outcomes in the cases presented are best explained not by the *scale* of distortions, but by the *specific institutional configurations of resource distribution* between the sector and the economy as a whole.

POLITICAL ECONOMY OF SECTORAL GOVERNANCE

At the beginning of the studied period, institutions of sectoral governance in the three countries appear quite similar—a mix of protection for industry and sporadic efforts at modernisation of agricultural production. In **all** three cases agricultural production was the main source of budget revenue. The key difference lies in the configuration of power structures that influenced the modality and depth of state interventions in agricultural production and trade.

In Indonesia and the Philippines, control over agricultural production and distribution has been ideologically framed as the main pillar of development-based legitimacy of the ruling authoritarian regimes. The

proclaimed imperative of rice self-sufficiency was used to justify concentration of trade in an ever growing number of agricultural commodities under the auspices of non-transparent parastatals controlled by the immediate entourage of the president. In the name of rice self-sufficiency, governing bureaucrats imposed cross-subsidisation of some commodities at the expense of others, mandated production of a commodity (sugarcane in Indonesia), decreed export monopolies, and channeled exorbitant trade margins to a narrow group of preferred traders. The result was the continued exclusion of key sector actors—growers and millers, as well as the majority of trader* from sector management, and the evolution of commodity-trading parastatals into rigid rent-generating/ideological structures incapable of responding to the changing market environment. *The state not only chose winners, but also arbitrarily created losers. In this unpredictable environment, incentives for efficiency gains and diversification were limited and development of commodities considered previously key for the economies of both countries—sugar in particular—had been stunted.*

By contrast, in Thailand the institutions created for state-managed trade in agricultural commodities were much less invasive and encompassing than in the other two countries. The smaller scale of state intervention and the flexibility of institutional arrangements that organised agricultural production and trade in Thailand here are attributed to two factors. First, the traditional authority of the Thai monarchy required no legitimising. Thus, development projects did not carry the additional burden of ideological tools, and non-transparent state-run agricultural parastatals promising quick development and poverty alleviation at no-matter-what cost were never created. In this context, as the current chapter demonstrates, the regime underwent a process we call 'pluralisation by accrual' because sector insiders were granted increasing power in agricultural policymaking. Over time, producers found themselves operating in an increasingly transparent and predictable economic environment. Government interventions—for example, price supports—have not suppressed the entrepreneurial activity of producers and millers. *This environment has fostered an increasingly efficient, increasingly productive, and increasingly diverse agricultural sector.*

Second, the dual track of economic policymaking described below constrained the ability of agricultural producers and traders to attract disproportionately large flows from other sectors or commodities. This fiscal arrangement effectively constrained excessive allocation of public resources

to a particular production or trading group. *As an outcome, when agricultural development schemes proved too costly or otherwise ineffective, they were allowed to fail and were replaced by arrangements more in tune with the changing economic environment.*

It may be argued that differences in the development of rice and sugar policies are commodity-specific and critically depend on the roles of Thailand as a rice exporter of long standing and of Indonesia and the Philippines as rice importers. We contend that this does not adequately explain the divergent dynamics of the incentives to produce observed in the three countries. In the beginning of the period studied, sugar was an import commodity for Thailand and an export commodity for the other two countries. By the end of the period, Thailand emerges as sugar exporter, Indonesia retreats to the position of importing sugar, and the Philippine position as sugar exporter is greatly undermined. Yet, the dynamics of institution building in sugar production and trade parallel the structures of rice production on a country-by-country basis—state monopolisation of trade in the Philippines and Indonesia and relaxed controls in Thailand. Thus, it is important to look at the regime dimension of these two stories and extract institutional lessons about the costs and benefits of an authoritarian bargain.

DEVELOPMENT OF NATIONAL GOVERNANCE AND POLITY

The pivotal events that determined the divergent development of governance structures among the three countries vary. In Thailand, these were modernising projects pursued by the Thai monarchs. In Indonesia, the study starts with Suharto's accession to power and the evolution of a rice-based development project central to the legitimacy of his government. In the Philippines, we begin with the dissolution of the post-colonial democracy and establishment of Marcos' rule, which corresponded to the loss of power by sugar interests and the advent of centralised trading arrangements for sugar and rice.

In each case, two dimensions of the political economy of sectoral governance are examined. The first is the form of legitimising state power, and the effect these different forms have on the evolution of relatively more versus relatively less independent technocracies. The second is the relationship between the institutions of sectoral governance and the broader configuration of political power, specifically the inclusion versus exclusion of agricultural producers in decision making about the direction and shape of agricultural policies.

Thailand

This section traces the successes of agricultural development, not to a well thought out developmental design, but to the mix of incentives and constraints provided by the evolution of both national polity and agricultural policies. In Thailand the development of a more inclusive political dialogue has led, in Philippe Schmitter's definition, to gradual democratic consolidation, and in terms of economic policies, to active substantive participation of an increasing number of interests in policy formulation (Schmitter 1992). Agricultural policies, for their part, have been shaped as a compromise between intra-sectoral interests, precluding both predation by non-sectoral actors and excessive rent seeking by the sector itself.

Legitimacy of national **governance**. Uncharacteristically, the modernisation of Thailand was brought about by mobilisation around its traditional rulers. As Sar Desai (1997:139) observes, 'Thailand was undoubtedly the most fortunate of the Southeast Asian countries in having these two statesmen [Kings Mongkut (1851–68) and Chulalongkorn (1868–1910)], who...introduced timely reforms on the domestic front, well calculated to preserve Thailand's identity and independence'. Modernisation was seen as means of preserving international competitiveness as well as securing independence in the face of European expansion in Asia (Wyatt 1984).

By drawing up a constitution, the monarchy overcame the limitations of its role and emerged as embodiment and guardian of continuity and stability. However, the role of the monarch goes far beyond the limits prescribed by the constitution. As Samudavanija (1990:303) observes, '[t]he most legitimate institution, which has greatly contributed to social and political stability in Thailand, is the monarchy...While politicians, military leaders, and civilian prime ministers had come and gone, the king has remained the head of state, the focus of the people's loyalty and cohesion, the fount of legitimacy'. The monarch is removed from day-to-day political decision making but intervenes at times of national crisis, as occurred in 1973 and 1992, when political instability went beyond fluctuations deemed acceptable for national harmony.

In fact, a chronology of political events in Thailand seems to describe anything but 'acceptable fluctuations'. Thai political history of the past half century has been dramatically punctuated by nine successful and nine abortive coups *d'état*, 16 constitutions, 30 revisions of constitutions, and 87 general elections (Dixon 1999:260). However, most dose observers of Thai politics warn against taking these numbers at face value. Assessments of the

Thai *coup d'état* vary from 'merely a way that Thailand changes its government' (Dixon 1999) to a 'struggle of rival bureaucratic leagues to gain control' (Riggs 1966) and a more specific 'government turnover' that 'meant little for the masses because it was essentially a regroupment of a narrow élite of about five thousand struggling for reallocation of the spoils of the office' (Sar Desai 1997). None of these assessments see *coups d'état* as events that seriously affect the fabric of Thai society (Muscat 1994).

Pluralism by accrual. One consequence of the relative security of the kings authority is that increasing pluralism has not constituted a threat to regime stability or continuity. During the period studied, civil society 'became more organised, more complex, and more vociferous in its demands' (Dixon 1999). New interests were gradually woven into the political discourse and new civil, political, and economic institutions were created to accommodate these increasingly diverse interests. For example, in the 1970s, trade associations proliferated, becoming instruments of political pressure on the government. In the years of democratic rule from 1973 to 1977, farmer associations began to play a role as an organised force capable of affecting resource distribution. By the 1980s, businessmen were no longer lobbying the government, since they had become part of it—almost one-half of the Prem government came from business circles (Laothamatas 1992).

The thickening of counterbalancing interests led to the gradual democratisation of both social and political institutions. According to Ockey (1996:348), '[d]uring the last two decades, patron-client ties have become less certain and more instrumental, and the number of those seeking and expecting patronage from the government has risen with the increased participation by new political actors, such as provincial business leaders, NGOs, and students'. The fact that such a major upheaval as the 1997 financial crisis was not followed by a *coup d'état* can serve as an optimistic sign that 'pluralism by accrual' is taking hold and that the national political discourse is becoming flexible and pluralistic enough to withstand political and economic shocks. In the words of Samudavanija (1990:305), '[i]t is fair to conclude that a dynamic balance is currently maintained among various forces, each of which cannot possibly afford to dominate the political process on its own strength alone'.

Dual economic policies. Like the national political structures, the economic policies of the Thai government have been characterised by a duality of stability and continuity at the macro level and fluctuations and brevity at the sectoral level. A distinguishing feature of Thai macroeconomic

policymaking is that the main fiscal and monetary agencies have been legally and institutionally set apart from the political process (Christensen 1993).

Transparent and effective macroeconomic policies contrast, however, with the opaque sectoral policies controlled by political parties. As in the story about the elephant that is described differently depending on whether the blindfolded observer touches its trunk or its leg, the dual nature of Thai economic policies makes researchers draw different conclusions about their success depending on which subset of policies they examine. The World Bank, praising Thailand's consistently conservative fiscal and monetary policies and the institutions that sustain them, declares that 'a small technocratic core, insulated from politics, can set a positive tone for the entire economy' (World Bank 1993:172). Unger, who examines Thai social and economic interactions from a sector-specific perspective, states that '...administration in Thailand suffered from a disjuncture between planning and implementation' (Unger 1998:77), then concludes that this disjuncture was to the country's advantage, since no group had the power or the institutions to appropriate all benefits (Unger 1998:78). Unger compares favourably the pluralistic pattern of power distribution in Thailand with the authoritarian pattern prevalent in other Southeast Asian countries: 'In Thailand on-going, sharp intra-élite competition prevented the entrenchment of favoured interests to the degree evident in Indonesia, Malaysia and the Philippines' (Unger 1998:79).

Christensen's comprehensive multi-level analysis of Thai political structures draws a picture of the rules of the game governing macro and micro policies. Thai macroeconomic policies are designed and managed by highly skilled and better paid technocrats employed by such agencies as the National Economic and Social Development Board (NESDB), the Bureau of the Budget, the Ministry of Finance and the Bank of Thailand (Christensen and Siamwalla 1993). By contrast, sectoral ministries, specifically the Ministries of Agriculture, Industry and Commerce, are managed by political appointees with shorter time horizons representing the dominant or a compromise political interest within the sector. While in office they are expected to deliver patronage rents to their party's supporters at the local level and/or to specific interests within the sector. Commodity policies are managed by sector ministries, provided the commodity does not play a formative role in the national budget. Ministerial access to funds for commodity-specific use is constrained by rigid allocation of resources by national economic agencies, but the sector ministries have broad discretion

to distribute these funds to actors within the industry.' Hence, sector policies 'are not very transparent, since they are managed through administrative decisions largely in the bureaucratic arena; they lend themselves naturally to the kind of non-collective ad-hoc strategies the politicians are encouraged in the first place to pursue by their supporters' (Christensen 1993:23). Ministerial control over the use of resources generated within the sector precludes the diversion of sector-specific revenue to outside interests. At the same time, producers and traders within the sector are limited in their ability to attract budgetary resources to subsidise production and trade in a particular commodity. These two sets of constraints narrow the band of possible distortions in both the production and trade of a commodity.

Indonesia

Unlike in Thailand, political institutions in Indonesia have developed along a path of increasing autocratic centralisation. Rather than allowing a range of groups into the political process and sectoral policymaking, the tendency has increasingly been to fuse the political and economic functions of the government. As a consequence, the autonomy of macroeconomic agencies has been substantially undermined, and sectoral actors have been largely excluded from sectoral governance, which is dominated by non-sectoral bureaucracies with the power to divert resources from the sector for political or rent-seeking reasons.

Legitimisation of national governance. In contrast to the case of Thailand, which lacked a colonial history, in the Indonesian case a central problem faced by country's second-generation post-colonial ruler was one of regime legitimacy. In 1966, Suharto wrested national leadership from his charismatic predecessor Sukarno. Suharto's installation had very little in terms of legitimacy. This was not a hereditary power of the kind that made the supremacy of the kings of Thailand unquestionable, nor was it Sukarno's charismatic power as the leader of the anti-colonial struggle. Suharto's accession to power was preceded and accompanied by a wave of violence that began with an abortive military coup and escalated into one of the largest uninvestigated massacres of the twentieth century. Hundreds of thousands of people branded Communist sympathisers perished.² At the end of the coup, the little known and personally uninspiring commander of the army's strategic reserves (KOSTRAD), General Suharto, was first promoted to Commander-in-Chief and then made President of the Republic of Indonesia. General Suharto was sufficiently concerned with formal

legitimation, however, to postpone his official seizure of power and allow Sukarno, from whom actual power was taken away in March 1966, to nominally remain president until March 1968, when the People's Assembly granted Suharto the title of President.

The legitimacy of the new regime was based on the promise of development. 'Suharto and his men...quickly saw that solid political legitimacy could only be achieved by putting the country back on its feet' (Vatikiotis 1998:33). Suharto's government, reinforced by neoclassically trained economists, drew up an ambitious plan to transform the economy from command to market, its aim being to 'to remove numerous distortions from the domestic price structures and eliminate a major source of bureaucratic and political corruption' (Bresnan 1993:65).

Clientelism in action. Despite high-level pledges to liberalise the Indonesian economy, political and ideological constraints prevented decisive marketisation, and led to forms of administration beneficial to a specific clientele. Politically, the market-oriented development program soon came to clash with the interests of the most powerful interest group in the country—the military? The difference in the role of the military in Indonesia from the other two study countries is that in Indonesia the armed forces are officially part of the political process. It is not the case of civilian politicians supervising the army, but rather the army making sure that the politicians are operating within agreed-upon parameters. During the Sukarno rule, the influence of the military was counterbalanced by participation from other major forces in the political process, the Muslim parties and the Communist party. After the demise of the former and the physical annihilation of the latter, the military became more prominent and more involved both overtly and covertly in political and economic decision making.⁴

Direct participation in the political process allowed the military to create official institutions that organised access to economic rents. Considering the agrarian nature of the society, it is not surprising that at the early stages of the Suharto regime the rents of choice were extracted from distorted commodity trade. One of the most striking examples of development of clientele structures of economic governance was the establishment of high-profile parastatals, which have rapidly gained power over many aspects of agricultural distribution.

The traders that became exclusive operators for BULOG, the national commodity parastatal, were initially army quartermasters, the most prominent of whom had provisioned the troops of Colonel Suharto. The former quartermasters that constituted the exclusive club of BULOG's traders

were predominantly Chinese (Vatikiotis 1998). Because they were excluded from conventional politics, their dependence on the new rulers was both political and economic. In a patron-client relationship, they were an ideal client because their politically disadvantaged position, which Suharto made no effort to improve, precluded them from changing the relationship from hierarchical to more participatory. The political and economic incentives that the military had for interfering with the proclaimed market environment were reinforced by an organisational structure for carrying out these distortions.

Technocrat markets vs. rent-seeker rents. The military-entrepreneurial rent-seeking system—with its direct access to power and well organised logistics—became a formidable opponent to the market-oriented form of development promoted by technocrats. Thus, 'there developed a permanent tension between the demands of economic planners on the one hand, and military officials in charge of the operations on the other, over the control of the state funds, and exercise of the economic power of the corporations' (Robinson 1986:228).

Unlike that of their Thai counterparts, the institutional position of Indonesian technocrats was not well defined. In practice, they had neither a power base nor institutional independence and had to rely on Suharto's willingness to listen to their advice. The role of technocrats was visible and significant in the beginning of Suharto's rule, when the National Development and Planning Board (BAPPENAS) developed and implemented plans to extract the country from the post-Sukarno economic crisis. However, once macroeconomic stabilisation had been achieved, and particularly after increased oil revenues made fiscal prudence seem less vital, the technocrats lost Suharto's ear to two groups—the so-called technologist, nationalistically minded group that promoted import substitution, and bureaucratic business interests that counted on the national budget to finance their ventures (Cribb and Brown 1995; Bresnan 1993).

The Bank of Indonesia did not have the independence of its Thai counterpart, and it became famous for financing the National Logistics Agency (BULOG) and infamous for financing Pertamina, the national oil company that fell into debt in the middle of an oil boom and had to be bailed out with \$10 billion in the mid 1970s. By the 1990s, technocrats seemed to have been almost completely marginalised. In the words of one of the more prominent ministers of the New Order, '[u]p to 1976, [when ministers met with the president], he used to take notes; after 1976 the ministers were made to sit and take notes'.⁵

The Philippines

The limited democracy of the Philippine post-colonial period was followed by a consolidation of authoritarian rule that lasted until democracy was reinstated by the 'people power' revolution of 1986. The authoritarian government strengthened the hand of parastatals in sectoral governance and, as in Indonesia, effectively excluded actors within the sector. Although the people-power democracy widened the circle of interests included in economic discourse and decision making, the reinstatement of certain pre-Marcos power holders resulted in a democracy with unbalanced representation. At the time of the study, institutions of post-authoritarian agricultural governance had progressed enough to dismantle rent-seeking parastatals but not enough to include diverse peasant interests in political decision making or resolve acute outstanding issues of agricultural institution building, including the critical issue of land reform.

Transformations of national governance. During the post-colonial years, the Philippines has oscillated between authoritarian and pluralistic political interactions. Benedict Anderson famously referred to the government in power between 1954 and 1972 as 'a *cacique* democracy', after the group of mestizo Filipino-Chinese that acquired economic wealth under Spanish colonialism and consolidated political power by taking the lead in the two-party system created during the American rule (Anderson 1998). This American two-party model was adapted to clientelistic Philippine power structures, with representatives elected to satisfy the economic interests of their clientele and political leaders' failure to deliver leading to switching party allegiances. The circle of benefiting interest groups was narrow: 'A traditional landed elite dominated the Congress. A backward and inefficient but politically assertive sector of highly protected industrialists played a strong secondary political role' (Overholt 1987:90).

The fluid nature of political alliances made the democratic arrangement an inefficient and increasingly unpopular form of decision making, paving the way for the seizure of power by Marcos. Though Marcos himself was a civilian, the regime had all the trappings of a military dictatorship. Marcos's kleptocratic rule began with the suspension of political representation and introduction of martial law in 1972. Initially, the coup that brought Marcos to power met no active opposition. The nascent middle classes were tired of the corrupt two-party power of the *cacique* oligarchs, which had deprived them of a meaningful political role. There were expectations that autocratic

rule would bring about **political** stability and economic gain. Technocrats in the state apparatus expected to be able to carry out unpopular macroeconomic reforms that could not be passed through the democratic Congress.⁶ Peasants expected land reform to be completed. Export-oriented businesses expected a more advantageous exchange rate, increased political stability, and longer planning horizons.

Such expectations were dashed for all concerned, with the possible exception of the military. In place of a more stable and reformist environment, Filipinos found themselves in the hands of a small group of rent-seekers close to the president. National GDP turned negative, national debt grew, real incomes fell, and income inequality increased (Ranis 1987; Balisacan 1992).

Authoritarian **legitimisation** and agricultural outcomes. In the context of these dashed expectations, the legacy of decades of democracy made legitimising the new regime much more arduous than in Indonesia, and ultimately much less successful.⁷ Efforts at legitimisation—enactment of a new constitution, the referendum on martial law, efforts to create a more manageable National Assembly—frequently had the effect of mobilising the opposition and exposing the coercive nature of the regime rather than increasing its legitimacy.

The other legitimisation path was that of economic development. Here again success turned into failure much more quickly than in Indonesia. The technocrats leading the economic reforms and providing credibility to the reform program in the eyes of international donors soon came to realise that their plans for economic austerity were secondary to the financial claims of the Marcos-sponsored interests. Plans designed by the National Economic and Development Authority (NEDA) were not followed. Protests by NEDA technocrats failed to stop the creation of the Ministry of Public Works, which was a thinly veiled mechanism for 'financing a set of cronies that ran private monopolies'.⁸ Contrary to the protests and resignation of Gerardo Sicat, the first NEDA Director General, the functions of the National Food Authority (NFA) were expanded to include wholesale and retail trade in almost any commodity, to the further detriment of both fiscal stability and the market position of small traders (Sicat 1986). Those technocrats who chose to stay, such as Prime Minister Virata, justified their participation in the government as a search for a window of opportunity to promote a reformist agenda, rather than a way of influencing economic policies through

institutionalised channels (Tolentino 1998). Thus, the technocrats continued to perform a legitimisation role in interactions with donor agencies although they lacked the capacity to consistently implement or meaningfully influence macroeconomic and fiscal policies.

Legitimisation by agricultural reforms at first appeared to bear fruit. The two main agrarian reforms that the regime promised to carry out better than a democracy were land reform and large-scale investments in the Green Revolution. The populist goal of these reforms was to ensure national rice self-sufficiency. Success at land reform was at best marginal, and its scope was narrow because it excluded plantations and export crop lands (Department of Agricultural Reform 1983; Balisacan 1990). The investment in the Green Revolution also failed to deliver the expected returns to peasants. *Masagana 99*, a widely advertised nation-wide program of subsidised agricultural credit, successfully delivered fertiliser and seed of high-yielding varieties to farmers, thus increasing yields. It was not successful, however, in creating a sustainable system to finance lasting improvements to farming practices (David 1984). As a result, farmers found themselves in debt, and either stopped using high-cost inputs or used their input subsidies for other purposes.⁹

Democratic contestation. In 1986, the bloodless people-power revolution swept away the Marcos dictatorship. Interpretations of Aquino's democracy run the spectrum from the pejorative '*cacique* democracy,' to the affirmative 'institutional democracy', successful in consolidating multiple interests (Kasuya 1995). For our inquiry, it is important to note that the first legal action of the new government was to return control over commodities to agricultural producers—state monopolies in sugar, coconut, beef, wheat, and fertiliser were abolished.¹⁰ The NFA lost its monopoly over a number of agricultural and non-agricultural commodities and was reduced to its pre-martial law functions of rice and corn price stabilisation.

While Aquino's economic ministers could finally implement economic reforms, they were not adept at 'selling' their programs to the Congress. The above-mentioned reforms took place before the re-opening of Congress in 1987. It took years for the Congress and the government to learn to interact in a collegial and constructive manner."

In order to involve producers in political decision making in agriculture, a number of influential committees have been created which by law require private sector representation. The most prominent are the Presidential Council on Rural Development, the Coordinating Committee on the Uruguay Round, and the Philippine Exports Council. The history of slow progress

in land reform proves that some interests continue to be more equal than others, yet the scope of groups involved in shaping policies has been widened to include a much broader range of interests in a meaningful way.

COMMODITY-SPECIFIC POLICIES

With the relevant political and economic frameworks in mind, we turn to the dynamics of rice and sugar policies in the three countries. The rise and fall in the production of a commodity is linked to the economic environment and production horizons allowed within the framework of different regimes. Specifically, we will discuss institutional arrangements that serve both as a framework and as channels for divergent outcomes.

In Indonesia and the Philippines, trade monopolies for a number of commodities were officially tied to the food security argument, which was then elevated to the argument of national security (Simatupang 1999). Ideologically, then, self-sufficiency and adequate access to staple foods were treated as a priority to be achieved at almost any cost. Institutions were created to redistribute resources to expand rice production. The political importance of the goal precluded inquiries into the financial and economic costs of the redistribution in Indonesia and the Philippines. With time, the ruling group realised what a potent instrument it had created—and lack of transparency allowed the resources to be redirected to causes remote from the core mandate of commodity-trading parastatals. The most consistently non-authoritarian country of the study, Thailand, did not develop food-trading parastatals.

All the parastatals claimed to be improving conditions for farmers, but very rarely did they deliver on these promises. When they did, the beneficiaries were usually rice farmers, and the benefits usually came less from price support given by trading parastatals than from input provision delivered by other organisations. Meanwhile, producers of other commodities were disadvantaged, being officially exploited to subsidise the ideologically superior rice crop. Losses from large-scale distortions in commodity trading stifled production. Development for freedom, the concept underlying the authoritarian bargain, failed to materialise.

Thailand

Developments in the rice and sugar sectors in Thailand over the past 30 years can be summarised by a few basic trends. First, the dependence of the national budget on revenue from agriculture, most prominently the rice

trade, has decreased and commodity-specific policies have been passed down from national economic to sectoral ministries. Second, at the sectoral ministry level, interventions were increasingly used to support producers and/or commodity consumers. Because resources allocated to the sectoral ministries from the national budget were tightly controlled by national economic agencies and few outside resources could be attracted to support a commodity, agricultural sub-sectors learned to rely on resources generated by commodity trade, redistributed between consumers and producers. Third, and in crucial contrast to Indonesia and the Philippines, institutions that channelled these policies were allowed to fail when they outlived their usefulness or could not be sustained. Over time, as agricultural actors gained influence in agricultural decision making, the position of the state has evolved from supervisor and policy announcer to that of mediator and partner in policy design.

Rice. This section traces two tendencies in Thai rice policies that are crucial to understanding broader developments in the sector. The first of these tendencies is the gradual phasing out of direct taxation of the rice sector; the second is the failure of rice procurement arrangements to evolve into national monopolies in the rice trade. In the first case, distortions generated by the state have been decreasing, while in the second case the distortions were never significant because neither of the rival ministries with a stake in procurement of rice controlled enough resources to substantially skew prices. Over time, the role of the market in rice pricing and distribution has become more important and procurement agencies have been used for small-scale patronage.

The history of rice policies in Thailand is marked by a progressive decrease in taxation and a progressive increase in the influence of rice producers and traders over policies. Throughout the mid 1960s, rice policies were determined by the vital role of rice levies in the composition of national revenue. As budget needs began to be covered by other taxpayers, rice levies were reoriented to serve the interests of actors within the sector. A range of different agencies representing various groups in the sector—farmers, millers and ~~trader~~ —e— to have a voice in sector politics and policy design. The opposing goals of these players prevented any given participant from distorting sectoral policies in their favour. Consequently, during the period studied, no interest group was powerful enough to appropriate all the benefits of the rice trade to the detriment of any other groups, nor were any groups able to attract national budget financing beyond agreed-upon levels.

Phasing out rice taxes. Except for a short period after the Second World War, rice exports have not been monopolised by the state despite their importance as a source of budget revenue." A number of different levies were mounted on foreign and domestic rice sales. A rice premium was collected by the Ministry of Commerce (MOC), which surrendered the revenue to the national budget. The premium was an easily adjustable fiscal instrument because adjustments did not require parliamentary approval. Other direct and indirect rice levies accruing to the national monetary and financial bodies included

- revenue from the dual exchange rate set higher for rice traders, collected by the Bank of Thailand (BOT), a key instrument for building up national reserves in the post-war years (Silcock 1967)
- an ad valorem duty of 5 per cent accruing to the Ministry of Finance (MOF).

All these levies were deposited with national fiscal and monetary institutions and used in a non-targeted way to cover general budgetary expenditure. The MOC retained control over some rice collections.

State reserve deposits established in 1960 were rice deposits that exporters had to make with the fund at a below-market price. The reserves were used for two purposes

- for government-to-government exports
- for consumer price subsidies in times of rapid rice price increases.

While taxing agriculture, the state was increasingly engaged in agricultural investment projects. Over time, agriculture moved from being a net donor to the budget to a net recipient. Siamwalla and Setboonsarng (1989) estimate that net transfers from the budget to agriculture turned positive as early as 1965.

The beginning of the 1970s was marked by the democratisation of Thai society, culminating in the 1973 student revolt and installation of a civilian government with broad-based democratic appeal. Decreasing the rice premium as a means to increase farmer revenue was recognised and written into the Third National Economic and Social Development Plan 1972–76 (Suvarnsit 1971), with the position being promoted by intellectuals and farm organisations, particularly the Peasant Federation of Thailand, the first national peasant organisation to become a vocal and politically influential part of the political process.

Rice procurement arrangements. From 1962 onwards, as the urban population increased in size and political influence, reserve rice began to be

used as a consumption subsidy. Interventions were carried out by the Public Warehouse Organization (PWO), subordinate to the MOC. With its limited staff (400–500 employees) and limited size of rice deposits, the program was often derailed by world rice price fluctuations. Having largely failed as a price stabilisation program, it succeeded as a small-scale patronage device for groups of traders who benefited both from sale margins and the opportunity to resell the lower-priced rice on the open market. Over time, the role of the private sector in managing the PWO has increased, institutionalising its rent-generating role rather than its price-stabilising role. Since 1992, private businessmen closely affiliated with the ruling party have replaced the MOC minister as chairman of the PWO board.

As household incomes in the cities grew, the pressure to subsidise city dwellers at the expense of rice farmers decreased. In 1974, rice premium revenue started to be deposited with the Farmers' Aid Fund and used for the needs of rice farmers and the rice industry as a whole (Siamwalla 1987). The fund was administered by the Farmer's Aid Committee, chaired by the Secretary of the Ministry of Agriculture and Cooperatives (MOAC). The Marketing Organization for Farmers was set up under the umbrella of the MOAC to carry out interventions in the rice market to support producer prices if they fell below the floor price, as well as for general agricultural development.

The scale of intervention largely depended on the size of rice premium collections as well as on the political orientation of the party in power. Like PWO, the Marketing Organization for Farmers was a relatively small organisation with 800–900 employees, 8–10 times less than in BULOG in Indonesia or the NFA in the Philippines. It was also poorly funded compared to the parastatals in Indonesia and the Philippines with their virtually unlimited access to funding. The lack of funding made it impossible for the Marketing Organization for Farmers to successfully handle interventions and significantly influence the market as its mandate demanded. Over time, the Marketing Organization's interventions started to be used as patronage subsidies for political clients (Siamwalla 1987).

Thus, the country ended up with two rice procurement agencies, one affiliated with the MOC (namely, PWO) and the other with MOAC (namely, the Marketing Organization for Farmers). Depending on the party in power, one or the other was tasked with sales interventions. In both cases, sales were too small to affect the rice market beyond gaining favour with the electorate. Currently, rice price interventions tend to be targeted and regional.¹³

Price interventions by the Marketing Organization for Farmers were discontinued when because of its scale the operation started to pose a threat to national budget targets. In 1981–82, the Farmer's Aid Fund, dissatisfied with the amount of revenue generated by the decreasing rice premium, borrowed 4.5 billion baht (US\$200 million) from commercial banks, a loan it could not repay. Sensing a threat to the fiscal targets, NESDB and the Bureau of the Budget moved in. The repayment was rescheduled, and the program was curtailed and passed into the hands of the Ministry of Interior (MOI), which started to manage an \$8 million revolving fund and use these limited resources for targeted local operations. These interventions may have had both political and economic motives, but in either case the scale of the price distortion the interventions caused in the market was contained by their own modest scale.

In the 1980s, rice producers, farmers and millers, by now a significant political force, saw further increase in profit retention. Compulsory rice reserve deposits were abolished in 1982. In 1986 the rice tax was abolished and the rice premium suspended. Rice price stabilisation in the 1990s was achieved through a rice-pledging program whereby farmers deposited their harvest with bonded warehouses or received credits from the BAAC to store their crop themselves. This arrangement is believed to be more transparent and less political than the ones managed by the ministries.

The net result is a rice sector that is increasingly less distorted and increasingly relies on world prices both domestically and internationally. The procurement scheme is too small to affect incentives to produce and trade at the national level.

Sugar. The most striking aspect of sugar evolution in Thailand is that despite very different institutional arrangements, the broader context of sectoral governance was ultimately quite similar to that of rice in its readiness to substitute new strategies for ones that failed and to include the main sector actors in commodity-specific policymaking. Likewise, the sugar industry realised a remarkable growth and increasing efficiency over the period studied. The difference between rice and sugar policies is that the production of sugar, a relatively new major export commodity, has grown at a time of higher national per capita income. Consequently, revenue from the sugar trade has never been treated as a generic contribution to the national budget.

Most arrangements in the sugar trade have been based on intra-industry subsidies between domestic trade and exports. Sugar profits were distributed among the main sector actors—growers, millers and traders—in a way that

protected domestic prices yet did not stunt incentives to innovate, increase efficiency and expand sugar exports (Ramsay 1987).

Anyone who studies the history of sugar production in Thailand over the past four decades has to puzzle over one paradox—the sugar trade arrangements between the late 1950s and early 1980s were extremely volatile and often altered.¹⁴ These were not marginal adjustments but radical changes in the mechanisms of protection and taxation that could 'convince one that the Thai government has never had a clear picture of what kind of sugar industry it wants in the long run' (Jessadachatr 1977). These policies include cross-subsidisation of domestic production through taxation of sugar imports, cross-subsidisation of exports through taxation of domestic production, export bans, quantitative restrictions on the production of raw and refined sugar, establishment of a domestic price stabilisation fund, and quantitative controls over production of raw and refined sugar. All of these schemes collapsed because they failed to sustain the quantitative or price targets set for them.

Yet, despite this institutional instability and highly volatile and unpredictable year-to-year pricing arrangements, sugar production in Thailand 'experienced the strongest growth rate on record in the world—10 per cent per annum over 30 years [between 1960 and 1990]' (du Genestoux 1991:89). Furthermore, Thai sugar producers evolved from one of the highest-cost producers in the world to one of the most cost-effective (du Genestoux 1991).

Viewed from the perspective of state–industry interactions, the institutional diversity of the first two decades of sugar exporting demonstrated not only confusion but also a creative search for sugar policies acceptable to producers, consumers and the state. The fact that the system was allowed to change as soon as it stopped working and that more often than not no effort was made to prolong the life of unworkable solutions suggests that there was no dominant player, and that the state had no political stake in propping up failed programs. Here we argue that the swift development of the sugar industry was prompted primarily by a secure understanding between producers and the state that the revenue generated by the industry would accrue to economic actors within the industry and not be expropriated by the state.

From the mid 1960s onwards, a close collaborative relationship between producers and the state was established with the inclusion of a powerful millers' lobby in sugar policy design by the MOI (Ramsay 1987). As of the

mid 1970s, the group of actors with a voice in decision making was expanded to include the cane growers, who by that time were sufficiently well organised to participate in collective bargaining for distribution of benefits within the industry (Siamwalla and Setboonsarng 1989). With the introduction of a third party into interactions between the state and millers, the role of the state has changed from that of supervisor and enforcer to that of arbiter in intra-industry negotiations.

A detailed description of the rapidly changing institutional arrangements in the sugar trade is beyond the scope of this work. Instead, we will provide some illustrations of the dual role of state agencies in designing and monitoring sugar policies and comment on the evolving balance of power between producers and millers and between producers and the state.

The concept of state-led development promoted by Prime Minister Phibun (1948–57) was manifested in the creation of the Thailand Sugar Corporation (TSC), a 60 per cent state-owned organisation (Hewison 1986; Siamwalla and Setboonsarng 1989). The TSC was authorised to monopolise sugar imports, exports and domestic trade. The margin the TSC received from domestic sales of imported sugar was used to subsidise domestic millers.

Fuelled by protected domestic prices, however, sugar production rapidly increased, causing a fall in imports and a resultant loss of income from domestic sales for the TSC. By the late 1950s the TSC did not have enough funds to support domestic producers. The limited budgetary support was insufficient to maintain the floor prices, and the TSC's monopoly in the domestic market collapsed, bankrupted by its own success.

With Thailand's adoption of export-led growth policies in the 1960s, the government's role in economic activities was curtailed. In this context, the demands of the MOC and the MOI on state financing for their sugar-producing clients were seen as destabilising for the budget. Thus, it was decided that resources for development would be generated within the sector. In 1961, the first National Sugar Act authorised the collection of a levy on the production of refined sugar to subsidise exports,¹⁵ to be managed by the Sugar Industrial Aid Fund. Imports of refined sugar were banned (Hewison 1986).

As with the TSC-based system, the increase in production, combined with a slump in world prices, placed the subsidy targets beyond the fund's financial capacity. With the sugar industry heading into another crisis, the sector ministries (the MOI and MOC), pressured by millers and exporters, demanded a budget-financed bailout. Sensing a threat to national fiscal

targets, the National Economic Development Board (NEDB) stepped in. In contrast to developments in Indonesia and the Philippines, the NEDB's recommendations overrode sectoral rent-seeking considerations

In 1966, on the recommendation of the NEDB, the sugar levy and export subsidy were abolished. The NEDB recommended that the technological capacity of mills be increased in order to bring production costs down and lessen the need for subsidies. In a rare case of direct state support, the government allocated resources to R&D in the sugar industry. The new stabilisation scheme focused on protection of ceiling prices through consumer pricing control. Again, the fund collapsed shortly after being established because the resources committed to its goal proved insufficient.

The new quantity restrictions on sugar production unravelled with the sharp increase in world prices in the early 1970s. The international sugar boom induced millers to smuggle sugar out of the country, triggering sharp increases in domestic prices. As a more democratic government came to power in 1973, its main objective became consumer price subsidies. Thus, the premium on sugar exports was used to subsidise domestic sales and, unlike rice revenue of the 1970s, was channelled to sugar sector development rather than being transferred to the general national budget.

With the increase in world prices in the 1970s, world exports became profitable without subsidies. The monopoly power of the TSC was challenged by powerful groups of millers, who claimed that the TSC did not adequately represent their interests. With the installation of a more democratic government in 1973, the export monopoly of the TSC was broken. New regulations allowed other parties to take part in sugar export. Under these new regulations, TSC and the Thai Sugar Trading Corporation (TSTC), representing a rival millers' group, came to dominate exports.

In the late 1970s, as in the rice sector, growers in the sugar sector emerged as an organised interest group. This affected the balance of power within the sugar industry and subsidy arrangements. Increasingly, the MOI found itself mitigating disputes between millers and growers.¹⁶

The lasting legacy of the National Sugar Act is the codification of the mediating role of the MOI in the so-called 70/30 revenue-sharing agreement. Under this agreement, the state determines average recoverable sugar content by sampling. The monitoring bodies are tripartite committees comprised of representatives of the state, growers, and millers. The committees are present at big mills at the time of crushing. Efficient mills

with a higher extraction content keep the difference because there is no averaging at the mill level. Each mill receives quotas for protected domestic contracts and exports under long-term contracts. Any production above the established quotas can be sold at the world market. The scheme is self-regulating and contains built-in incentives both for increased production efficiency and export expansion carried out by private exporters (ACIAR 1994). For the scheme to succeed, both growers and millers must trust the state to intermediate fairly within the agreed-upon framework. The system has remained in operation for 17 years.

The development of the Thai sugar industry can be considered a spectacular success. Increases in both production volume and efficiency have occurred in an environment of steep border price fluctuations, unprotected by an exclusive foreign quota arrangement like that which defined sugar trading in the Philippines. As has been demonstrated, the main characteristic of Thai state intervention in the sugar sector was its pro-producer nature and its willingness to allow trade and other policy implementing agencies to fail once they outlived their usefulness. This created space for institutional experiments and a search for solutions acceptable to all parties. Increasingly, the state came to act as a mediating rather than a prescriptive force. The state was ready to subsidise the development of the sugar industry through high consumer prices, but not through budgetary allocations. However, at no juncture has the state tried to expropriate revenue from the industry or take advantage of its privileged position as an informed arbiter. The long-term predictability of the state position in an otherwise unstable sector has served as a guarantor for the continuity of the rules of the game, a factor that has proved important to the success of the industry.

Indonesia

The evolution of commodity policies in Indonesia has two main features. First, the effort to increase rice production and the well-being of rice farmers was central to Indonesia's development strategy. Second, this strategy was pursued with iron-fisted top-down control. The rigid extra-sectoral control over these structures ensured that they did not evolve in tune with the changing needs of farmers, but collapsed at times when economic crisis coincided with the political crisis of interests that supported the government as a whole. The institution that played the dominant role in rice and sugar policies was the massive parastatal BULOG (*Badan Urusan Logistik*, or State Logistics Agency).

BULOG. It is safe to say that BULOG is one of the highest-profile food procurement agencies in the world. It owes its reputation to 'success in storage, handling, and movement of large quantities of rice over the extensive geographical area of Indonesia' (Ellis 1990:48). While BULOG's rice management practices are internationally well known, widely cited by policymakers and frequently reported in professional journals by Western advisors to BULOG, the full range of BULOG's activities is yet to receive scrutiny in the West (Timmer 1996, 1997).

BULOG was created when Suharto became president of Indonesia. In the apt expression of one prominent member of the New Order government, BULOG grew with Suharto.¹⁷ During Suharto's time in office, BULOG's institutional prominence and the number of commodities it controlled both increased. When the regime ended, BULOG's economic power imploded. To understand these developments and their impact on Indonesian agriculture, we examine the legal and institutional arrangements that secured BULOG's role in the procurement and distribution of a number of staple commodities, as well as the sources used to finance BULOG.

BULOG has its roots in military procurement. Its predecessor was KOLOGNAS (*Komando Logistik Nasional*), a military logistics agency whose last commander under the Old Order was Suharto. Although KOLOGNAS was renamed BULOG in order to make its name better suit its new civilian role,¹⁸ the agency nonetheless continued to be run by the military and headed by a military officer right up until 1995.

KOLOGNAS, and later BULOG, had close working ties with a group of traders made up of former army quartermasters. As mentioned earlier, this exclusive group of predominantly Chinese traders was granted preferential access to the commodity trade, while the military officials of BULOG who secured this access were generously compensated by their clients."

BULOG has served intertwined ideological and economic functions. The agency's main official mandate was to stabilise the price of rice. Rice has been vital to the political success of the regime (Arifin 1995). In his 1969 annual address to the nation, President Suharto announced support for rice farmers and stable and affordable consumer rice prices as cornerstones of his development policy (Mears and Afiff 1996). Nation-wide investment programs for irrigation and agricultural inputs were launched. While these programs were coordinated by the Department of Agriculture, BULOG's price stabilising policies were designed separately and there was little coordination between the two agencies. It is interesting to note that as

Suharto's national leadership became better established and oil crises demanded the curtailment of public expenditures, public investments in agriculture diminished, while the scope of BULOG activities expanded (Kasryno et al. 1999). As a consequence, the bulk of financing for agriculture shifted from a mechanism based on transparent budget allocations, which could not be easily diverted, to BULOG, where transactions were secretive and not transparent.

Unlike Thailand, Indonesia has responded to crises in the sector by strengthening rather than weakening the hand of procurement agencies. BULOG's role in the sector was elevated to new prominence after the 1973 rice crisis, when rice shortages posed a threat to the survival of the regime." At that time BULOG's military staff was reinforced with a team of Western advisors, who designed a mechanism for well timed and effective rice market interventions. The combination of technical savvy and operational discipline helped produce an image of technical efficiency and professionalism, traits that set BULOG apart from the majority of public agencies in a developing context.

Considering the fact that BULOG reached the heights of its international acclaim without ever reporting on the cost of its operations or the use of its profits, it may be useful to take a further look at BULOG's operations and financing.

Expansion of BULOG. In 1969, a presidential decree²¹ made important changes to BULOG's system of governance and operational scope. The agency was made directly accountable to the President, and in addition to rice procurement for government employees was given the tasks of state warehouse construction and rice quality control. While BULOG was to advise the government on price stabilisation and trade in nine staple commodities, it was not to monopolistically control domestic or foreign trade in these commodities.

An official report made in 1970 highlighted BULOG's corrupt practices. To streamline control over agricultural policies, the report recommended drastic curtailment of BULOG's operations as well as its re-subordination to the Department of Agriculture (Bresnan 1993). The report was never officially discussed in the government. In fact, subsequent developments moved in the opposite direction. In 1971, the responsibilities of the agency were dramatically expanded as BULOG became the sole importer and distributor of sugar, the sole importer of wheat, and the sole distributor of wheat flour." In the following years, other commodity operations were

added to this list, including meat supply to Jakarta (1974), control of soya imports (1977), a price support for corn (1978), and price support programs for soya, mungbeans and groundnuts (1979). A 1979 decree²³ expanded BULOG's operations yet further, making the agency directly responsible for the control and stabilisation of both consumer and producer prices for rice, wheat and other staples.

The oil crisis of 1982 underscored the need to curtail budgetary and extra-budgetary expenditures and develop non-oil sources of foreign exchange. Technocrats in the government started to protest against BULOG's monopolistic position. Minister of Trade Sumitro and Economic Coordination Ministers Widjojo and Wardhana pushed for a reorientation of Indonesian agricultural policies from commodity control to trade liberalisation.²⁴ The technocrats found allies in international development agencies, including the World Bank, which in 1986 questioned the efficiency of BULOG rice commodity operations and its monopolisation of the wheat, sugar and soya trades (World Bank 1996).

None of the advice to curtail BULOG's power coming from within or from outside the country was adopted by the government. Eventually the pro-liberalisation Minister of Trade was removed from office and the Ministry of Trade was merged with the Ministry of Industry, which was oriented toward state-led import substitution. In 1993, BULOG's mandate was expanded yet further to include maintenance of reserves, and distribution and marketing of cattle feed.²⁵ It took the financial crisis of 1997 and Suharto's downfall to wrestle the trade in agricultural commodities away from BULOG. A 1998 presidential decree narrowed BULOG's responsibilities to management of price, quality and distribution of rice. Food imports were opened to private traders holding general import licenses. Management of BULOG was passed from a Suharto appointee to the Minister of Industry and Trade (Economist Intelligence Unit 1998a). Thus, over 30 years of Suharto's rule, BULOG came full circle.

During these three decades, BULOG expanded massively, so that by 1997 it had grown into a public trading structure that owned or controlled 1,500 warehouses and employed a staff of 7,000.²⁶

The official goals of BULOG expansion were 'improved standard of living for the farmers and through increased farm productivity and farm income' and 'promoting increased consumption of non-rice staples (especially of the domestically grown "palawija")...thereby bringing a more balanced diet to the people' (Amat 1982:187). These stated goals, however, did

nothing to explain the monopolisation of trade in wheat, for example, an imported commodity whose control could not benefit domestic farmers. Neither could centralised importation be viewed as beneficial to consumers, since domestic prices of wheat and wheat flour were 2–2.5 times higher than world prices (Bank of Indonesia, various issues).

In 1998, BULOG failed to deliver on its main function, national food security. In the wake of the economic crisis, panic food hoarding, betraying a lack of public confidence in BULOG's ability to control prices, led to a drastic increase in the prices of staple foods, particularly rice. BULOG's ceiling prices were broken. According to official estimates, 40 million people (20 per cent of the population) were suffering from hunger (Economist Intelligence Unit 1998b). In 1997/98 BULOG operated at a loss (Garcia-Garcia 1998). The machine created to prevent just such a disaster could do nothing to mitigate or alleviate the problem. On the contrary, the expectation that BULOG would be capable of handling food pressures precluded other safety net mechanisms from being developed.

Financing of BULOG. A less publicly discussed reason for placing non-rice commodities under BULOG's control was cross-subsidisation—the use of 'quota premiums' from wheat, sugar and soya imports to support rice stabilisation expenses (Pearson 1998).

Commodity cross-subsidisation is not the only aspect that makes BULOG financing not transparent. Legally, BULOG financing is the least precise part of otherwise very detailed documents that govern BULOG's organisation and responsibilities. For example, a 1993 decree on the operations and organisational structure of BULOG contains 41 articles detailing its structure and organisation, but only one one-line article dedicated to financing: 'The financing of BULOG shall come from the Government, bank loans, and other financial resources pursuant to prevailing stipulations'.²⁷ The financial accountability reports of BULOG are described as 'composed separately', without any clarification on auditing arrangements.

Consequently, BULOG's access to commercial or public resources was unregulated and could take virtually any form. The size and use of BULOG's profits have never been officially revealed. The known sources of BULOG financing fall into three categories: state payments for rice sales to civil servants and the armed forces, reportedly at above-market prices; Bank of Indonesia credits to cover the operational costs of BULOG, usually with low interest rates and poorly enforced repayment; and profits derived by BULOG from its operation.

BULOG's revenue. As noted by Ellis (1990:48), 'BULOG's technical capabilities need to be set apart from the cost of running BULOG, about which relatively little is known. The problem with the latter is that BULOG's three-fold food security role has never been differentiated for accounting or financing purposes'.

Calculations by Garcia-Garcia (1998) demonstrate that, in the four years preceding the 1998 crisis, the profitability of BULOG stood at about 20 per cent, an improbably high figure for a private trader but believed to be standard for BULOG. According to Garcia-Garcia's calculations, BULOG revenue constituted about 0.4 per cent of the national GDP.²⁸

By the early–mid 1990s, the cost of rice price stabilisation was thought to have risen substantially to \$100–150 million (Pearson et al. 1997). According to the calculations of Garcia-Garcia, this sum constitutes between one-third and one-fifth of BULOG's profits, even if profits are calculated without accounting for preferential credits from the Bank of Indonesia (Garcia-Garcia 1998:13).

BULOG sold all imported wheat, all domestically produced and imported sugar, all imported rice, and an estimated 5–10 per cent share of domestically produced rice to a group of large-scale licensed traders (Garcia-Garcia 1998). Traders belonging to an association of BULOG distributors received a quota from BULOG which they then traded among themselves, an indication of quota rents.

The post-Suharto scandals revealed massive siphoning of BULOG resources for personal and political gain by the highest officials of the New Order, Habibie and even Megawati governments (Economist Intelligence Unit 2000b). The lure of transactions via BULOG that are not transparent will remain as long as the agency's role and new accounting practices have not been codified and the political situation remains unstable.

Assessment of BULOG. Literature that examines BULOG's successes primarily concentrates on its rice price stabilisation function. Assessments range from the view that price stabilisation puts rice producers at risk to the view that stability in intra-year and inter-year rice prices is key to farmers' decision to produce (Jones 1995; Dawe 1996). The current assessment of many observers is that BULOG's rice stabilisation effort has been well designed and executed, and that in the 1970s it played a positive role as a complement to rice investment programs. However, most agree that, with time, the share of rice in private consumption has decreased and the readiness of farmers to diversify into other crops has increased, as have the cost of the

program and the rate of protection contained in BULOG-supported rice prices. Today, both designers and long-time supporters of rice stabilisation programs suggest a re-examination of BULOG's role in rice policies, including turning to tariff-based controls (Tabor and Meijerink 1998; Timmer 1993, 1996; Warr 1999).

BULOG's control over other commodities did not have the ideological or political force of the rice mandate, nor the justification of superior technical competency. No food security argument could justify the monopoly in imports of sugar, wheat or soybeans, nor was there an economic justification for the persistent rigidity of the trading regime for these commodities (Mears 1982). In any case, as we will show below, it was not just these 'secondary' commodities that suffered from excessive control, but rice itself, the main justification for BULOG's existence.

Rice. Development of the rice sector was not just one development goal among many. It was central to the legitimacy of the regime and its leader. 'Rice self-sufficiency was President Suharto's personal obsession and that was the main reason why it had always been a top priority of agricultural development during the New Order regime' (Simatupang 1999:144). Support for rice production at almost any price was the outgrowth of this position.

Domestically, BULOG intervenes in rice markets at harvest time and buys at a pre-announced floor price. It also imports rice both for the intra-year buffer stock and the inter-year buffer fund. It stands ready to protect the announced ceiling prices and sells when the price rises above the announced limit. When imports are required, designated rice importers come from the same group of appointed traders that is involved in exports and domestic distribution. After the public announcement of rice self-sufficiency in 1984, the government adopted a policy of exporting excess rice in years of surplus and importing in years of shortfall. Both arrangements have been coordinated by BULOG, and both have proved problematic.

Ideologically, after self-sufficiency had been announced, the government was reluctant to import, not wanting to tarnish the image of the achievement. After a bad domestic harvest in 1986, rice was imported too late and BULOG was forced to break the ceiling price. Only after the face-saving formula of 'self-sufficiency on trend' had been created were scheduled imports resumed. In 1987, the year of a big rice harvest, the government authorised and subsidised exports of rice by BULOG. However, BULOG had neither sufficient experience to promote rice exports nor sufficient interest in it

since domestic costs and prices were both higher than world costs and prices at that time. BULOG did not invest in cross-subsidising rice exports by domestic revenue, the path taken by Thai sugar exporters, because revenues were channelled for uses outside the sector. Thus, BULOG's structure remained unchanged despite a dramatic change in its functions.

Rice distribution or **political** control? Despite a fairly small market share in rice, BULOG has the ability to control not just domestic prices, but also channels of domestic rice sales. BULOG makes 80 per cent of its domestic rice purchases from KUDs (producer cooperatives) at prices slightly higher than the domestic market price. Producer cooperatives are government-created entities headed by appointed leaders.²⁹ There are numerous reports of economic inefficiencies and corruption in KUD operations and of farmer resistance to KUD prescriptions for the production of commodities and use of inputs. However, KUDs acted as conduits of government policies at the village level and as organising units for GOLKAR, the governing political party. Thus, assertions of free domestic trade in rice would seem to underestimate BULOG's control of this key distribution and marketing channel.

The benefits to rice farmers from BULOG's price stabilising operations are a matter of much debate. Above-cost domestic procurement and diminished price fluctuations combined with the government irrigation program and input subsidies have allowed rice production to expand. At the same time, as returns from the Green Revolution have diminished, farmers have been willing to move to other more lucrative cash crops. Such diversification, however, is reported to be hampered by KUD coercion of farmers to continue with rice production.³⁰

In the late 1980s, the advice of international donors to curtail trade intervention in agricultural commodities was not followed, whereas advice to curtail state investment in rice production was. One interpretation of this selectivity is that the legitimising role of rice subsidies has diminished, while the redistribution role of BULOG has not. As subsidies decreased, so did the incentives for farmers to concentrate on rice. However, farmers' ability to move to other crops was constrained by continuing ad hoc subsidies of rice and uncertainty about state controls on other commodities.³¹

In the post-Suharto years, support for blanket consumer subsidy schemes was no longer an option. On IMF insistence, the program of rice subsidies for the poor has replaced the blanket ceiling price support scheme. The ideology behind the rice quest has been dismantled (Economist Intelligence

Unit 1999b), and production of rice has been disrupted by the inability of post-Suharto BULOG to provide input credits through KUDs and the vagueness of possible private arrangements (Economist Intelligence Unit 1999a). Restructuring rice production into an efficient productive sector will take much more than a change in trading arrangements. There is a chance, however, that rice producers will have much more say in the design of the new generation of Indonesian agricultural policies.

Sugar. The top-down system of sugar-marketing controls includes disincentives for increased and more efficient domestic production—both growing and processing. Until recently, the major sector players were removed from decision making and could not participate in the redesign of the institutions governing sugar production and sales. The spectacular failure of sugar policies is sometimes explained, if not justified, by the role sugar revenue played in subsidising rice production. This justification appears weak, however, since the bulk of sugar revenue diverted from the sector benefited an exclusive group of traders much more than it did sustainable investment policies in the rice sub-sector.

Development and disincentives. Under Dutch rule, Indonesia was the world's second largest sugar exporter. Since then, however, sugar production has suffered from a number of afflictions, the most important being rigid production and milling arrangements. The system of forced production introduced by the Dutch has in principle remained unchanged. A revenue-sharing arrangement deprived both growers and millers of incentives to invest in increased yields or extraction. With the sugar trade removed from the key actors in the sub-sector, Indonesian sugar became less competitive. During the period studied, Indonesia became a major sugar importer.

Growing. From a legal standpoint, the main difference between the colonial arrangement and the Cane Intensification Program (TRI) launched in 1975 was that under the former farmers were forced to lease land to sugar mills, whereas under the latter they were forced to cultivate cane to ensure adequate supplies to sugar mills (Mubyarto 1977). The TRI program also included a package of credits and inputs for farmers, who were required to use the subsidised inputs for sugarcane production and sell the output to designated mills. Payment was determined by the rate of extraction and paid in cash minus the input advances. Before 1980, farmers had the choice of being paid in either cash or sugar; because they thought the sugar price was too low, they tended to prefer in-kind payments. Since 1981, BULOG has monopolised the domestic sugar trade, and farmers have been deprived of

the in-kind payment option; consequently, they have not been able to use sales price differentials to enhance their revenue (Amin and Rahman 1982). Between 1988 and 1997, the price received by farmers decreased from 66.4 per cent to 61.8 per cent of the retail sugar price, a very low share relative to international practices (Rusastra et al. 1999).

Farmers suffered losses from sugarcane growing and would likely have switched to other crops if not for restrictions. Despite the average increase in sugarcane area between 1970 and 1996 of 15 per cent per year, cane and sugar productivity per hectare has been decreasing. The fall in yield has not been a function of the move to non-irrigated areas alone. For example, between 1988 and 1997, yields have fallen in both irrigated and non-irrigated areas (Rusastra et al. 1999).

Milling. Whereas in colonial times millers had established a collective sugar marketing structure to secure collective bargaining in the overseas markets and coordinate self-regulation of the sector, the TRI arrangement effectively removed millers from decision making in the sugar sector (Nelson and Panggebean 1991). The price of sugar was decided on a cost-plus basis by BULOG and the Ministries of Agriculture, Trade and Finance. This pricing arrangement contained no incentive either to increase the efficiency of sugar extraction or to increase overall production. The competition-free environment allowed state-owned mills, notorious for outdated equipment and low productivity, to survive in parallel with private mills, which produced almost twice as much sugar as the state-owned mills (Rusastra et al. 1999). The restructuring plan adopted after the collapse of the Suharto regime calls for the closure of 26 out of 57 aged mills operating in Java (Economist Intelligence Unit 2000a).

Trading. As described above, BULOG sells sugar to an appointed group of traders that trade sugar allocations among themselves. The list of BULOG sugar distributors includes 400 traders, in practice controlled by a much smaller number of oligopolistic traders who collude to increase sales margins (University of Indonesia 1998). Between 1988 and 1997, the domestic price share of traders increased from 17.2 per cent to 23.1 per cent (Rusastra et al. 1999). According to Garcia-Garcia's calculations (1998), in the 1990s before the 1997 sugar crisis, imports were BULOG's main source of income, generating one-half of the gross margins of the agency's operations, although it did succeed in inter-year sugar price stabilisation. Considering that domestic prices have been stabilised at a level 2–2.5 times higher than that of world prices, however, this is hardly a meaningful achievement.

For BULOG, rents from monopoly sugar imports were higher than from domestic procurement, while transaction costs were much lower, giving the agency no incentive to enhance domestic production. It is not surprising, then, that sugar imports increased from 6 per cent of consumption in 1985 to 38 per cent in 1997.

In any list of achievements of the Suharto regime, rice self-sufficiency is considered one of its proudest moments. The examination of collateral damage, in this case to the sugar industry, makes this achievement seem far less impressive.

The Philippines

The Philippines presents the most graphic picture of the negative effects of a state monopoly of commodity trading for both commodity producers and more broadly for the national economy. In the case of sugar, the Marcos regime's undermining of the sector's economic power was not just a side effect of cross-subsidisation or rent seeking, but rather an explicit political objective, intended to undermine the powerful sugar interests. In the case of rice, impressive research and development breakthroughs were thwarted at the implementation stage by poorly coordinated input distribution policies and unfinished land reforms. For sugar, the end of the Marcos regime brought trade liberalisation and higher levels of protection, whereas for rice the post-Marcos years saw the continuation of unbalanced investment programs and poorly orchestrated state procurement. Here we discuss the institutional arrangements that have led to these grim outcomes and relate them to the effective exclusion of producers from sector-specific decision making.

The National Food Authority. State procurement arrangements in the Philippines look like a poorly executed version of BULOG trading practices, with the waste and diversion of resources apparently even higher and the welfare effects even lower.

History of expansion. In 1962, the Rice and Corn Administration (RCA) was created under the office of the President.³² The body's mandate was to distribute rice imports in urban areas, set floor and ceiling prices for rice and corn, and accumulate stocks for the national reserve. To achieve this goal, it was authorised to procure rice and corn directly from producers. Rice imports, however, were not monopolised. Beginning in 1966, the RCA was allowed to import rice and corn through private traders after public bidding in cases of national emergency or a shortage of domestic production.

The RCA was controlled by a Board of Administrators composed of a chairman and four members, two of whom represented consumers and two producers. A fund was allocated by the national treasury to cover operating expenses.

In subsequent years, a series of consolidations centralised and expanded the role of the parastatal. With the onset of martial law in 1972, the RCA was placed under the supervision of the National Grains Authority (NGA), controlled by the Ministry of Agriculture.³³ The mandate of the NGA was expanded. In line with the development fashion of the time, the NGA was supposed to implement an integrated approach to crop production, effectively meaning ill-defined coordination among growers, millers and traders. Under this new arrangement, the NGA was to be financed by the National Grains Industry Development Fund, which had accumulated proceeds from the additional tax on rice and corn mills, surcharges on warehouses, import licensing fees, and funding from international donors.

The centralisation of commodity trading in the late 1970s, when Marcos's rule began, went beyond any possible integrated development recommendations. Like BULOG, the NGA was placed under the direct control of the office of the President.³⁴ The NGA's scope was expanded to include wheat, soya, mungo and cassava, and the licensing of grain processors, wholesalers and retailers. The composition of the NGA Council was reconstituted, and representatives of rice producers and traders were removed. The NGA was granted full control of both import and export of all grains.

The final dramatic expansion took place in 1981. The NGA was renamed the National Food Authority (NFA). The NFA was authorised to control not only grains but 'basic food commodities' in general, including meat and fish products, vegetables, fruit, drugs and an array of consumer goods. The NFA was given the power to regulate food producers, processors and traders, and manufactured and processed food products. It controlled a network of retail stores and appropriated a food terminal. The Minister of Human Settlements, Imelda Marcos, was appointed chairman of its council. **NFA financing under Marcos.** Under Marcos, the NFA enjoyed access to a vast range of funding sources. In addition to the authorised capital stock of 5 billion pesos (approximately 2 per cent of GNP in 1981) fully underwritten by the government, the government could make additional equity investments. Further, the NFA could issue its own tax-exempt, fully guaranteed bonds, obtain guaranteed credits from abroad, and purchase

land. The government could subsidise operations of the NFA, and the body also received preferential interest rates from the Central Bank. These subsidies were granted to the NFA on top of its own revenue, which officially doubled after lucrative wheat imports were added to the list of controlled commodities. A World Bank report estimated that between 1976 and 1982 the NFA made \$310 million in net profits from these imports alone (World Bank 1984).

From an organisation that employed 1,000 people in 1966–67, the NFA had grown into a corporation of 11,207 employees by 1984. NFA in a pluralistic setting. These fantastic provisions for financing the NFA proved excessive even for a regime famous for its excess. Eventually, pressure began to mount for some change to the structure of NFA. Gerardo Sicat, the director general of the National Economic and Development Authority, resigned, and in 1985, under pressure from the IMF and World Bank, the NFA's control over milled rice and non-grain commodities was terminated. At the same time, import of feed grains and wheat was liberalised.

However, it was not until the Aquino administration came into power that the NFA lost control over the commodities outside its original core competencies. In 1986, the second executive order of the Aquino government removed the NFA from presidential control and placed it under the Department of Agriculture. With the removal of profit-generating commodities from the NFA's jurisdiction, the NFA had to depend heavily on state subsidies. The size of the subsidy was set at about 1 billion pesos per year, a sum insufficient to cover its sales operations, high overhead, and interest payments on guaranteed state borrowing.

Changes in the management of the NFA were more difficult to achieve. An institution designed as an authoritarian rent-seeking machine was slow to adapt to a more transparent and legally binding setting. Recent reviews of the NFA proved that its rice price stabilisation role was very costly—delivering one peso of price support to producers in the late 1980s cost more than one peso.³⁵ At the same time, the scale of the NFA operations, which fluctuated from 7.0 to 0.4 per cent of marketable surplus, was too small to affect a large percentage of rice farmers.

The abolition of the NFA, however, proved to be politically difficult, partly because consumers learned to regard rice price stabilisation as a public good, even though the rice share of household expenditures had decreased, particularly in urban areas.

Nonetheless, the operational differences of the NFA in an authoritarian, as opposed to democratic, setting are dramatic. Cross-subsidisation that affected the production of other commodities has been discontinued. Moreover, financing sources of a parastatal in a democratic setting have become a matter of public knowledge. Unlike BULOG, NFA has allowed its income statements and balance sheets to be published and scrutinised (Clarete et al.1993).

In its heyday beginning in the mid 1970s, the NFA's mandate was broader than that of BULOG. Unlike BULOG, it was much less successful in fulfilling its main function—stabilising the rice price—and its investment failures were much more visible.

One of the main official mandates of a grain parastatal is to support grain farmers. Has the NFA's policy fulfilled this goal? According to Intal and Power's (1990) study of the effects of trade and agricultural pricing policies in the Philippines, in the 1960s direct output price interventions in agriculture resulted in positive transfers to the producers. In the 1970s these transfers turned negative for rice, sugar and coconut farmers.

Overall, nominal and real incomes of sugar and coconut farmers were negatively affected by direct price interventions. The income of corn farmers improved, as did that of rice farmers, if the restrictive output effect of price changes is disregarded. With the output effect factored in, the revenue of rice farmers turns negative. Furthermore, both instantaneous and short-run direct income effects turned negative from 1980 to 1984 when input subsidies decreased.

Rice. Growth in rice yields generated by Green Revolution breakthroughs was first realised in the Philippines in the late 1960s. The successful launch of the Green Revolution was one of the reasons Marcos was able to muster enough popularity to consolidate power in the early 1970s without much protest.

In the late 1970s, credits granted by the *Masagana 99* agricultural investment program were not repaid, and the program was curtailed. Producer prices received by Philippine rice farmers were close to world prices (World Bank 1984), yet the profits for both farmers and millers were reduced by the NFA's inefficient handling of rice exports.

As in Indonesia, the NFA's rice-exporting mandate produced a conflict of interest. Exports required initial expenditures and knowledge of markets that the NFA lacked and, as a national monopolist, had no incentive to acquire. In the late 1970s, the NFA accumulated stock that it was reluctant

to sell. When it was pressured to sell in the early 1980s, the world price was low, thus its losses were high (World Bank 1984). Loss of income through inefficient sales created disincentives for both farmers and millers to expand or improve production (David 1996).

From the second half of the 1980s onward, nominal protection rates in rice increased somewhat, but they still remained fairly low, at below 20 per cent. It was argued that such a low level of protection served to offset the effects of peso overvaluation. The increase in protection rates, particularly as of 1995, was a testimony to the increasing power of the rice lobby.

Growth in rice production slowed from the mid 1980s onward, in part for technological reasons that are beyond the scope of this analysis.

Sugar. Sugar has been one of the main Philippine exports since the end of the 19th century. During the last century, Philippine sugar exports depended on the preferential US quota. After the Second World War and up until 1974, the United States allocated the Philippines a quota of approximately 1 million tons. One effect of this preferential pricing was expanded sugar production without increased efficiency (Nelson 1988). Secure sugar markets also assured secure prosperity for large sugar growers, whose market position was reinforced by political leverage.

In pre-Marcos times the government did not actively intervene in self-policing of the sugar sector. The Sugar Quota Authority allocated the US and domestic quotas through consultations with the sector. The quotas were divided into three parts: the domestic quota, sold at prices lower than US quota prices but higher than world prices; the lucrative US quota; and the quota for other exports. Each mill was individually responsible for the sale of the quotas.

Sugar under Marcos. Major changes in the management and control of the sugar industry occurred in 1974. The US quota was removed, and internally the government assumed a much more controlling and much less collegial attitude toward sugar traders. World sugar prices were at a record high, so windfall revenue could have eased the adjustment of the Philippine sugar industry to post-US quota market conditions. The new state-controlled structures, however, turned this opportune situation into a crisis.

In 1974, a Philippine exchange company (Philex), the agency of the state-owned Philippine National Bank, was designated as the sole buyer of sugar mill output and the sole exporter of sugar. Philex, later renamed NASUTRA, bought sugar at composite prices and divided it between quotas for sale without producer participation. Transactions were not transparent,

and no information was made available to the public. Philex was inexperienced in international trade and held the sugar, expecting prices to rise, but was later forced to sell at a loss (Pabuayon and Catelo 1985).

The Marcos government took control of both domestic and international trade with two objectives in mind. The official justification for the government takeover of sugar marketing was the same as in Indonesia—protection of consumers and producers from fluctuating world prices. The unstated goal was to reduce the financial and political power of the powerful sugar lobby. The takeover of the sugar sector gave greatest control to Marcos's closest associates, who were able to realise the greatest benefits for themselves.

Thus, the unofficial goal of political consolidation and weakening of the sugar lobby was achieved. In 1979, the National Sugar Trading Corporation (NASUTRA), headed by the infamous Marcos associate Roberto Benedicto, started to operate through a group of licensed traders, effectively increasing the chain of intermediaries and creating rents for this exclusive group. NASUTRA published no information on its sales prices or the margins it received for its services. Like Philex, NASUTRA was grossly incompetent and sold at low prices (Larkin 1993). As with other state agencies, traders' margins increased from 8 per cent before the NASUTRA monopoly to 11–21 per cent for NASUTRA's trading (Intal and Power 1990).

These direct interventions cost producers dearly—the nominal protection rate due to direct price interventions fell from 101 per cent in 1960–71 to –16 per cent in 1972–81 (Intal and Power 1990). While the composite price was higher than the world price in 1980/81, the producer price was kept 20 per cent lower than the world price. Even at these low rates, producer payments were delayed, causing sugar growers and millers to accumulate debt. Many plantations and smaller growers were effectively made bankrupt. Sugar production fell from 2.5 million tonnes in 1973 to 1.7 million tonnes in 1985. In 1983 and 1984, the Philippines imported sugar for the first time since the pre-war years (Pabuayon and Catelo 1985).

The sugar sector found itself in a deep crisis, with NASUTRA effectively bankrupt. On the insistence of the IMF, its monopoly was broken, with millers being allowed to sell directly to domestic traders. The government, however, retained a monopoly over exports.

Sugar in the post-Marcos years. Under the Aquino government, the sugar trade was returned to the private sector. Over time, sugar producers and millers agreed that to be competitive in the world market, their industry had to be made more efficient.³⁶

Multiple inefficiencies and grower–miller feuds still plague the sugar sector. However, production in the period 1992–96 was 45 per cent greater than in 1986/87. Investment in the sector remains low. One important reason for low investment is outside the sector's control—the unresolved issue of land reform, which impedes long-term planning. Producers have been trying to ensure protection for the sector through import controls as a trade-off for agreeing to GATT regulations. The democratic process is slow and has its pitfalls, but it is now more transparent and the relationship between the sector and the government is more equal than before.

The Philippine sugar sector realises that it has lost its international competitiveness and is currently trying to reinvent itself. The National Council of Sugar Producers has emerged as an important player in negotiations with the government. The council sponsors the Sugar Research Foundation, whose objective is to conduct research on ways of increasing efficiency and improving sugar marketing. In 1989/90, the National Council of Sugar Producers requested that the Sugar Regulatory Administration impose a special lien on the purchasing agreements of all sugar producers to create a Sugar Market Development Fund 'to pursue programs which will benefit sugar industry'. Millers' and planters' associations are currently negotiating new rules of engagement that would increase the competitiveness of Philippine sugar.³⁷

CONCLUSIONS AND POLICY IMPLICATIONS

This paper has examined the effects of different regimes on different agricultural sectors and incentives for key actors to enhance production and innovate. Changes in agricultural policies for two key commodities—rice and sugar—in Thailand, Indonesia and the Philippines were examined.

Among the regimes, there were specific differences in the distribution of benefits and production incentives built into rice and sugar policies. The main differences were not in the inherent ability of a regime to design a better or worse agricultural policy, but rather in its ability to redesign, in a timely manner, a policy that had outlived its usefulness and in a way that benefited key actors in the sector. In a pluralistic setting where a policy was not the ideological or legitimising quest of an autocrat, such timely replacement of a bad policy was possible. Another major difference was the composition of policy designers. In a pluralistic arrangement, producers, not bureaucrats, were the judges of policy effectiveness. They were also among the designers of new arrangements. Where producers did not have

access to policy design and were aware of the government's ability to unilaterally prolong or replace a certain policy, their ability to plan was limited.

Rice policies in Indonesia and the Philippines may not have been bad at the time they were conceived; they did, however, become bad when the international and domestic economic climate changed but they remained the same. They turned worse when the institutions created to implement them began to be used as safe havens for the reallocation of resources and graft. Producers were excluded from access to knowledge of how resources were used, and often were not among the beneficiaries of resource exploitation.

Producers did not have consistent access to public resources generated outside the sector, thus they were deprived of incentives to innovate and increase efficiency. When producers can operate in a 'developmental band' that allows for innovative policy design, such policies can translate into sectoral innovation, which, along with limited access to public resources, is a prescription for expansion and more efficient growth.

Policy implications

The differences between the effects of autocratic and more democratic institutions on the welfare of producers have not been well studied. The lack of consensus on the long and short-term effects of various levels of authoritarianism on economic outcomes leaves development practitioners on shaky grounds when considering advice that is socially and economically beneficial in an authoritarian context. The lack of clarity about these central development issues is unsettling primarily because it deprives development practitioners of guidelines for a sequence of desirable and mutually reinforcing changes in political and economic realities—changes that would make betterment of the human condition more plausible.

Time and again, the World Bank and other donor agencies have supported large-scale economic projects started by authoritarian regimes, yet leaders like Suharto and Marcos have failed as both political regimes and conduits of development policies.

Often the argument was that the stability such strong leaders ensured was more conducive to economic reform than the instability created by weak democracies. This study of interactions between commodity producers and the state in three Southeast Asian countries shows that failures of

coordination and resource distribution are not accidental, but are built into the logic of a regime that does not need to build consensus to achieve its goals. Such regimes appear strong because they can relocate large shares of national resources in a virtually uncontrolled manner. However, they have a crucial weakness: the need to legitimise their actions. In the context of the two authoritarian nations, the promise to feed the country through centralisation served as a legitimising device. Such abuse of national resources and agricultural products is the reason agricultural and food policies are more likely to fall prey to ideological imperatives than almost any other policies. It is crucial for development practitioners to always work against such political use of economic policies.

Before development schemes are approved, the political economy of a sector should be better understood and more carefully considered. More country-based and commodity-based studies in combination with cross-country empirical work will improve development advice and help determine the chances for such advice to be heard and followed by more developmental rather than predatory power holders.

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NOTES

¹ Interview with Mr Sampop, advisor to the Prime Minister, fall 1998.

² For an account of the coup and bibliography, see Legge (1972). For a discussion of possible participation by various national and international forces in the coup, see Vatikiotis (1998).

³ For a discussion of the role of the military, see Vatikiotis (1998). For the latest developments, see Shiraishi (1999).

⁴ John Bresnan contrasts the primacy of the military in Indonesia with their more constrained positions in the Philippines and in Thailand. In Thailand, 'the civil service remained separate and independent (from the military), owing perhaps to its history in the service of the monarchy', which allowed it 'to sustain flexibility in Thai politics'. In the Philippines, 'the army was led by men trained to serve as apolitical officers' (Bresnan 1993:273–4). It is important to note that in the Philippines, martial law had to be declared to make the military politically prominent, whereas in Indonesia participation of the military is not only traditional but constitutional.

- ⁵ Interview with Mr Frans Seda, former Minister of Finance and Minister of Agriculture of Indonesia, Jakarta, October 1998.
- ⁶ Interview with Mr Lim, Under-secretary of Agriculture, 1980–86, Anuila, October 1998.
- ⁷ Much of this discussion of legitimisation is based on Wurfel (1988).
- ⁸ Interview with Marinela Castillo, Executive Director, Agricultural Credit Policy Council, Department of Agriculture, Manila, October 1998.
- ⁹ Interview with Raul Montemayor, Business Manager, Associations of Farmers, Manila, October 1998.
- ¹⁰ Unless specified otherwise, discussion of the post-Marcos economic policies is based on Tolentino (1994).
- ¹¹ Interview with Marinela Castillo, Executive Director, Agricultural Credit Policy Council, Department of Agriculture, Manila, October 1998.
- ¹² In the 1960s, the share of the rice premium—a fee paid for export licenses—in national revenue ranged from 12.1 per cent in 1961 to 6.8 per cent in 1969 (Siamwalla 1975).
- ¹³ Interview with Dr Rungruang Isankura Na Ayutya, Deputy Permanent Secretary, Ministry of Agriculture and Cooperatives, Bangkok, October 1998.
- ¹⁴ Unless specified otherwise, the description of institutional arrangements in sugar trade from the late 1950s to the mid 1970s is based on Jessadachatr (1977).
- ¹⁵ Sugar Industry Act B.E. 2504, 23 November 1961.
- ¹⁶ For a description of the MOI's shift from the role of a supervisor of millers in the 1960s to that of a mediator between millers and growers in the 1980s, see Siamwalla and Setboonsamng (1989) and Ramsay (1987).
- ¹⁷ Interview with Mr Seda, former Director of the Department of Agriculture, former Director of the Department of Finance, Jakarta, 21 October 1998.
- ¹⁸ Interview with Bustanil Arifin, Chairman of BULOG, 1972–93, Jakarta, October 1998.
- ¹⁹ For more details on the nature of the military–trader alliance, see Robinson (1986).
- ²⁰ Interview with Bustanil Arifin, Chairman of BULOG, 1972–93, October 1998.
- ²¹ Presidential Decree No.11/1969, 1969.
- ²² The First Long-Term Development Plan for BULOG (BULOG dalam PJPT1), Jakarta, 1977.
- ²³ Presidential Decree No. 3911978, 1978.
- ²⁴ Interview with Mr Sudaryanto, Deputy head of BPN (National Land Agency), 21 October 1998.
- ²⁵ Presidential Decree No. 10311993, November 1993.
- ²⁶ The First Long-Term Development Plan for BULOG (BULOG dalam PJPT1), Jakarta, 1977.
- ²⁷ Presidential Decree No. 10311993, November 1993, article 37.
- ²⁸ Calculated from data in Garcia-Garcia (1998).

- ²⁹ Interview with Dr Sayogyo, Institute of Agriculture (IPB), Bogor, October 1998.
- ³⁰ Interview with Dr Sayogyo, Institute of Agriculture (IPB), Bogor, October 1998.
- ³¹ Interview with Dr Sayogyo, Institute of Agriculture (IPB), Bogor, October 1998.
- ³² Republic Act No. 3452, 14 June 1962.
- ³³ Presidential Decree No. 4, 26 September 1972.
- ³⁴ Presidential Decree No. 1485, 11 June 1978.
- ³⁵ Unless noted otherwise, information on the NFA and its operations come from Clarete et al. (1993), Asian Development Bank (1998), and Intal and Power (1990).
- ³⁶ Interview with Jose Maria Zabaleta, Executive Director of the Philippine Sugar Millers Association, Manila, October 1998.
- ³⁷ Report of the Presidential Task Force on the Sugar Industry, Office of the President, Manila, 1997.

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QUOTED INTERVIEWS

Indonesia

Mr Bustanil Arifin, Chairman of BULOG, 1972–93

Mr Frans Seda, former Minister of Finance and Minister of Agriculture

Dr Sayogyo, senior researcher in the Institute of Agriculture (IPB), Bogor

Mr Sudaryanto, Deputy Director of BPN (National Land Agency), 1998

The Philippines

Ms Marinela Castillo, Executive Director, Agricultural Credit Policy Council, Department of Agriculture

Mr Lim, Under-secretary of Agriculture, 1980–86

Mr Raul Montemayor, Business Manager, Associations of Farmers

Mr Jose Maria Zabaleta, Executive Director of the Philippine Sugar Miller's Association, Manila, October, 1998

Thailand

Mr Sampop, advisor to the Prime Minister

Dr Rungruang Isankura Na Ayutya, Deputy Permanent Secretary, Ministry of Agriculture and Cooperatives

QUOTED LEGISLATION

Indonesia

Presidential Decree No. 114/1967, 1967

Presidential Decree No. 11/1969, 1969

Presidential Decree No. 391/1978, 1978

The First Long-Term Development Plan for BULOG (BULOG dalam PJPT1), Jakarta, 1977

Presidential Decree No. 103/1993, November 1993

The Philippines

Republic Act No. 3452, 14 June 1962

Presidential Decree No. 4, 26 September 1972

Presidential Decree No. 1485, 11 June 1978

Thailand

Sugar Industry Act B.E. 2504, 23 November 1961

Sugar Industry Act No. 2 B. E. 2508, 30 April 1965

Sugar Industry Act B.E 2511, 24 December 1968

5

RURAL ORGANISATIONS AND DEVELOPMENT: THE SOCIAL BACKGROUND FOR COLLECTIVE ACTION

Shinichi Shigetomi

When development of the rural sector persistently lags far behind that of the urban sector, deliberate actions can be taken to enhance rural sector development. In a broad sense, such actions can be considered 'rural development policy'. An important strategy in the effective and efficient implementation of rural development policies is mobilisation of the rural population in rural organisations.

Rural organisations can make significant contributions to rural development in at least four ways.'

- They can act as receivers and distributors of resources and information from outside agencies. It is quite difficult for a government to individually contact rural dwellers.
- They can summarise the needs of rural people and deliver such information to outside agencies in the form of policy menus.
- They can mobilise resources held individually and communally by the rural population, lessening the burden on outside supporting agencies and increasing the self-reliance of rural development projects.
- They can serve as tools that empower the rural population. By organising themselves, people may gain the power to change their conditions and enhance their well-being

Thus, rural organisations can be used to identify effective rural development policies, help efficient policy implementation, and help to make the development process persistent (Oakley et al. 1991).

In spite of continuous government efforts, however, organisation of rural people has not always been successful (Esman and Uphoff 1984; Cernea 1985; Yogo 2000). An example of failed rural policy can be seen in the formation of rural cooperatives. Although the idea of cooperatives was introduced to developing countries nearly a century ago, they are not well regarded as a means to alleviate rural poverty (Food and Agriculture Organization 1979). It is not true that rural people are unorganised. Rather, there are many traditional groupings, including those formed for economic purposes such as mutual labour exchange and mutual financing. In the process of economic development, however, people have been required to form more institutionalised organisations for their economic survival.

The organisation of rural populations faces two major difficulties. One comes from the organisational method itself. People form an organisation because they see an economic opportunity, but, unlike in market transactions, people can only benefit as expected when they cooperate with one another (March and Simon 1993). Uncertain about the potential benefits of such organisation, poor people may be inclined to invest less energy and resources than necessary in organisational activities.

A second difficulty lies in organising small-scale entrepreneurs such as farmers. Even after an organisation is successfully established, organisers may face conditions that can negatively affect their efforts. Unlike relationships within corporations, relationships in rural organisations are horizontal, with management based on mutual agreement among members. Members can survive even if they withdraw from the organisation, however, because they have their own enterprises (for example, small farms or workshops). The organisation cannot rely heavily on coercion to maintain its membership.

Economic opportunities and regulations within a rural organisation are not sufficient conditions for its success. In order to guide the members of an organisation, it is necessary to mobilise existing institutions in the society to which the members of the organisation belong. Since 'institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction' (North 1990:3), they reduce the uncertainty of cooperation among an organisation's members.

The institution, however, is just a tool used to guide to people. Organisations are never formed without organisers, and those who promote

rural organisation should recognise the group of local people who may give birth to formal organisations for development activities (Yogo 1985).

In any discussion about organising people, two types of organisations emerge. One is the formal organisation that has specified purposes for rural development, a 'development organisation'; microfinance organisations, joint marketing groups and cooperatives are examples of this type. The other type is the organisation that is not necessarily for development activities but functions as a body that can give birth to formal organisations. We call this a 'communal organisation'; examples include consanguineous groups, neighbourhood organisations and peer groups. The communal organisation also guides the behaviour of members in development organisations because members of the latter are usually also members of the former. It is essential to recognise communal organisations as an underpinning for successful organisation of rural people. This chapter uses microfinance organisations in Thailand, the Philippines and Indonesia as examples to identify the functions of communal organisations and their policy implications for the establishment of development organisations.

FRAMEWORK FOR ANALYSIS

Definition and analytical framework

In this paper, we define 'organisation' as 'a system of consciously coordinated activities of two or more persons' (Barnard 1956). We assume two types of communal organisation, the first of which emerges endogenously through long-term and frequent social exchange among a closely related group of people (Blau and Scott 1962). This type has rules and norms that guide member behaviour. The other type is the local administrative body that is exogenously and deliberately formed by the national and local government. It installs institutions to control local people, and such institutions can serve as tools for self-administration. These two types of communal organisation and the relationship between them are unique in each locality

Past studies of rural organisations have focused on endogenous rather than exogenous institutions (Cernea 1987; Kent 1981; Uphoff 1985; O'uchi and Yogo 1985). Because many government-sponsored rural organisation programs have failed, scholars often give poor marks to official bodies of local administration (Oakley and Marsden 1984; Food and Agricultural Organization 1979; Chopra et al. 1990). It is unrealistic, however, for endogenous institutions and exogenous local institutions to

exist without having anything to do with each other (Midgley et al. 1986; Uphoff and Esman 1974; Uphoff c.1986), since the state is always an important actor in rural development, and local administrative bodies affect the success of almost all rural development programs.

On the other hand, we choose microfinance organisations as an example of development organisations, not only because they are common in developing countries (Ledgerwood 1999) but also because there have been successful cases in all three countries, varying in both form and origin. We assume that such variation occurs because communal organisations differ from country to country.

Rural organisations for development can be sustainable when there is both objective feasibility and organisational capability. 'Objective feasibility' includes economic and political opportunities, and implies that organisers can expect economic benefits through organising. Organisational capability implies that the state authority will not prohibit the organisational activity of local people. We assume that objective feasibility alone is not sufficient, and therefore try to identify local people's organisational capability by focusing on communal organisations.

Limitations of analysis

This chapter focuses on microfinance as a proxy to study the role of communal organisations. Our intention is not to describe microfinance organisations in general or discuss their effectiveness in different countries, but rather to focus on particular microfinance organisations formed for rural development projects in each of the three countries and compare them with those in the other two countries.

There are of course considerable differences among regional social and economic conditions within each nation, but because this study does not investigate rural communal organisations as a whole in each country, it is enough to understand how the communal organisations in question define microfinance organisations under given regional conditions. If we write 'in Thailand's case', we do not mean to represent the entire country, but rather to distinguish the case from the other two countries.

The analysis is based on a field survey conducted in 1999 and 2000. The chapter therefore does not take into account of important changes that occurred in microfinance organisations and local administrations after the survey period.

Typology of **microfinance** organisations

Two criteria *can* be used to categorise microfinance organisations — the source of funds and the institution used to ensure that members repay their loans.

When a group of local people receives money from outside and makes loans to its members, it collects principal and interest from the members and repays the fund providers, an organisational type we can call 'receivers'. A second source of funds *can* be the members themselves, who invest money in an institution they own. The organisation pools the money and lends it to members, in a system we will call 'pool-and-distribution'. The third source of funds is the organisation itself, which we can call the 'internal common resource'. Of course many microfinance organisations secure their funds from two or more sources, and the characteristics of each may depend on the composition of its funding sources.

Organisations must ensure that members repay their loans. One approach is to rely on personal social relationships among members. Members may follow the rules of the organisation simply because they do not want to damage relationships with their neighbours, relatives or friends. Each 'peer group' should be small enough to maintain close relationships. If the organisation has a larger membership, it may be difficult for it to control members by relying only on direct personal relationships. This 'cooperative group' may need collective consent among its members about regulations and their enforcement. If the group is too big, it may not be able to rely on social relationships or a sense of unity among its members. The organisation may have a professional staff that deals with member transactions. Borrowers may consider themselves customers of the fund provider rather than members of a rural organisation. This type of transaction is similar to that which takes place in the market, where debt repayment *can* be secured by the law and/or any other state authority.

We have described characteristics that can be portrayed as a matrix of nine boxes (Figure 5.1). One organisation may use two or more institutions to control member behaviour. When such a matrix is applied to microfinance organisations in the three countries, we *can* summarise the situation as follows.

- The dominant type in rural Thailand is a savings group, a pool-and-distribution' and 'cooperative' organisation. There are quite a few 'receiver' organisations. The organiser of savings groups, especially in the Northeast region, is usually the leadership of an administrative village.

- By contrast, in the Philippines (Central and Southern Luzon), NGOs tend to apply Grameen Bank replicas: typically 'receivers' and 'peer group' types, for their microfinance projects. Credit cooperatives, another popular form of microfinance project in rural areas, also rely on outside funding sources. There may be consent among their members, but since most have fewer than 50 members, the members are also united through close personal relationships.
- In Indonesia (Central and East Java), NGOs promote 'self-help groups' with memberships smaller than the Thai savings groups but larger than the Philippine Grameen-type groups. These are the 'receiver' and 'cooperative' types of organisation. At the same time, there is a village-level bank called Bank Desa in Central and East Java that relies on its own internal funds.

When people organise themselves for a microfinance project, why do such clear differences emerge? We will discuss this issue by focusing on the characteristics of the communal organisations in each of the three countries' rural society.

Figure 5.1 Makix for categorising microfinance organisations

		Major institutions for controlling member behaviour			
		Law and/or state authority	Collective consent	Personal social relationships	Type
Main funding source	Organisation	Bank Desa [Ind]			Internal common resource
	Each member		Savings group [Th]		Pool-and-distribution
	Outside agencies		Self-help groups [Ind] Rural coops [Ph]	Grameen bank group [Ph]	Receiver
	Type	Bank	Cooperative	Peer group	

Notes: Ind = Indonesia; Ph = Philippines; Th = Thailand.

Source: Prepared by the author.

THAILAND

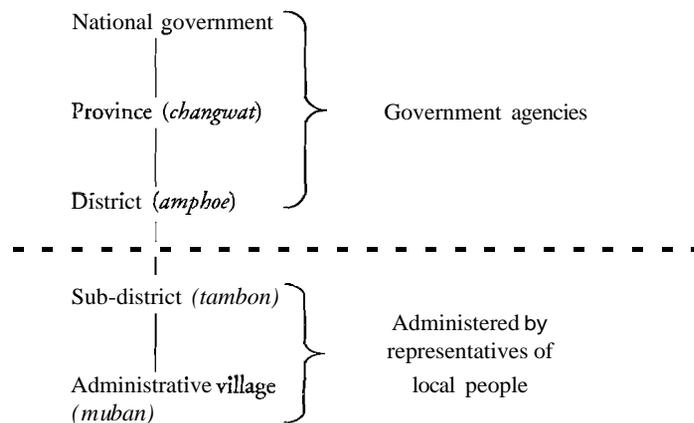
In rural Thailand, the savings group is the dominant form of microfinance organisation. This is a typical pool-and-distribution organisation based on the collective consent of its members. The organiser is usually a village community, especially in Northeast Thailand.

Local administrative system in rural areas

Figure 5.2 approximates the structure of local administration in Thailand. Administrative levels down to the district are part of the central government administration, while sub-districts (*tambon*) and administrative villages (*muban*) come under the administration of village representatives. The average size of an administrative village was 144 households or 746 persons in 1990, while a sub-district had about 1,300 households or 6,700 residents (National Statistical Office 1991, 1992).

The administrative village exhibits two major characteristics. The first is that priority is given to demarcation of administrative villages according to the indigenous residential pattern of local people. Since introducing this local administrative unit in the early twentieth century, the government has spontaneously united settlements into administrative villages wherever possible (Tej 1977). The size of these villages is based on the area over

Figure 5.2 Local administrative hierarchy in rural areas of Thailand



Source: Prepared by the author.

which people can maintain acquaintances. The second major characteristic is that village headmen have long been elected by the villagers, thus they reflect relationships among the villagers — without a certain degree of influence among villagers, few have been able to become headmen. Administrative villages in Thailand have thus been formed mainly from considerations of unity and social relationships among residents. Especially in the Northeast and Upper North where homes tend to be built in clusters, settlements have often been automatically made into administrative villages.

In contrast, sub-districts were allowed to exercise very little self-governance up until 1994. On average, each sub-district has more than 1,000 households and 6,000 people, making it difficult for residents to have face-to-face relationships outside village boundaries. As an administrative unit, a sub-district had a council consisting of a chief, assistants nominated by the chief, and village headmen, but no regular budget for administration. Because the administrative villages were the official units of local administration under the sub-districts, it was they that implemented most government projects. As a result, sub-districts served as a 'pipeline' through which government resources flowed to villages. Since 1994, however, many sub-district councils have been converted to Tambon Administrative Organizations (TAOs) with their own budget, assembly and staff.

Structure **and** functions of village communities³

Endogenous village communities in Northeastern Thailand have a number of defining characteristics. Nearly every village settlement has its own shrine for a guardian spirit to protect the entire settlement from the evil spirits believed to inhabit the surrounding forest. A worshipping ceremony for the guardian spirits is performed each year. Unhappy events that afflict the entire village, such as sickness or drought, are often attributed to the withdrawal of protection by the guardian spirit due to acts of sacrilege by villagers. To organise collective actions to protect the village as a whole, the villagers must accept their common responsibility as residents and define the range of people who should enjoy collective protection, a demonstration of the close and integrated relationships at the village level. This indigenous village is distinct from the administrative village (*muban*) mentioned above.

Of the collective actions undertaken at the level of the indigenous village, the most frequent relates to the Buddhist temple.⁴ In order to construct and maintain temple facilities and hold festivals, at certain intervals villagers have to organise to gather and manage resources (materials, money and

labour) (Tambiah 1970). They also sometimes organise collective activities to manage common natural resources such as swamps.

In Northeastern and Northern Thailand, the administrative village and the indigenous village tend to share boundaries. In the indigenous village, people have a feeling of unity and have accumulated the experience of collective activities through temple affairs. The administrative village, on the other hand, is a formal institution for collective decision making and receipt of outside resources.

Villagers may use the institution of the administrative village to organise activities related to the indigenous unit, such as temple activities, while the administrative unit can mobilise the sense of unity at the indigenous level. If an outside agency proposes a development project, the administrative village can accept it, start organising local people, and supervise management of the organisation.

Characteristics of microfinance organisations in rural Thailand

The first microfinance organisation in Thailand was a credit cooperative started in 1917. Until the 1960s, each cooperative was formed by a small group of neighbours, with average membership not exceeding twenty (Shigetomi 1998b). The funds for each cooperative came from the government; when the number of cooperatives increased, most failed to secure loan repayments.⁵ The government then scrapped credit cooperatives and built agricultural cooperatives (Sahakon 1963; Ekathat 1964). Each cooperative covers one district and secures funds from the government and banks, making them semi-governmental organisations rather than local people's organisations. Thus, 'receivers' and 'peer group' microfinance organisations were not successful in rural Thailand.⁶

In the mid 1970s, savings groups emerged. In this type of organisation, members pool their savings regularly, usually once a month. On entry, each member promises to pay a certain amount of money each month (compulsory savings). Deposits are loaned among members, in most cases at an interest rate of 2 per cent per month. Profits are shared among members according to the size of their savings. Most savings groups can earn more than the fixed deposit rate at commercial banks. Some savings groups were established to provide special loans for medical emergencies and treatment, and to make donations for member funerals. These loans require guarantors rather than collateral, but the loan amount often exceeds the deposit amount of the borrower and his or her guarantors. Some groups require collateral

when a large amount is borrowed. Members are limited to those living in the same locality, mostly in the same village, for convenience and control. Management is provided by savings groups leaders.

Savings groups have been promoted by both the government and non-governmental organisations, and their numbers have increased constantly (Table 5.1). In 1997, nearly 20 per cent of villages had savings groups, while the figures in the Northeast are even higher (Table 5.2). The savings group emerged out of a demand for loans not covered by other financial

Table 5.1 Development of savings groups in Thailand

	Provinces with savings groups	Savings groups	Total members	Deposits (‘000 baht)	Members/ group	Deposits ¹ group (‘000 baht)
1974	2	2	394	137	197	69
1975	20	34	2,283	667	67	20
1976	23	54	2,411	1,173	45	22
1977	26	213	9,136	2,487	43	12
1978	61	639	21,459	4,788	34	7
1979	69	1,093	64,614	21,130	59	19
1980	71	1,345	67,783	33,302	50	25
1981	71	1,584	81,591	44,088	52	28
1982	71	1,960	110,357	73,001	56	37
1983	72	2,821	160,055	113,864	57	40
1984	72	3,411	196,404	142,830	58	42
1985	72	4,319	278,799	200,133	65	46
1986	72	6,048	352,206	254,560	58	42
1987	72	7,167	408,646	317,372	57	44
1988	72	7,670	448,827	341,343	59	45
1989	72	8,156	487,601	403,527	60	49
1990	72	9,099	588,193	610,434	65	67
1991	72	9,177	595,890	721,412	65	79
1992	72	9,868	672,950	915,667	68	93
1993	72	9,949	765,168	1,326,696	77	133
1994	75	10,284	799,269	1,069,663	78	104
1995	75	11,248	884,437	1,837,690	79	163
1996	75	11,881	937,085	2,157,963	79	182
1997 ^a	75	11,863	971,743	2,391,397	82	202

^a All data are for year's end except 1997, which is for May.

Source: Thailand, Ministry of the Interior, 1997. *Klum omsap phua kan phalit:kho thet ching, khormun, kho sananae* [Saving Groups for Production: the facts, data and policy proposal], Community Development Department (CDD) (Krom kan phatthana chumchon), Government of Thailand, Bangkok.

institutions. It provides small loans at lower interest rates than informal loan sources, and in most cases it does not require collateral. The procedure for borrowing money is very simple compared to that used by financial institutions. It is convenient for villagers to save their small sums because they can make deposits within the village, and the interest rate is higher than that of commercial banks.

Why savings groups?

After the failure of cooperatives as a microfinance institution, the government established the Bank of Agriculture and Agricultural Cooperatives (BAAC), which provided small and short-term loans directly to farmers, without collateral and at a low interest rate (around 12 per cent per year). However, loans from BAAC were limited to agricultural purposes, and the complicated application procedure prevented many farmers from borrowing small amounts from it, a situation that encouraged moneylenders. Moneylenders

Table 5.2 Number and size of savings groups in Thailand by region (includes only groups under the supervision of the Community Development Department, c. 1997^a)

	Number of groups	Villages with groups (percent of total villages)	Members/group
Lower North	824	15.9	69
Central	1,035	16.6	78
East	665	15.5	70
West	542	11.9	115
Lower Northeast	3,136	21.6	63
Upper Northeast	2,747	25.1	80
Upper North	940	16.1	108
Upper South	673	17.4	119
Lower South	615	15.8	165
Whole Kingdom	11,177	18.9	85

^a The collection date for these data is unknown, but it is thought to be around 1996 or 1997.

Source: Thailand, Ministry of the Interior, 1997. Mum *omsap phua kan phalit:kho thet ching, khomun, kho sananae* [Saving Groups for Production: the facts, data and policy proposal], Community Development Department (CDD) (Krom kan phatthana chumchon), Government of Thailand, Bangkok:5-8.

did not require collateral, but their interest rate could be as high as 4–5 per cent per month. This situation was conducive to the emergence of savings groups.

Most members of savings groups in rural Thailand are poor, hence their deposits are small. The membership of savings groups, however, must be large enough to support an effective organisation. As a result, the average membership of savings groups exceeds 80, making them larger than credit cooperatives (Table 5.2).

Villagers are the organisers. Even though most of the groups are formed by persuasion from governmental and non-governmental agencies, a savings group cannot be established without villagers' motivation. After a group is founded, local leaders become group managers, taking responsibility for all aspects of the operation, including receiving deposits, accounting, lending, collecting debts, and distributing profits. Outside agencies can assist but only to give management advice.

Members of savings groups, especially in the Upper Northern and Northeastern regions, tend to live in administrative villages, most of which consist of just 100–200 households, assuring face-to-face relationships among residents. Because the administrative village usually coincides with the indigenous village, there is a sense of unity among people at this level, making it natural for them to accept a savings group as a village project and to start recruiting members in the same village. Outside agencies also know that the administrative village is the suitable unit for organising people, thus even NGOs usually first contact the village head and attempt to persuade him or her to organise a group within the village. In this way, villagers in Northeast Thailand combine the benefits of both the administrative and indigenous villages to organise and manage savings groups, their chosen form of microfinance organisation.

Savings groups can run into obstacles. When members are recruited from beyond the village boundary, the sense of unity among the people may be weakened and the group's stability threatened. This is the dilemma of size and stability (Shigetomi 1998c). It occurs when the sub-district has not functioned or organised local people beyond the administrative village. Since 1994 when the local administrative system was reformed, however, people have had access to collective decision making, common resources, and staff at the sub-district level. Thus, new opportunities exist to change sub-district bodies into communal organisations.

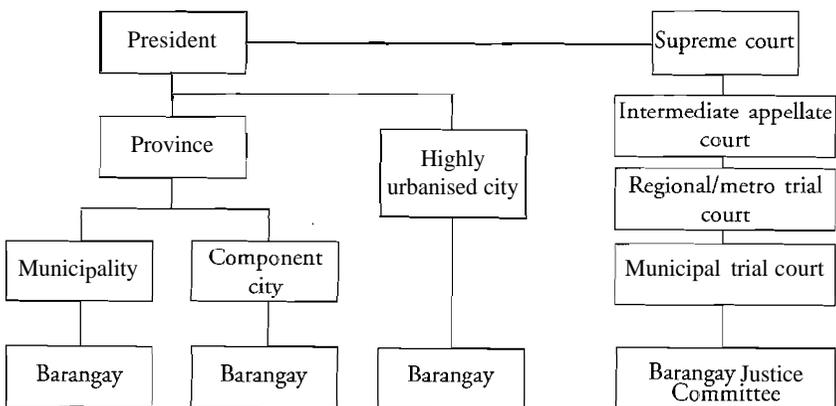
PHILIPPINES

One of the popular forms of microfinance organisation in the rural Philippines, especially in central and southern Luzon, is the Grameen-type group, a typical 'receiver' and 'peer group' type of organisation. There are also credit cooperatives, but most are very small and rely on outside funding. Those who try to organise people, such as NGOs, tend to bypass the *barangay* (the administrative village) and contact local people directly.

Barangay as an administrative village

The *barangay* is the local administrative unit that directly governs rural people in the Philippines (Figure 5.3). The *barangay* as a social unit existed even before the Spanish colonial period. Most were small gatherings of kinspeople with 15–100 households in the inland area of Luzon (Jocano 1998; Corpuz 1997). Outside of individual *barangays*, there was no political power that integrated *barangays* (Jocano 1998, 1975; Corpuz 1997). Under the Spanish colonial regime, people in rural areas were forced to gather into *pueblo*, a unit of local administration consisting of about 500 households (Corpuz 1997). The living quarters of former rural residents were called

Figure 5.3 Local administration ladder in the Philippines
(*barangay* and above)



source: Prepared by the author based on Ocampo, Romeo B. and Panganiban, Elena M., 1987. *The Local Political System in Asia*, Seoul University Press, Seoul.

barrio (Romani and Thomas 1954). Each *barrio* had a *barrio* lieutenant, assigned by the provincial governor. Later, *barrio* residents gradually moved away from the township and formed a kind of 'breakaway *barangay*'. Local priests could not neglect such new settlements and took to visiting them regularly. Later, a small chapel was built in each of the settlements (Corpuz 1997). Thus, the *barrio* became an administrative unit of its own. Now the *pueblo* is called a municipality, while the *barrio* has been renamed *barangay*.

Although this system survived in the post-independence period, the role of the *barangay* has changed. The government has increased resources allocated to the *barangay*, considering it the body most suited to implementing rural development policy (Po 1980).⁷ *Barangays* now have more authority to govern their residents. Each *barangay* has a decision-making council; residents directly elect council members and the village headman, the *barangay* captain.

Administrative procedures have been highly formalised. The *barangay* council enacts ordinances to control or coordinate the conduct of residents. For example, the law mandates that a *barangay* ordinance should be discussed at three readings of the *barangay* council, and stipulates what should be done at each reading. Several thick manuals on procedures for *barangay* administration are published for village leaders (Ortiz 1996; Ayson and Abelets 1985; Flores and Abeletez 1995).

Structure of rural communities

In 1995, the average population of a *barangay* in the Central Luzon and Southern Tagalog regions was about 2,000 people, or 320 households (NSCB 1997). This was more than twice the size of the administrative village (*muban*) in Thailand. Once established, a *barangay* tends to keep its boundary regardless of population increases. From 1980 to 1996, the number of *barangays* increased by only 5 per cent (NCSO 1981; NSCB 1997). As a result, it is not unusual for *barangays* in Central and Southern Luzon to consist of thousands of households.⁸ In the larger *barangays*, social relationships among residents have eroded. The same formal system is applied to every *barangay*, regardless of its size. In contrast, the Thai administrative village tends to be divided if the population becomes too large to keep close contact among villagers. From 1981 to 1996, the number of administrative villages in Thailand increased by 22 per cent (National Statistical Office c.1981, 1996).

Each *barangay* has a chapel, which people recognise as the village chapel and where they collectively organise an annual festival to worship the patron

saint of the village. Leaders take this opportunity to collect donations for chapel maintenance. Barangay chapels thus resemble temples in rural Thailand. Chapel priests, however, do not live in the village, and villagers' tend to make contributions to their chapel just once a year.⁹ Although a patron saint is assumed to protect the entire village, there is no ritual that connects the existence of a patron saint to the fate of an entire village. Today, the sense of being protected by a patron saint is weak among villagers.

A barangay has few communal resources. Its popular assets are a barangay hall, a healthcare centre, a daycare centre and a basketball court, none of which requires extensive maintenance. A sense of community possession of these assets is also weak.

Thus, communal spirit in the barangay is weaker **than** in the Thai village. This does not mean that Filipino villagers lack a cooperative spirit, only that they express it differently. Valsan (1970) and Hayami and Kikuchi (2000) describe cooperation between dyadically related people and within small groups. Abueva describes such Philippine communities as 'individualistic and unorganised', and declares that 'their primary attachments and loyalties are to their nuclear family, their kin and neighbours' (1969:470). Jocano writes that 'outside of the family, the neighbourhood is the only larger social unit which provides the venue for local affairs' (1988:11,93). According to Jocano, 'neighbourhood' in this sense does not necessarily imply a geographical sphere but rather closeness in terms of human relationships. Thanks to the close dyadic relationships common in the rural areas of the Philippines, cooperative actions tend to be organised and carried out smoothly.

Characteristics of microfinance organisations in **rural** Philippines

At present, four institutions provide rural microfinance in the Philippines (Agabin 1998).

- The central bank supervises rural banks and other lenders such as investors and pawnshops. It offers loans to individual customers; clients form no rural organisation.
- The Cooperative Development Authority (CDA) supervises credit cooperatives and multipurpose cooperatives.
- NGOs can carry out various kinds of projects **for** rural microfinance.
- Informal lenders are mostly moneylenders.

We focus on cooperatives and NGO programs, since they are the institutions that form people's organisations for project implementation.

Development of cooperatives in the Philippines. In 1952, the Philippine government began in earnest to promote a type of rural financing cooperative called Farmers Cooperative Marketing Associations (Facoma). Because one Facoma covered one municipality and had an average membership of 582 in 1957 (Rocamora and Panganiban 1975), no system of mutual control could operate among members. Many Facoma were used as tools for local politicians. Borrowers regarded loans as subsidies from politicians. Four-fifths of the Facoma operated at a loss and two-thirds were in arrears in 1959 (Po 1980).

During the Marcos regime, another type of cooperative was introduced. The *Samahang Nayon* (SN) was formed at the barangay level with a membership not exceeding 200 (Po 1980). Members created the Samahang Nayon's fund through contributions, making it a 'pool-and-distribution' type of organisation, in which social relationships were expected to control the organisational behaviour of members. One important mission of the Samahang Nayon was to provide loans for farmers to purchase land during the Marcos land reform program, but most were unable to become self-reliant cooperatives (Po 1980).

After financial markets were liberalised in the late 1980s, the national government stopped intervening in the financing activities of the private sector, including those of cooperatives (Llanto 1990). The major actors in microfinance are now credit cooperatives and multipurpose cooperatives. In the Luzon area, of 10,328 cooperatives that have savings and/or engage in lending activities, 85 per cent have 50 or fewer members (Table 5.3).¹⁰ Philippine cooperatives are generally small.

Microfinance organisations under NGO projects. In 1997, the Philippine Coalition for Microfinance Standards (PCMS) surveyed 223 of about 300 NGOs running microfinance activities (Dingcong and Joyas 1998; Agabin 1998).¹¹ The survey showed that most NGOs let people organise small groups of fewer than 10 members (Table 5.4). It is difficult for such a small organisation to rely on its own funds for lending activities. Among the 36 active NGOs surveyed in detail by PCMC, 18 use a group lending method and 13 apply a Grameen Bank-like system (Agabin 1998). These data indicate that most people's organisations supported by NGOs in the Philippines are 'receiver' and 'peer group' types.

Like the Grameen Bank in Bangladesh, these NGOs encourage local people to form groups of about five members. The NGOs train members,

then loan money to one of each group's members under the condition that the whole group takes responsibility for repayment. The borrower repays the principal with interest according to a weekly plan, and an NGO worker collects the weekly payments and closely monitors the performance of the group. Although voluntary savings are also promoted, the Grameen-type microfinance organisation fundamentally relies on outside money resources. The mutual control that operates in small groups, combined with the close supervision of an outside agency, is crucial for success.

Table 5.3 Size of cooperatives in Luzon region, June 2000 (active, more than one member, savings and/or financing activities)

Size	Number of members	Cumulative per cent
1-30	6,209	60.1
31-50	2,575	85.1
51-100	1,175	96.4
101-1,000	366	100.0
1001-5,000	2	100.0
5001-10,000	0	100.0
10,001 +	1	100.0
Total	10,328	100.0

Source: Calculated from CDA database.

Table 5.4 Distribution of different sized groups under NGO microfinance programs

Group size	Number of groups	Rural-based groups ^a
1-9	38	23
10-24	24	19
25-49	15	12
50+	3	3
Total	80	57

^a Not less than one-half of activity area is rural.

Source: Questionnaire of inventory of NGOs promoting savings and credit. The form is in Dingcong, Clarence G. and Joyas, Lalaine M., 1998. *Profile of Philippine Microfinance NGOs: a nationwide survey*, Coalition for Microfinance Standards, Makati.

Why 'receiver' organisations?

Even before liberalisation of the financial markets, informal lenders dominated Philippine rural financial markets, meeting an estimated 71 per cent of total demand in rural areas (Agricultural Credit Policy Council 1991). These lenders usually charged 10 per cent per month for a two-month loan. Although rural banks used to be the main player, after financial liberalisation they became less active in providing credit without collateral. From the late 1980s onwards, then, no agent provided small loans to poor villagers without collateral or a high interest rate. Thus, there was a void to be filled by Grameen-type banks and cooperatives formed by local people. Cooperatives are small. The reason most cooperatives are so small *can* be found in the source of the funds they draw on for their lending business, as illustrated by some of the cooperatives supported by SACOP (Social Action Center of Panpangas), an NGO in Panpangas.¹²

The largest cooperative, Palat Cooperative, has 86 members, but most have fewer than 50 members. Even Palat Cooperative reduced its membership from 100 to 86. The major source of funds is outside agencies, such as NGOs and politicians. Members have no incentive to increase membership because they fear their own share may diminish. Another successful cooperative (Sta. Monica Farmers' Cooperative) has also reduced its membership, from 72 to 51. According to the leaders, this organisation used to be a farmers' association but changed its status to a cooperative in order to receive more assistance from the government agency, SACOP, and local politicians. Although each of these cooperatives covers an entire barangay, they do not expect support from the barangay administration. Larger membership makes management more difficult and reduces the potential share for each member.

Dominance of the Grameen type. The popular form of an NGO-supported microfinance organisation modelled on the Grameen Bank was introduced to the Philippines after it had had unsuccessful experiences with other types of microfinance. For example, CARD (Center for Agricultural and Rural Development), before becoming the initiator of a Grameen-type system, formed an association of about 45 landless workers in each target barangay and provided the association with a loan. Within eight months of the project's first implementation, however, CARD faced delinquency problems arising from the fact that the group was too big for its leaders to control the members.¹³ It then applied the Grameen system, and this has been a success because of the smaller size of its groups, which make them easier to control.

Such experience has important implications. It suggests that a small group with five members can use social relationships to control one another. In the Grameen system, local people choose neighbours as members of the same group. As mentioned above, in Philippine rural society cooperation is more common between people engaged in dyadic relationships than among large numbers of people. If a group has five or so members, all may be connected to one another by cordial dyadic relationships. NGOs understand how to use such social relationships among rural people in order to establish successful microfinance organisations.

When NGOs try to organise people, they tend to bypass barangays. In the beginning, they send their workers to the barangay captain and ask him or her to call a meeting about their project. The NGO explains its project and persuades people to form a group. When the NGO has identified those who intend to join the program, it investigates whether each applicant satisfies the conditions of the program. After a training course, the NGO formally admits the membership and lets them submit a loan application. The NGO provides loans only after the application is approved. In this process, the role of barangay captain is just to call a village meeting. The NGO, not the barangay captain, is the organiser of the local people. This method contrasts with the Thai case, in which NGOs and government agencies expect the village headman or other village leaders to play the role of organiser.¹⁴

Barangays cannot be used to organise people. Many barangays in Central and Southern Luzon include more than 400 households, hence social relationships among the villagers tend not to be close. No sense of unity has formed at the village level. Historically, the barangay as a local administrative body was formed in order to meet the needs of rulers rather than out of local people's need for self-governance. Barangay chapels, unlike temples in Thailand, do not induce a sense of affiliation or encourage collective action among the villagers. Rather, the barangay has been used by politicians to their own political ends, for example to gather votes or legitimise their authority.

INDONESIA

In Central and East Java, we find two types of microfinance organisation unlike any to be found in the other two countries. One is the self-help group of 20–30 members, smaller than the Thai savings group but larger than the Philippine Grameen-type group. The other is a bank based on and managed by the administrative village, or *desa*.

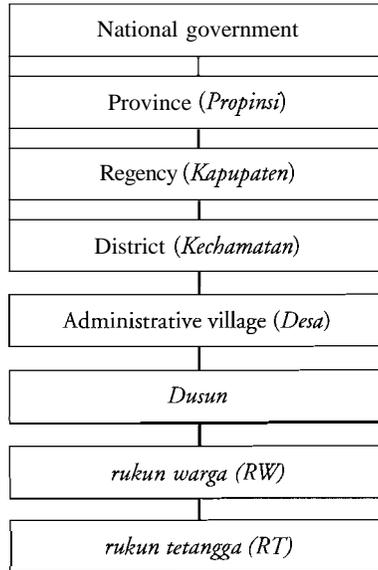
The *desa* as administrative village¹⁵

Figure 5.4 illustrates the hierarchy of local administration in rural Indonesia. The *desa* and units under the *desa* are administered by representatives of local people, while the other administrative bodies are agencies of national and regional government. Because the local government screens candidates for *desa* chief before elections take place (Schiller 1996), local figures whose attitude towards the government is unfavourable cannot become chief.¹⁶ The chief of the *dusun* is nominated by the *desa* chief and designated by the district chief. It is impossible, however, to ignore local people when appointing a *dusun* chief, since his or her duties are closely related to the daily life of local people." The chiefs of units under the *dusun*, the *mkun warga* and *mkun tetangga*, are decided by consultation among residents. Thus, although the *desa* is regarded as the main local government unit in rural areas, the government maintains a broader system of intervention through assignment of *desa* chiefs, who are in a strong position to determine the assignment of leaders of lower administrative units.

Desas in Java are quite large. In 1995, the average *desa* had 1,100 households and 4,600 residents (BPS 1995, 1998), and *desas* with more than 2,000 households were not rare. Even a *dusun* generally has more than 200 households, and *dusuns* with more than 400 households are not unusual. The *mkun warga* is often the same size as the *dusun*. To compare Indonesia and Thailand, the Indonesian *desa* tends to be the same size as the Thai *tambon* (sub-district), however the *dusun* is still larger than the *muban* (administrative village). On the other hand, the *mkun tetangga* is smaller than the *muban*, usually with about 40 households.

Different local administrative units have different functions. The *desa* represents the local people to the outside and contains institutions for decision making—the *Lembaga Musyawarah Desa* (LMD, Village Consultative Council)—and policy implementation—the *desa* secretariat and the *Lembaga Ketahanan Masyarakat Desa* (LKMD, Village Council for Development Planning and Guidance). The *Lembaga Musyawarah Desa* includes *dusun* chiefs and the leaders of other local social organisations. Under the Suharto regime, because the members of both the *Lembaga Musyawarah Desa* and the *Lembaga Ketahanan Masyarakat Desa* were assigned by the *desa* chief, ordinary local people had little opportunity to express their opinions about village administration. Below the level of the *desa*, no formal system of consultation and decision making exists for residents. If a chief feels the need to consult with residents, he or she invites them to an

Figure 5.4 Structure of local administration for rural finance organisations in Indonesia



Source: Prepared by the author with references from Morita, A., 1998. 'Indonesia' (Indonesia), in A. Morita (ed.), *Ajia no chihō seido*, University of Tokyo Press, Tokyo:167–93; and Kosuke, M., 1998. 'Indonesia ni okeru sonraku gyosei soshiki to jumin soshiki—Nishi jawa puriangan kochi noson no jirei' (Rural administrative organisations and people's organisations in Indonesia: a case study from the Priangan Highlands, West Java), in H. Kano (ed.), *Tonan ajia noson hattenn no shutai to soshiki—Kindai nihon tono hikaku kara*, Institute of Developing Economies, Tokyo:222–56.

informal meeting. In some villages, there is a tradition at the dusun level to have annual meetings and meetings every 35 days.

Each desa has its own budget. In the provinces of Java, desas secure 70 per cent of their total revenue from internal sources. Most of this revenue comes from communal land and various kinds of fees (Kano 1987). In addition to land, each desa has healthcare centres, a desa hall and other resources. Thus, a desa is not just an agent of central government but also an autonomous body that holds its own resources. Administrative units under the desa have no such autonomous budget or assets apart from the communal cemetery.¹⁸ Although officially a desa has no judicial authority

it is not rare for villagers to sanction unofficially those who violate the peace and order of the locality.¹⁹

To sum up, administrative units in rural Indonesia have the following characteristics.

- The desa has its own resources and a formal institution for decision making.
- The desa has the state-backed authority to regulate its residents; however, it is not well suited to consultation with residents.
- The desa is too big for all its residents to maintain face-to-face relationships with one another.
- Units under the desa have few resources or institutions for collective decision making.
- Some dusuns and *rukun wargas* are still too big for residents to have a sense of unity; at the *rukun tetangga* level, however, close social relationships do seem to exist among residents.

Endogenous social organisations in rural Java

According to Kishi (1967), in colonial Java the desa was an indigenous settlement unit, a community that worshiped a village spirit and had communal lands. During the late nineteenth and early twentieth centuries, however, the Dutch consolidated these indigenous desas into new and larger administrative villages (also known as desas), and in 1906 passed a law that transferred the communal properties of the indigenous villages to these new administrative villages. Thus, the present desa did not originate in the indigenous culture. Kano (1990), comparing the historical records of Central Java in 1846 with the results a field survey he carried out 1987, finds that villages with fewer than 100 households in 1846 were five times larger in 1987. He also shows that all land in two villages included in a Central Java land title survey carried out in the 1860s was communal (Kano 1990). In earlier times, each village had a shrine for worshipping the village ancestor, held village festivals, and experienced a sense of unity among residents (Jay 1969; Boomgaard 1991). Leaders tended to be descended from the earliest settlers of the area, and descent usually legitimised their governing position in the village (Kano 1990; Boomgaard 1991). These communities' strong internal bonds, communal resources and system of self-governance were **all** integrated into the administrative village, the present desa. Kano assumes the dusun to be equivalent to the indigenous desa, however the community's dramatic increase in size has destroyed any social unity that might once

have existed, and there is now no formal unit that coincides with the indigenous village community.

Besides these local administrative units, people in rural Java form many other sorts of organisation, such as groups for literacy education, Koran reading circles, cemetery maintenance teams, singing groups, dance clubs, sports groups, organisations related to mosques, *zakat* (donation) organisations, and savings groups.²⁰

Nearly every village has *arisan* (a kind of rotating savings and credit association, or ROSCAs), not only to deal with money, but also to procure goods, such as chickens for a party. People in rural Java emphasise the social aspects of *arisan*.²¹ Another type of traditional microfinance activity is *simpan-pinjam*, a kind of savings group. This also has an aspect of a social organisation because deposits are distributed for feasting and celebration at the end of the fasting month of Ramadan. Such group activities have been reported by many researchers, including Soemardjan (1963), Kawagoe et al. (1992), and Shimagami (2001).

Characteristics of **microfinance** organisations in rural Indonesia

The government of Indonesia has promoted cooperatives and established several microfinance institutions. Under the Suharto regime, village unit cooperatives (*Koperasi Unit Desa*, KUD) were introduced as a district-level financial institution for farmers (Thorbecke and van der Pluijm 1993). However, the KUD did not succeed in coordinating with grassroots community organisations, and by 1983 about half of **all** their loans were in arrears (Soemardjan and Breazeale 1993; Kern 1986).

Small group formation by NGOs. NGOs working in rural Indonesia have emphasised **small** microfinance organisations. In most cases, a group has 20–30 members, making it larger than the Philippine Garneen-type group but smaller than the Thai savings group. For example, Bina Swadaya, one of the largest rural development NGOs in Indonesia, has been helping local people to form self-help groups for microfinance since 1988 (Seibel and Parhusip 1992). In this project, Bina Swadaya borrows money from commercial banks and lends it to self-help groups. The commercial banks feel secure about repayment because the NGO takes responsibility for delinquency. According to Bina Swadaya, many microfinance groups have been formed endogenously by local people. Bina Swadaya assesses such groups and 'shortlists' them for loans, with groups of 15–25 members usually receiving priority. According to other researchers (Geertz 1962;

Kawagoe et al. 1992), most *arisans* have 10–30 members, suggesting that Bina Swadaya follows an organisational size that local people feel is adequate.

Bina Desa, another Indonesian rural development NGO, began setting up microfinance organisations in the 1970s. During the 1970s and 1980s, Bina Desa encouraged villagers to form self-help groups of 20–25 members and provided these groups with funds. It organised local people not through the desa administration, but by contacting informal local leaders, who talked about the economic problems of villagers during a *majelis taklim* (a meeting for Islamic religious activities) and persuaded villagers to form groups for economic activity.

Self-help groups tend not to be large in size. According to the community organiser of Bina Desa in Desa Jambangan, Ngawi District (Central Java), there are 10 self-help groups in the desa, the largest of which has 64 members. self-help groups in Batang District, Central Java, also tend to have less than 50 members. A self-help group in Desa Ujung Negoro of the same district had 104 members in 1996, but a conflict among members that occurred in the following year caused the group to split in half.

These self-help groups strictly limit their size in order to maintain individual benefit shares in resources given by outside agencies and prevent group instability. This tendency is also seen in cooperatives in the Philippines. In Java, however, the Grameen type is not popular at all.

Desa **banks**. Another microfinance organisation unique to Central and East Java is the Bank Desa (Kern 1986). The Bank Desa was established in 1908 with initial capital from *Iumbang desa* (village rice bank)²² or BRI (Bank Rakyat Indonesia, a government bank focusing on rural finance). Bank Desa usually gave loans to villagers without taking collateral. Four villagers were assigned to a management commission (with the chief commissioner being the desa chief), while accounting was done by a specialist who supervised several Bank Desa.

Most Bank Desa are now under the supervision of Bank Rakyat Indonesia,²³ and new Bank Desa generally receive initial funds from Bank Rakyat Indonesia. Table 5.5 shows that Bank Desa and *Iumbang desa* are concentrated in East and Central Java. According to the database of Badan Pusat Statistik (BPS: Central Board of Statistics), Bank Desa exist in more than 20 per cent of all desas in Central and East Java (Table 5.6). Some *Iumbang desa* now also function as Bank Desa.

Up to the present, the Bank Desa has been based on the unit of the desa, with the desa chief serving as the Bank Desa's first commissioner and assigning

two other commissioners from among the villagers. The Bank Desa has a professional accountant, recruited by the local branch of Bank Rakyat Indonesia.²⁴ The salaries of the commissioners and accountant are calculated from the outstanding loans of the Bank Desa and paid with the profits.

The interest rate for loans is **3-4** per cent per month with a repayment period of **3-4** months.²⁵ There is no need for customers to prepare collateral or guarantors. Every desa resident can apply for a loan at the Bank Desa. The commissioners know the customers, so no complicated forms need to be filled in to borrow money. The simplicity of the procedure is one of the elements that make it most attractive to local people. However, although the beneficiaries are all desa residents, this is a bank-type organisation and local people are its clients rather than its members.

Table 5.5 Distribution of Bank Desa and *lurnbung desa* in Indonesia

	Bank Desa	Lumbung desa
West Java	480	540
Central Java	1,886	1,155
Yogyakarta	119	75
East Java	1,853	1,516
Java, total (except Jakarta)	4,338	3,286
Othet provinces	108	684
Total Indonesia	4,446	3,970

Source: Badan Pusat Statistik, 1996. *Survey on Village Potency*, Badan Pusat Statistik, Jakarta.

Table 5.6 Number of desa with Bank Desa and *lurnbung desa* in Java, 1996

	No. of desa with Bank		No. of		No. of	
	Desa or lurnbung desa	Per cent of total desa	No. of desa with Bank Desa	Per cent of total desa	desa with lurnbung desa	Per cent of total desa
West Java	631	8.8	471	6.6	179	2.5
Central Java	2,354	27.6	1,771	20.8	829	9.7
Yogyakarta	119	27.2	100	22.8	31	7.1
East Java	2,379	28.2	1,779	21.1	885	10.5

Source: Badan Pusat Statistik, 1996. *Survey on Village Potency*, Badan Pusat Statistik, Jakarta.

According to Bank Rakyat Indonesia statistics, more than 60 per cent of loans are repaid without delay (Table 5.7). If the amount of loans 'still possible to repay' is included, more than 70 per cent are expected to be collected.

Economic opportunities for microfinance organisations

The Bank Act of 1967 prohibits banks from lending money without collateral (Mizuno 1999). During the 1970s and 1980s, when the government promoted the BIMAS Program, Bank Rakyat Indonesia provided soft loans without collateral through the BRI Unit Desa. However this program ended in the late 1980s because of delinquency problems. *Kredit Umum Pedesaan* (KUPDES), a general rural credit program started in 1984 by Bank Rakyat Indonesia, provides low interest loans but requires collateral (Patten and Rosengard 1991). A group liability system also exists, but in most cases the group tends to dissolve itself if a member does not meet repayment obligations (Patten and Rosengard 1991). Land ownership is usually regarded as collateral, but most rural land in Java has no title (Mizuno 1997).²⁶

Another option is moneylenders, who do not require collateral. According to Mizuno (1999), moneylenders charge interest rates as high as 25 per cent per month or 300 per cent per year.

We can conclude then that most of the rural population has no access to low-interest loans, and that this may be one of the reasons people have formed traditional mutual loan and savings systems such as *arisan* and *simpan-pinjam*. However, these organisations do not seek continuity or an economic scale. In the case of *arisan*, members cannot predict when they might receive a loan. Consequently, there exists a void that is not filled by

Table 5.7 Repayment of loans from Bank Desa in Java, December 1999 (per cent of total loans)

	No delay	Delayed, but still possible to repay	Repayment doubtful	In arrears
West Java	31.3	24.1	10.6	34.0
Central Java	59.7	11.8	6.3	22.2
Yogyakarta	65.3	6.1	16.7	11.9
East Java	71.1	9.6	3.9	15.3
Total	65.8	11.0	5.1	18.1

Source: Bank Rakyat Indonesia.

governmental financial institutions, private moneylenders or traditional organisations. Thus, the NGOs fill this void and try to organise local people.

Why two contrasting organisations—desa banks and small membership groups?

There are two types of microfinance organisation unique to rural Central and East Java; the Bank Desa, a bank-type organisation based on internal common resources, and the small organisation of 20–30 members that is financially supported by NGOs and in most cases based on social groups of neighbours. The latter type is formed and managed without relation to the desa or any lower administrative unit.

Why is the Bank Desa successful? The reason it can recoup more than 70 per cent of its loans is that the commissioners, especially the desa chief, have the motivation and authority to secure repayment. Since the Bank Desa loan fund is the common property of the desa, its chief has more incentive to collect it than if it originated elsewhere. Moreover, 20 per cent of the Bank Desa's profit goes into the desa's general budget. In regards to authority, that of the desa chief is also backed by the state.

The accountant also plays a crucial role in the sustainability of the Bank Desa, because he or she has a solid educational background and training in professional accounting. The accountant is not hired by the desa, making him or her independent from the desa chief. These conditions allow the accountant to maintain high standards.

Why are small-scale (20–30 member) organisations popular in NGO microfinance projects? In this regard, it is important to take note of the strong tradition of group formation in rural Javanese society. There already exist many endogenous organisations (for example, arisan and *simpan-pinjam*) that are founded on the principles of collective consent and clear membership. Many such organisations are based on locality and have 20–30 members. Moreover, throughout rural Java there are many informal leaders, such as Islamic religious leaders. The fact that Bina Swadaya had to 'shortlist' endogenous groups to form self-help groups is evidence of the richness of rural organisations in rural Java.

These small organisations do not intend to expand their membership because there is no economic incentive to do so. On the other hand, Grameen-type organisations have not become popular in rural Java because conditions in the area facilitate the formation of larger organisations, making five-member groups unnecessary.

These two types of microfinance organisation can serve to illustrate a salient feature of communal organisations in rural Java. There are various kinds of small groups based on close social ties among neighbours, suggesting that rural Javanese are experienced in organising themselves. On the other hand, the *desa* is an example of people's capacity to manage bank-type organisations; however, it has not succeeded as an organiser of local people. Other administrative units (for example, *dusun* and *rukun tetangga*) have also failed to make the most of existing social organisations and local people's organisational capacity. Thus, there seems to be a mismatch between endogenous and exogenous systems of organisation in rural Java.

CONCLUSION

Differences among microfinance organisations

In this chapter, we have seen that each of the three countries has some popular and successful types of microfinance organisation. Interestingly, they show considerable differences in their formation and organisation (Figure 5.1).

In Thailand, a popular form of microfinance organisation is the savings group, a 'pool-and-distribution' type of organisation with on average about 80 members, whose behaviour is guided by their collective consent to certain rules. The administrative village is usually the organiser of the savings group in Thailand. In the Philippines, a Grameen-type organisation is the most popular form. These are typical 'receiver' and 'peer group' types of organisation, and each group is very small, with about five members. Personal social relationships are the key element that secures repayment, but the strong initiative and supervision provided by NGOs is also indispensable to these organisations' success. Most rural cooperatives limit their membership to no more than 50 in order to ensure continuing close relationships among members. In Indonesia, self-help groups are a popular form of microfinance organisation supported by NGOs. This is a 'receiver' type of organisation with 20–30 members. Self-help groups are not facilitated by the *desa* administration, but the *desa* itself manages the Bank *Desa*, a bank-type microfinance organisation.

This summary does not mean that there are no other types of microfinance organisation in the three countries, but that the organisations described here are conspicuous and well suited to comparative study. For

example, Grameen-type organisations are hardly seen in rural Thailand, while savings groups are not popular in Central and Southern Luzon in the Philippines, and village banks like the Indonesian Bank Desa are rare in Thailand and the Philippines. Why do such differences emerge? To answer this question, because the economic opportunities offered by microfinance organisations in the three countries are not very different, we have focused on differences among the communal organisations that facilitate organisation among rural people in the three countries.

Differences in communal organisations

In Thailand, savings groups with many members guided by collective consent can be formed because the administrative village coincides with the indigenous village community. In this setting, village leaders *can* mobilise a sense of unity among community members and at the same time use the decision-making institutions of the administrative village. In the past, there were no communal organisations beyond the administrative village in rural Thailand, thus the economic scope of savings groups was limited. Today, however, the situation is changing, since the government has introduced a new local administrative organisation at the sub-district level.

The Grameen-type organisation is dominant in the Philippines because in this country people can only rely on dyadic human relationships for social organisation, and a small number of people in a close relationship is appropriate for the Grameen-type organisation. As an administrative village, the barangay has no indigenous community as a base, thus NGOs tend to bypass it and organise local people directly.

In rural Java, people have a long tradition of organising themselves in various kinds of groups, thus they are well prepared to participate in the establishment of new microfinance organisations promoted by NGOs. However, the formal administrative units of the desa and its lower units are not suited to the role of facilitator. Although the desa has its own resources and institutions to control local people, it is too large to mobilise a sense of unity among them. The dusun and *rukun tetangga* may be able to mobilise such a sense of unity, since the former *can* be regarded as the present-day equivalent of the indigenous village community and the latter is small enough to maintain face-to-face relationships among residents. What they lack, however, are the resources and institutions needed for communal decision making, since people in rural Java tend to rely on informal leaders and the

informal process of **self-organising** rather than formal systems of local administration. This does not mean that the *desa* has no use as a local administrative body; rather, it shows its capacity to control local people and ensure repayment of loans from the *Bank Desa*.

Policy implications for **rural** organisation

In this chapter our discussion has been confined to microfinance organisations; however, policy implications for the formation of rural development organisations can also be drawn from it. One such policy implication should be of most relevance to practitioners and designers of rural development, especially those who want people to **organise** themselves. In order to ensure the achievement of policy goals, a form of development organisation that suits indigenous organisational patterns must be chosen. While savings groups operate successfully in Thailand, they should not be introduced to an area that has no local community to act as a facilitator (such as the Philippines). Similarly, *Grarneen*-type organisations would not operate efficiently in areas where larger collectively bound groups are easily formed (such as Java and Northeast Thailand). Methods of organising local people in different areas should differ according to the features of the areas' local communal organisations.

How then can we identify adequate organisations? For a communal organisation to be suitable as a foundation for a development organisation to build upon, it must have three crucial elements to guide its members' conduct.

- The first element is a sense of unity or **affiliation** to the organisation among local people. Such a shared sense makes people inclined to cooperate with one another (Axelrod 1984).
- The second element is an institution of decision making for cooperative action—individual needs coordinated towards a common target. Even if people share a sense of unity, they are unlikely to cooperate productively without such an institution.
- The third element is an institution of enforcement. People cannot have confidence in the organisation unless it has a system of policing its members (North 1990).

Organisers of rural people should identify which groups have these elements. In this chapter we have investigated two organisational types—social organisations and local administrative bodies—in relation to their roles in the establishment and management of microfinance organisations.

The shape and sphere of social organisations define which members of a society share a feeling of unity, upon which informal rules and regulations to control member conduct can be based. Some social organisations also have institutions for decision making. On the other hand, local administrative bodies generally have institutions to make common consent among local people and the authority to control people's behaviour. The relationship between local administrative bodies and indigenous social organisations is also important in determining the characteristics of communal organisations. This relationship decides whether or not local people and development organisations can make complementary use of the functions of social organisations and local administrative bodies.

If there is a mismatch between the functions of an indigenous social organisation and the relevant local administrative body, there could be a need to reform the local administrative system. This is another policy implication, of particular interest to designers of local administrative systems. The current situation in rural Java implies the need for reformation of local administrative systems. As seen in the reformation of the tambon-level administration in Thailand, a new system can help people organise beyond the administrative village. This should be one of the key goals of any rural development policy—that is, reformation of local administrative systems geared towards helping local people organise themselves.

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NOTES

- ¹ This summary follows the discussion of Uphoff and Esman (1974) on the functions of rural organisations.
- ² The Grameen Bank is a microfinance program that originated in Bangladesh to provide small loans to the local poor without taking any collateral or charging high interest rates. Five-member groups have joint responsibility to repay a loan provided by an outside source. This system has realised a high rate of repayment and has been disseminated to many other developing countries.
- ³ This section extensively relies on Shigetomi (1998a:Chapter 3).
- ⁴ Ninety-five per cent of Thailand's population is Buddhist. The temples are a common sight in rural areas of the country.

- ⁵ The repayment rate for loans from the Cooperative Bank during 1956–60 was just 9 per cent. Only one-half of this was repaid without delay (Thisyamondol et al. 1965).
- ⁶ The Bank of Agriculture and Agricultural Cooperatives (BAAC) has formed a small group of neighbours to take responsibility for loan repayment. This group resembles a Grameen-type group, but the members do not have a sense of unity and actually have no group activity except delivering information from BAAC.
- ⁷ During the Marcos regime, the government brought more resources to barangays than ever before (Wurfel 1988). Barangays received one-quarter of the Special Highway Fund, while the national government provided 20 per cent of the National Internal Revenue Tax to the local government. A Barangay Development Fund was also established (Po 1980).
- ⁸ For example, Barangay Lusacan in Quezon Province today has more than 3,000 households, but it still occupies the same territory it occupied in 1936. In the same province, Barangay Pinagdanlayan (about 400 households) has not changed its boundary for 150 years.
- ⁹ In contrast, monks live in the compounds of Thai temples, and villagers mobilise their resources daily to ensure the monks' survival.
- ¹⁰ Author's calculations based on the list of cooperatives in the database of the CDA (Cooperative Development Authority, master list of registered/confirmed cooperatives, based on the Cooperative Information System (CRIS) database, as of June 2000).
- ¹¹ Author's aggregated figures based on the original answer sheets and made with the cooperation of PCMS.
- ¹² SACOP comes under the protection of the regional diocese. It was established in 1972 to support the victims of a natural disaster. In about 1986, it began to establish cooperatives to assist poor people. In 1991 Mt Pinatubo erupted and SACOP became an agent that received donations and distributed them to victims. As part of its program of assistance, SACOP persuaded local people to establish cooperatives and other organisations (interview with SACOP, Panpangas, September 2000).
- ¹³ Interview with villagers of Barangay Santa Cruz, Laguna Province, where the initial project was implemented.
- ¹⁴ Bypassing the barangay administration is not only the strategy for NGOs focusing on microfinance activities, but also for rural development NGOs like PRRM (Philippine Rural Reconstruction Movement). Usually the PRRM worker stays in the target village to try to get to know the community's unofficial leaders and learn about the allocation of community resources, then he or she helps people to identify problems needing to be tackled by people working together. Thus, an issue-specific group is formed, its main activities able to change according to local people's needs. This is the way PRRM organises local people and expands village-level activities. One exception is the Ifugao ethnic group's

- village, which is characterised by a strong sense of unity focused on the village's leaders. Here, PRRM is reluctant to rely on the *barangay* administration, since its formal leaders may change in the next election of *barangay* captain in three years. PRRM also fears that its activity may be misunderstood and associated with the political activities of certain local leaders with connections to local and/or national politicians.
- ¹⁵ The description given here is based on the situation that existed before reformation of the local administrative system began in 2001.
- ¹⁶ Schiller (1996) surveyed 40 *desas* during 1979 and 1981, and found that 40 per cent of candidates had been disqualified. Even after having been elected, some chiefs whom the government regarded as uncooperative were dismissed from their posts (Schiller 1996).
- ¹⁷ In West Javanese villages, some *dusun* chiefs were elected directly by residents. Up until the Village Administration Act of 1979, the chief of a *dusun* was called *punduh* and regarded as the informal leader of the local people (Mizuno 1998:229).
- ¹⁸ Sometimes local people gather money for communal purposes on their initiative. For example, one *dusun* in Desa Ngeposari (Yogyakarta Province) bought chairs, glasses, and sound systems using compulsory donations from residents and lent these assets to the villagers. However, these assets are managed by informal community leaders, not by the *dusun* chief, the formal leader of the *dusun*.
- ¹⁹ For example, Mizuno reports that villagers beat a man who had allegedly had a sexual affair with a married woman, and that the woman and her husband were forced to leave their *desa* (Mizuno 1998).
- ²⁰ Based on observations made by the author and by Mizuno (1998).
- ²¹ Every participant offers the same stake throughout one rotation, and people enjoy drawing lots to decide who will receive the stake (Bouman and Moll 1992; Mizuno 1999).
- ²² Lumbung *desa* was originally a traditional institution formed by local people. In 1898, ED. De Wolff van Westerrode, Assistant Resident in Purwokerto, Central Java, set it up as a formal institution (Suharto 1991). The initial capital was villagers' paddy. In the beginning, the paddy was lent to those who provided the initial supply. Later, every villager was allowed to borrow. Repayment was made with paddy.
- ²³ According to interviewees in Java, some Bank *Desa* have been established by the provincial government.
- ²⁴ The authority of assignment and dismissal, however, is given to the *bupati*, or regency chief.
- ²⁵ Interview at Ngawi District, East Java, October 2000.
- ²⁶ In a village survey in West Java, only 14 per cent of households had land titles in 1986 (Mizuno 1999), thus many rural populations are excluded from the formal loan market.

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6

THE POLITICAL ECONOMY OF RURAL DEVELOPMENT IN INDONESIA

Toshihiko Kawagoe

Despite rapid economic growth over the past three decades, rural development in Indonesia has received both criticism and praise. The rice sector attained self-sufficiency, but **only** at great cost and after many government failures. While rice production expanded impressively, export crops were almost completely neglected. This paper seeks to identify political reasons for these contradictions through an examination of the political economy of rural development and rural development policy in Indonesia, and a review of the development process since the colonial period, a process that has left many cultural, economic and social legacies.

We suggest that the ideas of Indonesian policymakers during the early stages of the New Order rule were influenced by the following cultural, historical and ideological factors

- the idea of rural pessimism in academic thought, represented by Boeke (1953) and Geertz (1963a)
- anti-colonial sentiments
- the state ideology of *pancasila*, with its stress on national unification.

Three more ideological and social factors were proclaimed in the 1945 constitution of Indonesia, these were

- state nationalism as the ideology of an independent Indonesia, rationalising extensive state intervention in the economy
- a strong belief in the potential for cooperatives to benefit economically weak groups

the importance of farming families.

Indonesia's rural development policies in general have been characterised by extensive state intervention, ignorance of traditional sectors, and distrust of markets. The rice sector was an exception, since in addition to the factors noted above it was also characterised by a heavy reliance on cooperatives and distrust of the ability of farmers.

In the 1950s and 1960s, academics and policymakers were pessimistic about the rural sector. Industrialism was widely supported while agricultural exports were neglected, and agriculture was not regarded as a leading sector for growth. Memories of colonialism were reflected in rural development policies, which tended to regard colonial-era approaches such as free trade, foreign investments and foreign enterprises as evil. Similarly, because they were the dominant industry during the colonial era, export crops were ignored.

Rice was an exception. Indonesia attained self-sufficiency in rice in the mid 1980s, an achievement that allowed the government to save valuable foreign currency, though this was not the sole reason for its attention to the rice sector. For many Indonesians, rice carries great emotional and symbolic weight, being associated with the rural family, whose importance is proclaimed in Indonesia's constitution. Former President Suharto also often made reference to his peasant origins. Although rice has been produced since the colonial era, it was not grown on foreign-owned plantations.

Although the rice sector was successful, institutional problems were reflected in policy, and regional diversity was ignored through both bureaucratic formalities and a political focus on the unitary development of the state. Indonesia's constitution states that economically weak groups should organise according to family principles. This ideology, coupled with a distrust of both markets and farmer ability, sets the framework for an Indonesian style of rural development, in which cooperatives play a key role. Though village cooperatives were assigned a key role in the implementation of rice policies, the relevant bureaucracy failed to function properly.

Indonesia is a large and highly diversified country, and industry and agriculture differ significantly across regions. Regional differences in income are still large, but are trending toward convergence. An overview of the regional diversity of industrial and agrarian structures is presented in Annex 1 of this chapter.

INDONESIA'S ECONOMIC PERFORMANCE OVER THE PAST THREE DECADES

Over the past three decades, the Indonesian economy has performed impressively. In 1996, per capita income in Indonesia reached US\$1,100, substantially higher than in Sri Lanka (\$750) and Kenya (\$320), and almost the same as in the Philippines (\$1,160) and Egypt (\$1,080), though still lower than in Thailand (\$2,930).¹ Indonesia's economic growth was not as robust as Thailand's, but exceeded that of the Philippines and was much better than that of many developing countries in South Asia and Africa. In 1969, per capita GNP in Indonesia had been only \$70, substantially lower than in Sri Lanka (\$180), Kenya (\$130), the Philippines (\$250), Egypt (\$210) and Thailand (\$200). By the mid 1980s, the Indonesian economy had nearly reached the level of the Newly Industrialised Economies, though its impressive development was abruptly interrupted by the financial crisis of 1997.

AN OVERVIEW OF ECONOMIC GROWTH²

Macroeconomic growth

Beginning in 1966, the Indonesian economy recovered and accelerated its growth in a period known as the New Order, when Suharto was the second president of the country.

In a seminar report on the 'East Asian miracle' (World Bank 1994), the World Bank recognised Indonesia as one of the High Performing Asian Economies (HPAE). In the 1970s, Indonesia's real GDP grew at an annual rate of 7.8 per cent and per capita GDP at an annual rate of 5.3 per cent. Although softened world oil markets slowed GDP growth to about 4 per cent in the early 1980s, the economy recovered to an annual growth rate of 6–7 per cent in the late 1980s. This rapid growth lasted for a decade, until the unexpected onset of the financial crisis in July 1997. Before 1997, per capita GDP increased from \$190 in 1960 to \$707 in 1996 (in constant 1987 US dollars) (Table 6.1). Indonesia is now categorised as a lower-middle income country.³ This is a marvellous achievement if we compare it to other economies in South Asia and Sub-Saharan Africa, but Indonesia's GDP is still mediocre for an HPAE (though it is greater than the GDP of the Philippines, it is lower than that of other HPAEs such as Thailand, Malaysia and Singapore).

We should keep in mind that not all regions enjoyed the fruits of economic growth equally. Indonesia is a large country of great geographical, social and ethnic diversity, and its economic characteristics differ greatly from region to region. In 1995, for example, per capita GDP for the nation as a whole was Rp 2.1 million. Per capita GDP in the poorest region of East

Table 6.3 Changes in economic indicators in Indonesia, 1961–96^a

	1961	1966	1976	1986	1996
Economic growth					
GNP per capita (constant 1987 US\$)		184 ^b	274	411	707
GNP per capita growth (annual percentage)		-1.2 ^c	5.0	3.3	5.7
Gross domestic investment (% of GDP)	9.2	7.5	23.7	26.7	31.4
Inflation, consumer prices (annual percentage)	72.6	516.4	16.7	6.6	8.7
Value added by sector (% of GDP)					
Agriculture	51.2	52.7	29.8	23.6	16.7
Industry	14.4	12.4	33.9	35.4	42.1
Services, etc.	34.4	34.8	36.3	41.0	41.2
Trade					
Exports of goods and services (% of GDP)	10.5	9.4	24.5	22.7	26.3
Merchandise exports by sector (% of total)					
Agricultural raw materials		31.9	14.2	7.7	6.2
Fuel exports		34.6	71.0	56.8	25.6
Manufactured goods		3.4	1.4	19.1	51.0
Labour force					
Economically active population (million) ^d	53.1	57.8	72.7	94.1	123.8
Labour force by sector (% of economically active population) ^e					
Agriculture	74.4	70.2	61.7	56.4	44.0 ^f
Industry	7.6	8.9	11.2	12.8	18.4 ^f
Services, etc.	17.9	20.9	27.2	30.8	37.6 ^f

^a Three-year averages for the years 1961–436. 1996 data are 1995–96

^b 1966–67 average

^c 1967 growth rate

^d Population aged 15–64

^e 1961 and 1966 figures refer to 1960 and 1965 data, respectively. For 1976 and 1986, the figures are interpolated from the data in census years 1970, 1980 and 1990

^f Share of total employment in 1995

Source: World Bank 1998. *World Development Indicators*, World Bank, Washington, DC; Manning, C., 1998. *Indonesian Labour in Transition: an East Asian success story?*, Cambridge University Press, Cambridge; BPS, Population Census 1990, quoted in Manning (1998:93, Table 4.5).

Nusa Tenggara, however, was only Rp 0.8 million, while the richest region was Jakarta with Rp 7.6 million.⁴ Obviously, national aggregated data hide regional differences, making investigations with a regional perspective important in any analysis of this vast country. Regional issues are discussed in detail in a later section of this chapter.

While the major reason for Indonesia's relatively successful increase in per capita income was the rapid growth of GDP, demographic factors also contributed. In the mid 1960s, Indonesia had an annual population growth rate of 2.3 per cent (Table 6.2). By world standards, the fertility rate was high, and the government of the time rejected population control (Hull and Jones 1994:124). From the mid 1970s on, however, demographic factors changed quickly. Birth and death rates declined, and there was a

Table 6.2 Changes in demographic and social indicators in Indonesia, 1961–96^a

	1961	1966	1976	1986	1996
Demographic factors					
Birth rate, crude (per 1,000 people) ^b	43	43	36	27	23
Death rate, crude (per 1,000 people) ^b	22	19	14	9	8
Life expectancy at birth, total (years) ^b	43	46	53	60	65
Population growth (annual percentage) ^c	2.1	2.3	2.4	1.8	1.6
Population, total ('000)	96.0	107.0	135.9	166.0	195.5
Urbanisation					
Urban population (% of total)	14.8	16.1	20.0	27.0	35.9
Social indicators					
School enrolment, primary (gross per cent) ^d	71	72	87	117	114
illiteracy rate, adult total (% of people 15+) ^e	61	72		28	16
Safe water access, total (% of population) ^f			11	33	62
Safe water access, rural (% of rural population) ^f			4	31	54

^a Three-year averages for the years 1961 to 1986. 1996 data are 1995–96 average

^b Data refer to 1962, 1967, 1977, 1987 and 1996

^c 1961–62 average

^d Data refer to 1960, 1965, 1975, 1985 and 1994, respectively

^e Data refer to 1961, 1965, 1985 and 1995, except for 1976 which is the average of 1971 and 1980 data

^f Data refer to 1975, 1985 and 1993, respectively

Source: World Bank, 1998. World *Development* Indicators, World Bank, Washington, DC.

steady increase in life expectancy at birth. The population growth rate began to decline substantially, to 1.9 per cent in the 1980s and 1.7 per cent in the 1990s. The figure in the 1990s was still higher than the 1.2 per cent of Thailand, but significantly lower than the 2.3 per cent of the Philippines and the low-income country average of 2.1 per cent (World Bank 1999). In fact, the total fertility rate in Indonesia declined from 6.4 per cent in the early 1950s to 2.8 per cent in the mid 1990s (Caldwell 1997).

The success of Indonesia's family planning program is regarded as one of the critical achievements of the **NEW** Order government. **As** Hull and Jones (1994) point out, however, institutional changes in marriage systems had already occurred prior to government intervention, and these were also major factors in the fertility decline.

Whatever the impact of government policies on fertility, a remarkable decline in both fertility and the population growth rate contributed to the economic development of the world's fourth most populous country.

In the course of the rapid economic growth of the past four decades, the industrial structure of the Indonesian economy has changed significantly. In 1953, non-mining primary sectors, including agriculture, forestry and fisheries (hereafter referred to as the agricultural sector), contributed 57 per cent of total GDP (Table 6.3), while manufacturing industries contributed only 11 per cent. The share of the agricultural sector began to decline in the mid 1960s, although it was still as high as 47 per cent in 1970. Drastic change occurred from the mid 1970s on, with the agricultural sector falling to 25 per cent in 1980 and just 16 per cent in 1997, while manufacturing reached 27 per cent in 1997. These figures should be interpreted with caution, however, given the significance of oil and natural gas to the Indonesian national income, which was highly dependent on world oil prices. In the 1970s, high oil prices coupled with increased oil production significantly increased the contribution of the mining and quarrying sectors. In 1980, mining and quarrying accounted for 26 per cent of GDP, with the shares of other sectors significantly lower. Although the economic structure consistently shifted from agriculture to industry throughout this period, the shift actually occurred more slowly than reflected in national income statistics. If the contribution of mining and quarrying is removed from the GDP calculation, the agricultural sector's decline can be seen to have been much milder than statistics suggest.

From the late 1980s on, manufacturing's share of GDP increased rapidly, while that of mining and quarrying dropped to 10–15 per cent, a change

Table 6.3 Percentage distribution of Indonesian GDP by industry, 1960–96

	1953	1960	1970	1980	1990	1996 ^a
Agriculture, forestry, and fisheries	56.9	53.9	47.2	24.8	21.5	16.5
Mining and quarrying	2.3	3.7	5.2	25.7	13.4	8.6
Manufacturing	8.5	8.4	9.3	11.6	19.9	25.5
Electricity, gas, and water supply	0.3	0.3	0.4	0.5	0.6	1.2
Construction	2.0	2.0	3.0	5.6	5.5	7.9
Trade, hotel, and restaurant	14.3	14.3	18.5	14.1	16.9	16.7
Transport and communication	2.3	3.7	2.9	4.3	5.6	6.6
Banking	..	1.0	1.0	1.7	4.2	8.3
Other services	13.7	12.7	12.5	11.7	12.3	8.7
Annual value (billion Rp) ^b	..	390	3340	45,446	195,597	532,631

^a Preliminary figure

^b At current market price.

Source: Badan Pusat Statistik, various issues. *Statistical Pocketbook of Indonesia*, Badan Pusat Statistik, Jakarta; Bevan, D., Collier, P. and Gunning, J., 1999. *The Political Economy of Poverty, Equity and Growth: Nigeria and Indonesia*, Oxford University Press, New York:304 (for 1953); Badan Pusat Statistik, 1968. *Almanak Indonesia*, vol. 2, Badan Pusat Statistik, Jakarta (for 1960).

due partly to lower oil prices and partly to the expansion of the non-oil manufacturing sector. This sector, which excludes petroleum refining and liquefied natural gas, increased from 10–15 per cent in the late 1980s to about 25 per cent in the late 1990s. Again, we should keep in mind that large regional differences greatly affected the economic benefits brought by these developments, as discussed in later sections of this chapter.

Transformation of the trade structure

The boom in manufacturing exports that occurred from 1985 on was generated by liberalised policies (Hill 1996). Although exports from Indonesia have expanded more than six-fold in real terms over the past three decades, the change in export commodities was more important. Throughout the 1960s, 50–60 per cent of Indonesian exports were agricultural commodities, including sugar, natural rubber, palm oil, coffee, and tea, all of which had been produced since the colonial era.⁵ In the 1960s, petroleum and its products were the second most important export, accounting for another 30–40 per cent of exports. Export of manufactured products was negligible at that time.

The trade structure drastically changed in the early 1970s. Exports of agricultural commodities decreased and were replaced by oil products. From 1971 to 1974, export prices of crude oil rose more than sixfold. The sharp price increase, coupled with expanding crude oil production, caused a dramatic rise in petroleum exports during the oil boom. Petroleum accounted for 70 per cent of export earnings during this period and earned 22 per cent of GDP and 55 per cent of total government revenue (Woo et al. 1994).

Petroleum and its products remain important Indonesian exports. In the 1990s, however, earnings from these products declined to 20–30 per cent of total exports. This decline occurred as world oil markets softened and non-oil manufacturing exports accelerated. In the 1990s, the non-oil manufacturing sector earned more than the oil and agricultural sectors. Among the manufactured exports, however, exports based on agriculture—such as plywood, processed rubber, palm oil and processed food—played an important role. A series of structural adjustments in the 1980s enabled Indonesia to shift its economy from its heavy dependence on oil.

Importance of the rural sector

Although the relative position of the agricultural sector has declined significantly over the past four decades, its importance to the Indonesian economy has not decreased. Over the past three decades, the distribution of labour has changed, with the share of agricultural labour in total labour falling from 72 per cent in 1961 to 50 per cent in 1990, and the shares of industrial and services labour increasing from 8 and 19 per cent in 1961 to 12 and 33 per cent in 1990, respectively (Hill 1996). The per cent decline in agricultural employment was slightly lower than that of agricultural GDP, indicating a widening gap in labour productivity between farm and non-farm sectors.

The rural sector, however, is still very important for employment and income, especially for the rural poor. According to the 1990 census, nearly 70 per cent of the population resided in rural areas. Even in Java, the most urbanised area of the country, 64 per cent of the population was rural. In 1961, the rural sector was much more dominant, with 85 per cent of the population residing in rural areas and more than 72 per cent of the labour force engaged in agriculture. Urban manufacturing employment was negligible, with only 2.4 per cent of the total labour force, while 3.5 per cent were employed in rural manufacturing activities.⁶

In 1971, even after a decade of steady economic growth, over 60 per cent of non-firm employment was located in rural areas. Agriculture-related manufacturing and services (such as cottage industries and trading farm commodities and their processed products) were extensive (Manning 1998).

REGIONAL DIMENSIONS AND DEVELOPMENT POLICIES

A discussion based on nationally aggregated data provides a straightforward overview of the Indonesian economy, but it easily overshadows regional differences. Not all regions benefited from rapid economic growth, and regional income differences are still large. Industries vary from region to region; in some regions agriculture dominates. In a discussion of the Indonesian economy, regional perspectives are critical.

With a population of nearly 200 million, Indonesia has the third largest population in Asia after China and India.⁷ The archipelago's 13,677 islands cover an area of 1.9 million square kilometres.⁸ Regional differences in this vast nation are striking. Previous discussions have looked at Indonesian development from a national perspective, but it is essential to examine Indonesian rural development from a regional perspective.

The conflict between *pribumi* (indigenous Indonesians) and ethnic Chinese has received widespread publicity; issues among *pribumi* themselves, however, are more complex. The indigenous population is divided into nearly 300 ethnic groups, each of which has its own culture and language.⁹ Although 88 per cent of Indonesians practice Islam, this average figure does not guarantee religious homogeneity. Some ethnic groups in the Outer Islands practice other religions, such as Christianity in North Sumatra, East Nusa Tenggara, North Sulawesi, Maluku and Irian Jaya, and Hinduism in Bali. Thus, regional diversity in Indonesia is not only geographic.

Cliford Geertz described the Indonesian economy as not simple, but compound. It is neither unitary nor systematic, but multiple and irregular. In designing policies, he stressed the importance of regional dimensions.

...[O]ver-all development policies need to be much more delicately attuned to the particularities of local social and cultural organisation. [However,] [t]he ideologies of modern nationalism...arising as they do out of an intense concern with massive social reconstruction, show a strong tendency toward a neglect, even an outright denial, of important variations in domestic cultural patterns and of internal social discontinuities. (Geertz 1963b:154-5).

Despite Indonesia's regional diversity, the Indonesian government is highly centralised, and the autonomy of regional governments is strictly limited. Most of the revenue of the regional governments is transferred from the central government; they have few revenue sources of their own. Rural development policies were designed and implemented with strong leadership at the centre under the slogan of national unity, while regional factors were neglected. The central government's scepticism about regionalism may have stemmed from its bitter experience with secessionist movements in the 1950s.

Strong central government contributed to the integration of the national economy. The national slogan of 'Unity in Diversity' (*Bhinneka Tunggal Ika*) became a reality through decades of sustained economic growth driven by a highly centralised government with abundant financial resources (Hill and Weidemann 1989). Huge oil revenues collected by the central government were transferred to the regions in the form of public investments in physical and social infrastructure. This system helped integrate the nation, and the central government took the initiative to implement rural development policies.

On the other hand, the highly centralised system neglected regional diversity. Since Indonesia became independent, Java has maintained its political dominance, while resource-rich regions in the Outer Islands were the major earners of foreign currency through traditional export commodities and oil/natural gas. Thus, the economic interests of Java and the Outer Islands conflict with each other, making regionalism a sensitive issue for the Indonesian government.

Under the **NEW** Order regime, regional development was brought about through massive public investment in rural infrastructure and human resources development (Jones and Hull 1997). Demographic dynamism in the form of rural–urban and rural–rural migration was counted as a key to economic growth (Hugo et al. 1987), hence the government-sponsored 'transmigration' programs by which the rural poor of densely populated Java were moved to labour-scarce Outer Islands.¹⁰

Despite the rapid economic growth of the past three decades, and massive public investment in the regions, income disparity across the regions is still large. Per capita GDP in Eastern Indonesia is only about one-third that in Java (Barlow and Hardjono 1996), and the regional development process has been uneven.

RURAL PESSIMISM, OPTIMISM, AND DILEMMAS IN DEVELOPMENT

Any economic policy is an amalgam of political compromise and some economic rationale; thus, to understand how and why they were adopted, economic policies must be examined in historical context. The Indonesian nationalism that flared in the colonial era influenced policymakers, since the newly born government had somehow to obtain legitimacy. Indonesian policymakers were also influenced by other political and cultural factors, as well as by prevailing economic thought, though they may not have been conscious of these influences. In the 1950s and 1960s, the prevailing thought on economic development was rural pessimism.

Rural pessimism and optimism

In the 1950s and 1960s, pessimism about rural stagnation took hold throughout the developing world. The idea of rural pessimism originated in Java, and the Indonesian economy was regarded as a good example. The core of rural pessimism rests on an approach attributed to the series of classical studies on Java by J.H. Boeke, who studied Java from the colonial era to the early twentieth century. Boeke (1953) developed his pessimism theory on rural sector growth on the basis of observations made in the late colonial period, when massive irrigation investments failed to increase paddy area and food production (Booth 1988). According to Boeke, the traditional sector is a rural sphere whose inhabitants engage in primary industries such as agriculture, forestry and fisheries. The rural sector, which Boeke referred to as 'villages', was regarded as prehistoric and typical of pre-capitalism (Boeke 1953). Boeke defined villages as peasant communities whose boundaries were restricted by the extent to which community members could regularly interact for collective actions under traditional agricultural technologies (Boeke 1953). Accordingly, the limit of villages was very narrow, and the scope for expansion seemed limited.

Boeke's pessimistic view of agricultural production was shared by Clifford Geertz, who enhanced and extended Boeke's pessimism through his anthropological studies in East Java and Bali. Geertz observed that modern technologies and investments had little effect on Javanese agriculture (Geertz 1963a), however Geertz's pessimism was not limited to agricultural production, but extended to all economic activities in rural areas. Geertz pointed to a lack of entrepreneurship within the peasant class, and argued

that entrepreneurship was limited to members of the population with 'extra-village status', such as ethnic Chinese traders in East Java, because '[e]ntrepreneurial groups stand outside the immediate purview of village social structure' (Geertz 1963b:148).

Geertz argued that Javanese agriculture was static in nature and trapped in a low-level equilibrium with its path to modernisation blocked. Observing that 'the prerequisite for success [for entrepreneurs] is rather organisational and administrative skill,' and that '[i]t was not the technically most skilled... who became managers, but the most skilled handlers of men' (Geertz 1963b:151-2), Geertz argued that innovations were hampered less by technical problems than by organisational problems. Geertz's pessimism also applied to distribution of output among the rural population, which Geertz saw as involving an 'involution process'. According to Booth (1988:6), '[i]t was in fact the distributive side of the involutory process which accounted for the passivity and resistance to change and modernisation'.

As noted by Booth (1988), while pessimistic about production, Geertz was optimistic about the distributional aspects of Javanese agriculture.

Under the pressure of increasing numbers and limited resources Javanese village society did not bifurcate, as did that of so many other 'underdeveloped' nations, into a group of large landlords and a group of oppressed near serfs. Rather it maintained a comparatively high degree of social and economic homogeneity by dividing the economic pie into a steadily increasing number of minute pieces, a process to which I have referred elsewhere as 'shared poverty' (Geertz 1963a:97).

Geertz's pessimism has been examined and criticised by many scholars, an indication of the influence of his ideas (Van Niel 1992). In the late 1960s and 1970s, however, Geertz's ideas were displaced by new views shared by many critics, who observed vivid but polarised growth processes in Indonesia's rural sector (Collier 1981; White 1976). The critics were more optimistic than Geertz about production but more pessimistic about income distribution. Van Niel (1992), for example, cast doubt on Geertz's model in arguing that Javanese villages adjusted by being increasingly involved in outside markets, while still retaining social distinctions.

More recently, however, Geertz's pessimism has been revived. For example, his pessimism about rural entrepreneurship has been incorporated into the theory of 'traders' dilemma', which argues that the social norms of peasant communities that urge well-to-do villagers to redistribute their income to poor neighbours prevent village-born traders from accumulating capital

and becoming modern entrepreneurs (Evers and Schrader 1994). The modern version of production pessimism is also expressed by recent critics who are reluctant to accept the positive role of agriculture.¹¹

Basic ideas and dilemmas of Indonesian economic development

Economic policies are born from political compromise, so it is necessary to know the major players in the Indonesian political arena. During the New Order regime, the Indonesian armed forces (ABRI) and Western-trained technocrats were major actors, but the most powerful man was Suharto, the country's president. Indonesian economic policies swung back and forth between relatively open liberalism and nationalism under the authoritative government.

The largest political organisation in the country, ABRI possess a strong ideological and legal mechanism to support the government. The armed forces also stress their political legitimacy in their role as the supporter of 'integralism', as reflected in the state ideology of *pancasila*.¹² The doctrine of integralism regards the state and society as an organic whole in which the primary emphasis is placed on social obligations rather than individual rights (Ramage 1995). Furthermore, the Indonesian armed forces are unique in their double function in both civilian and military affairs, a situation unheard of in Thailand or the Philippines (Vatikiotis 1993). At the beginning of the New Order rule, the leadership of the armed forces was beholden to a small group of 'financial generals' who headed large state-owned enterprises and had access to enormous funds. Use of these funds was obscure and corruption was the norm.¹³ Since the New Order government depended heavily on the loyalty of army leadership, political action against these financial generals remained a delicate issue even for the President (Mackie 1970).

As the guardian of *pancasila*, ABRI stressed economic growth with justice and national unification, to be achieved only through state intervention (Chalmers and Hadiz 1997). ABRI's brief on *pancasila* and nationalist sentiment is expressed in Ali Moertopo's statement of 1972.¹⁴

This process of modernisation will naturally involve conflicts, as new norms come into conflict with traditional norms. Consequently, modernisation requires planned social and cultural change...As 'planned change', modernisation must clearly determine the direction which will be taken. This requires that the model of the *pancasila* state be clarified and the principles of *pancasila* applied to every aspect of life, to every government institution and state organisation, as well as to all levels of urban and rural society (Chalmers and Hadiz 1997:77).

As the state ideology, '*pancasila* democracy' was inflexible, because the government, backed by ABRI, so closely controlled its institutions. As the economic ideology, however, '*pancasila* economy' was subject to a broader interpretation (Liddle 1982), still closely related to the interpretation of Paragraph 33 of the Indonesian constitution of 1945, which states that

- 1 economic affairs are to be organised as a joint effort based on family principles
- 2 branches of production which are important for the state and which control (supply of) the basic needs of the masses are to be controlled by the state
- 3 the land and water and natural wealth contained within are to be controlled by the state and used as much as possible for the prosperity of the populace.¹⁵

Sentence (1) of Paragraph 33 is interpreted as meaning that cooperatives should become the basis of economic enterprises. The New Order government thus promoted the development of cooperatives in rural areas, while restricting competition among private firms, since competition was believed to conflict with the principle of 'a joint effort based on family principles' (Rice 1983:64–5). Promotion of cooperatives did not mean they were encouraged to organise self-motivated cooperatives as common in Western nations; on the contrary, the government strictly controlled the design and establishment of cooperatives in villages. The most controversial clause is Sentence (2), which provoked debate as to how to interpret the phrase 'controlled by the state'. The Sukarno (Old Order) government interpreted it to mean that the economic sectors related to basic needs should be owned by state enterprises, while the New Order government interpreted it to mean that the government could control private enterprises without owning them (Rice 1983). For Sentence (3), the New Order government relied on the private sector to develop natural resources without permitting private ownership of those resources.

Whatever the interpretation given to these sentences, they are all clearly characterised by state intervention. The state-interventionist ideas on which they are based are expressed in the following statement by Soedjono Hoemardani, a co-founding member of CSIS.

The growth of modern sector occurs at the cost of and weakens the traditional sector... That sector of society organised into cooperatives is comprised of economically weak groups, and they need to be given special attention. On the other hand, the state

sector, namely the government, has the ~~task~~ of supervising, directing, protecting and, if necessary, subsidising this section of the society so that it becomes a viable economic force (Soedjono Hoemardani 1981, quoted in Chalmers and Hadii 1997:84).

Western-trained technocrats have often been contrasted with the voices of the Indonesian armed forces, yet according to Glassburner, 'they are nationalistic and are strongly influenced by their cultural heritage' (1978:28). This is the reason foreign advisors from international donor agencies are often frustrated when their advice is ignored. Emil Salim, one of the key technocrats, expressed mixed sentiments about open-door policies and state intervention.¹⁶

What we are pursuing, however, is not only a society with 'an equitable distribution of income', but also one that is prosperous. This means that national income must also grow more rapidly...it is clear that a *pancasila* economy not only rejects free flight liberalism but also statism...the branches of production which are important to the state and which affect the livelihood of the mass must be controlled by the state (30 June 1966).¹⁷

The Indonesian economist Suhadi Mangkusuwondo (1973) expressed the dilemma his country faced as a 'hard choice between economic growth and social justice. After relatively open economic policies in the late 1960s had enabled the Indonesian economy to grow, various problems such as an increased income gap across regions and economic sectors arose. Apparently presuming rapid economic growth and social justice to be mutually exclusive, Mangkusuwondo argued that

[e]conomic development is only one part of the totality of national progress. Democracy, nation building, and social justice are some of the other ingredients of social progress. By over emphasising the economic side of the development effort, there is great danger that Indonesia will be heading toward some serious political or social trouble in the near future... a lower growth rate is conducive to more government control of the economy, since sufficient investment in the social sector could only be achieved through extensive state intervention (Mangkusuwondo 1973:28, 33).

In addition to ABRI and the Western-trained technocrats, two other groups of Indonesians cannot be ignored in a discussion of Indonesia's economic development—Muslims and ethnic Chinese.

Although nearly 90 per cent of Indonesians profess Islam, their voices are not uniform. According to Ramage (1995:15), 'many nominal Muslims do not channel their political ambitions through Islam. For example, in what is widely regarded as the most "fair" and accurate of Indonesian elections, the 1955 parliamentary polls gave all Islamic-oriented political parties a combined total of only 43.5 per cent of the vote'.

This does not mean, of course, that Muslim voices were not influential in the political arena. Islamic groups played key roles in the struggle for independence and the rise to power of the New Order government, yet some Islamic leaders were unhappy that no special role was assigned to Islam in the constitution. Their demand for the inclusion in the constitution of Islamic law and Muslim status for the presidency was promised to them once, then refused at the last stage of drafting because Mohammed Hatta feared that Christian-dominated Eastern Indonesia would not join the Republic if the state seemed to endorse Islam. The Islamic groups' frustration led to a series of Islam-inspired armed revolts against the central government, called *Darul Islam*, between 1948 and 1962. These were suppressed by the armed forces (Ramage 1995), which regarded Islamic fundamentalism as a danger to national integrity.

About 6 million Indonesian citizens of Chinese origin form an ethnic minority in Indonesia but are said to dominate the national economy. It is widely believed that 70 per cent of the Indonesian economy is owned by ethnic Chinese Indonesians. However, Kwik Kian Gie, a leading economic commentator and politician, has argued that the economic dominance of the Chinese is just a myth. According to Kwik, 90 per cent of the economy is operated by public sectors, while the other 10 per cent is shared by diverse private sectors, including foreigners, pribumi, and ethnic Chinese. The share owned by ethnic Chinese is very small, he maintains.¹⁸ Since reliable statistics are not available, any figure is largely conjecture. Whatever the situation, however, the government has tended to regard pribumi as being at a disadvantage in relation to ethnic Chinese in the business arena, thus it has adopted various economic policies that favour the pribumi.

Since most indigenous Indonesians (*pribumi*) practice Islam, while ethnic Chinese do not, ethnic and religious boundaries have generally been preserved. *Pribumi* Indonesians are frustrated by the idea of Chinese dominance, while ethnic Chinese feel their social position is insecure and unfairly discriminated against. *Pribumi*-Chinese relations are a very sensitive political issue. Politically, ethnic Chinese have tended to remain relatively invisible, withdrawing from politics out of a sense of self-preservation (Vatikiotis 1993).

The positions of the key players in the Indonesian political arena have generally been nationalistic and interventionist, characteristics that originated from the discourse on state ideologies practised in the years leading up to independence. In addition to this political heritage, three other factors may

have constrained or influenced the ideas of policymakers when forming rural development policies—that is, rural pessimism as an academic thought, rural community sentiments based on the communal ties characteristic of villages, and anti-colonial sentiments, as explained below.

First, in the 1950s and 1960s, rural pessimism was common in academic thought throughout the world and industrialism the norm in the developing world. It is hardly surprising, therefore, that Indonesian policymakers were sceptical about the potential of traditional sectors as a source of economic growth. This scepticism could have been the foundation for the neglect of traditional sectors in economic development policies.

Second, nostalgia for a rural communal way of life was based on the intimate relationships characteristic of peasant villages, where population density is high and community members tend to be tightly bound by kinship and location. The main means to a livelihood in such societies in Indonesia is intensive irrigated rice culture, and farming operations are often collective actions. Similarly, social events such as weddings and funerals tend to involve collective efforts. In fact, mutual help is the norm in Indonesian villages. Born in a small Javanese village near Jogjakarta, Suharto always remained conscious of his rural roots, perhaps even choosing to emphasise his identity as a farmer from a small village out of political expedience (Vatikiotis 1993). It is possible that Suharto thought his village origin would appeal not only to farmers, but also to urban dwellers with village origins.

Third, anti-colonial sentiments were strong in Indonesia after independence, and institutions that existed during the colonial era, such as free markets and foreign capital, tended to be regarded as an evil.

We can now outline the basic ideas of economic development in Indonesia, especially those related to rural development policies, in terms of three ideologies and three cultural factors. The three ideologies are

- strong state nationalism, which rationalises the broad intervention of the government in the economic sectors of basic needs, including agriculture
- integration, as proclaimed in *pancasila*
- a strong belief in the positive role of cooperatives formed among economically weak groups, including peasants.

The three cultural factors are

- the prevalence of rural pessimism in academic thought
- family farming in the peasant community
- strong anti-colonial sentiments.

These ideologies and cultural factors can be seen to form a basic framework for the rural development policies of the New Order government.

ORIGINS OF RURAL DEVELOPMENT IN INDONESIA

The New Order government either inherited or intentionally ignored the economic and political vestiges of the late colonial, Japanese occupation, Revolution, and Old Order periods. The economic achievements of the last stages of Dutch colonial rule in the early twentieth century and the post-recession recovery of the late 1930s also played their roles. In the previous section, we examined the success of the Indonesian economy since 1966, implicitly setting the 1950s and early 1960s, when the economy was stagnant and exhausted, as a basis for comparison.

For the three decades following the early 1930s, the Indonesian economy suffered severely from successive external and internal difficulties. The world depression of the 1930s hit Indonesia's cash crop exports hard. Four years of Japanese occupation during the Second World War and the following struggle for independence did not present much opportunity for economic recovery. Indonesia's economic problems were serious enough to compare with those faced by the developing countries of Africa. As a result, the Indonesian economy remained severely depressed until the mid 1960s (Hill 1996).

It would not be fair to discuss only recent development experience and ignore the preceding growth records, thus we begin with the Dutch colonial era of the nineteenth century. Major events in rural development and policies that might have affected the rural population are summarised chronologically in Table 6.4.

Late colonial era (before 1941)

By about 1910, most of the regions now included in the Republic of Indonesia had been brought under Dutch rule, but a common sense of Indonesian identity had yet to form among the populace. Indonesian leadership groups and Indonesian identity were formed gradually, as anti-colonial movements took place throughout the 1920s and 1930s (Ricklefs 1993). After the economic stagnation of the last two decades of the nineteenth century, accelerating economic growth expanded agricultural production, exports, and imports. Smallholder sectors expanded rapidly, 'as a spontaneous response on part of the indigenous population to the new opportunities which international trade offered' (Booth 1998:35). The rapid

Table 6.4 Chronology of rural development in Indonesia

		Paddy (million metric tonnes)
	Major economic and political events	
15th	Mallaca the centre of a vast trading network. Spices (clove and pepper), coffee, and sugar from Outer Century Islands and rice from Java are traded extensively:	
17–18th	Cloves produced only in Maluku in eastern Indonesia. Traders from Europe and Asia compete for cloves centuries until the Dutch monopolise production and trade in the mid 1650s. ^b	
1830	Cultivating system introduced (1830–70). Production of sugar, coffee, indigo and other crops is pushed to compulsory planting. Tobacco and tea introduced in the 1830s and cinchona in the 1870s. Major export crops—sugar and coffee.	
1869	Opening of Suez Canal stimulates cash crop trade. Major export crops—sugar, coffee, tobacco and tea.	
1870	Cultivating system abolished. Liberal period (1870–1900), when private capital from European nations is intensified.	
1870–1914	Rapid growth of agricultural exports by Dutch plantations. ^c Major export crops—sugar, coffee, tobacco, tea and cinchona (c.1900).	
1901–	Introduction of ethical policy by Dutch liberal government, which pays attention to welfare and education of the colony. Investment in irrigation and education.	
1910s	Export crops reach their peak (c. 1915). Modern natural rubber variety (<i>Hevea Brasiliensis</i>) introduced in Sumatra. Major export crops—sugar, coffee, tobacco, tea and cinchona (c. 1910).	
1920s	Palm oil introduced to the east coast of Sumatra as a large plantation crop. Major export crops—sugar, coffee, tobacco, tea, cinchona and rubber (c. 1920).	
1930	Sugar production in Java reaches its peak. ^d Major export crops—sugar, coffee, tobacco, tea, cinchona, rubber and palm oil.	
1942	Japanese occupation (1942–45).	
1945	Proclamation of independence (1945). Sukarno announces <i>Pancasila</i> , the state philosophy based on five interrelated principles. War for Independence (1945–49).	
1946	Linggajati Agreement—Netherlands–Indonesia Union under the Dutch crown with a loose federal arrangement (1946–47).	
1949	Netherlands recognises the RUSI (Republic of the United States of Indonesia) as an independent state.	
1950	All federal states absorbed into the Republic of Indonesia. Parliamentary democracy (1950–57). Secessionist movements in Outer Islands (1950–56).	
1955	First general election.	

1957	Sukarno declares Guided Democracy (1957–65). Seizure of Dutch properties.	
1959	Three-year program of increased rice production using imported fertiliser. ¹	
1961		12.1
1962		13.0
1963	Irian Jaya brought under Indonesian administration. First trial of BIMAS program launched	11.6
1964		12.3
1965	Failed <i>coup d'état</i> attempt. Sukarno removed from power. Bloody purge of PKI (Indonesian Communist Party) and Chinese.	13.0
1966	Suharto and Indonesian military take political control. Total foreign debt comes to US\$2.3 billion.	13.7
1967	Suharto nominated as acting president of Indonesia. IGGI, an international group of lenders, is formed to coordinate multilateral aid to Indonesia (1967–92). Indonesia adopts open-door <i>laissez-faire</i> policies favoured by the IMF and the World Bank and investors from western nations.	13.2
1968		17.2
1969	Irian Jaya becomes 26th province. Repelita I (First Five-Year Plan, 1969–73) gives high priority to irrigation rehabilitation and extension. ^f Introduction of new credit policy for agricultural investment.	18.0
1970s	Diffusion of rice HYVs contributes to rapid growth of paddy yield (Green Revolution).	
1970	Devaluation of rupiah. Rise of nationalism.	19.3
1971	General election (Golkar's victory).	20.2
1972	Rice shortage. Windfall income and increase of public development expenditures (irrigation and education).	19.4
1973	First oil boom. MPR (People's Consultative Assembly) re-elects Suharto to second five-year term. Village cooperatives (BUUD/KUD) assigned to be sole distributors of fertiliser and pesticides for food crop sector. ^g	21.5
1974	Malari riots (anti-Japanese) turn government to authoritarianism. ^h Repelita II (1974–78) focuses on agriculture, employment and regionally equitable development. More emphasis placed on non-rice food crops such as maize and sorghum.	22.5
1975	Democratic Republic of East Timor declared. Indonesian forces occupy East Timor. Pertamina crisis.	22.3
1976	East Timor made 27th province. Marketing of fertiliser deregulated and subsidised. ⁱ	23.3
1977		23.3
1978	Devaluation of rupiah.	25.8
1979	Repelita III (1979–83) emphasises development of agriculture-related and other industry. INSUS (intensified extension system) implemented on food crops, especially rice.	26.3
1980		29.7
1981		32.8
1982		33.6
1983	Economic crisis. Devaluation of rupiah (28 per cent).	35.3
1984	Repelita IV (1984–88) concentrates on basic industries. Rice self-sufficiency attained.	38.1

1985		39.0
1986	Devaluation of rupiah (31 per cent). Major deregulations of trade policy	39.7
1987	Fertiliser subsidy reduced (July).	40.1
1988		41.7
1989	Repelita V (1989–93) emphasises transport and communications. Subsidy on pesticides is eliminated.	44.7
1990	Importance of regional development in eastern Indonesia stressed (Presidential speech). ^k	45.2
1991	Dili incident. Rice production falls because of drought.	44.7
1992	General election. CGI formed to replace IGGI and excludes the Netherlands.	48.2
1993		48.2
1994	Repelita VI (1994–98) calls for strengthening of regional autonomy (Presidential speech)!	46.6
1995		49.7
1996		51.1
1997	Financial crisis.	49.3
1998	Suharto steps down from the presidency and is replaced by Habibie.	46.3
1999	General election.	

^a Ricklefs, M.C., 1993. *A History of Modern Indonesia since c. 1300*, 2nd ed., MacMillan, London:19–21.

Bulbeck, D., Reid, A., Tan, Lay Cheng and Wu, Yiqi, 1998. *Southeast Asian Exports Since the 14th Century: cloves, pepper, coffee and sugar*, Institute of Southeast Asian Studies, Singapore:17, 20.

Bevan, D., Collier, P. and Gunning J., 1999. *The Political Economy of Poverty, Equity and Growth: Nigeria and Indonesia*, Oxford University Press, New York:197.

Bulbeck, D., Reid, A., Tan, Lay Cheng and Wu, Yiqi, 1998. *Southeast Asian Exports Since the 14th Century: cloves, pepper, coffee and sugar*, Institute of Southeast Asian Studies, Singapore:110.

Booth, A., 1988. *Agricultural Development in Indonesia*, Allen & Unwin, Sydney:114, 147.

Booth, A., 1988. *Agricultural Development in Indonesia*, Allen & Unwin, Sydney:114, 147.

^g Slayton, T.M. and Exawirya, I.G.N., 1978. 'The fertiliser situation', *Bulletin of Indonesian Economic Studies*, 14(2):70.

Bevan, D., Collier, P. and Gunning, J., 1999. *The Political Economy of Poverty, Equity and Growth: Nigeria and Indonesia*, Oxford University Press, New York: 249.

Booth, A., 1988. *Agricultural Development in Indonesia*, Allen & Unwin, Sydney:158.

^j Pangestu, M. and Azis, I.J., 1994. 'Survey of recent developments', *Bulletin of Indonesian Economic Studies*, 30(2):30; Booth, A., 1988. *Agricultural Development in Indonesia*, Allen & Unwin, Sydney:149.

Booth, A., 1988. *Agricultural Development in Indonesia*, Allen & Unwin, Sydney: 149.

^l Pangestu, M. and his, I.J., 1994. 'Survey of recent developments', *Bulletin of Indonesian Economic Studies*, 30(2):28.

Source: US Library of Congress, 1992. *Indonesia: a country study*, US Library of Congress, Washington, DC; Various authors, various years. 'Survey of recent developments', *Bulletin of Indonesian Economic Studies*, various issues.

growth of the first two decades of the twentieth century, however, was interrupted by world depression in the 1930s, with demand for Indonesia's major export crops suffering severely. In 1939, despite recovery after the depression, per capita GDP was still lower than in 1913 (Booth 1998).

During the early twentieth century, production of export crops increased steadily. In the 1900s, though still dominated by traditional crops such as sugar, coffee, tobacco, tea and cinchona, Indonesian export markets had begun to shift to new crops such as natural rubber and oil palm. Natural rubber, *Hevea brasiliensis*, was first planted in Java and Sumatra in the early twentieth century. Oil palm was introduced as an estate crop. The indigenous population did not have much interest in palm oil because coconut trees were already used extensively for food and as a source of edible oil. In 1911, the first large-scale oil palm plantation was established on the east coast of Sumatra, which later became the major centre of oil palm production in Indonesia (Mansvelt and Creutzberg 1975).

In 1930, sugar production in Java reached its peak (Bulbeck et al. 1998), and natural rubber and palm oil quickly became important export crops, surpassing traditional crops such as tobacco, tea and cinchona. In the 1910s and 1920s, the production of natural rubber increased rapidly, becoming the dominant crop after the First World War. Oil palm production also increased rapidly in the 1920s and 1930s. The world depression of the 1930s hit exports of some of these cash crops. Production of sugar cane, one of the most important export crops at the time, declined to one-fifth during the period of 1930–35.¹⁹

From independence to the end of the Old Order (1942–65)

Dutch colonial rule ended with Japanese occupation in 1942. The three and a half years of Japanese occupation dismantled the colonial system and brought about the extraordinary changes that enabled Indonesian independence. It took another five years of fierce struggle from 1945, when Independence was proclaimed, to final recognition as an independent state in 1949. In 1945, Sukarno announced *pancasila* as the philosophy on which the nation would be based. In the following year, the Linggajati Agreement was established, forming the Netherlands–Indonesia Union under the Dutch crown with a loose federal arrangement, however this was soon broken by the Dutch reoccupation of Java in 1947, called a 'police action'. In the face of increasing international criticism and direct intervention by the United Nations, the Netherlands finally recognised

RUSI (Republic of the United States of Indonesia) as an independent state in 1949 (Ricklefs 1993). In the following year, all federal states under RUSI were absorbed into the Republic of Indonesia; thus, a new Republic of Indonesia with a unitary constitution was established, though with many religious, ethnic, cultural and economic issues yet to be resolved.

In 1950, post-war rehabilitation efforts were made under a fragile parliamentary democracy that lasted until 1957. There was a political 'agreement on the desirability of a non-Western type of democracy, but what this meant remained unclear' (Bevan et al. 1999:209). Although the Japanese occupation severely eroded the colonial system and the 1945/49 revolution dismantled colonial rule, the new Indonesian government and economy inherited much from the former colonial ruler. Policies of the period were characterised by heavy government regulation, a predilection for intervention, and the dominance of Dutch capital in the economy (Bevan et al. 1999). Anti-colonial sentiment and nationalism were strong. The Indonesian currency, the rupiah, was set at a high level, and the economic interests of export areas in the Outer Islands suffered.

The basic structures of the Indonesian government and economy were set as highly centralised, thus the resource-rich Outer Islands were frustrated not only by the political dominance of Java, but also by economic suppression. Secessionist sentiments flared up throughout the 1950s. Rebellions in the Outer Islands broke out in South Sulawesi in 1951, Aceh in 1953, Sumatra in 1956 and Eastern Indonesia in 1957; these movements were suppressed by force (Ranis and Stewart 1994).

Political conditions were unstable, but the government made some rural development efforts, and agricultural production recovered slightly. A three-year program to increase rice production using imported fertiliser was launched in 1959 (Booth 1988). In 1963 the first agricultural extension service for rice (*Bimas*, or *bimbingan massal*) was launched. Rice production (paddy in *dry* stalk) in the late 1940s came to about 7 million tons in Java and Madura and 4.5 million tons in the Outer Islands. By the early 1960s, these figures had increased to 9.6 million tons in Java and Madura and 6.8 million tons in the Outer Islands, higher than yields achieved during the colonial period in the early 1930s (van der Eng 1996). In terms of agricultural labour productivity, however, the level of the colonial period was not attained until the early 1970s (van der Eng 1996).

In 1957, Sukarno announced the implementation of his 'Guided Economy' policy, characterised by pro-socialist sentiment and a strong anti-

Dutch and anti-US orientation. It was a fluid and constantly changing system, dominated by Sukarno's personality (Ricklefs 1993). Also in 1957, Dutch-owned enterprises were seized. An aggressive foreign policy brought Irian Jaya under Indonesian administration in 1963.²⁰ The economic results of the Guided Democracy were miserable. Accelerated inflation, deteriorated infrastructure, stagnant output, and widespread poverty and hunger were the norm (Booth 1998). Sukarno was heavily committed to maintaining equilibrium between the army and leftist political parties, thus only a few programs were actually implemented. Land reform was one of the few, beginning in September 1960 (Utrecht 1969).

The idea of land reform was announced by Sukarno in 1959, in a political manifesto address in which he terminated property rights to land. Although his idea seemed to be motivated by a socialistic ideology, he also assumed that redistribution of land to farmers would enable them to cultivate more intensively and thus contribute to increased production. Considering the very small size of typical farms in Indonesia, especially in Java, the potential economic benefit of the reform was doubtful. After a fierce political struggle and compromise, the Supreme Advisory Council (DPA) and then parliament set the framework for the land reform program under the Basic Agrarian Law (Undang-Undang *Pokok Agraria*) of 1960.

This law was based on Article 33 of the 1945 Constitution and the state ideology *pancasila*, which declared that land has a social function and must therefore be controlled by the state. It provided for the implementation of a comprehensive land system by which two old property rights would be replaced—traditional *adat* law without formal registration and a Westernised system introduced by the Dutch colonial government (MacAndrews 1983). The new law forbade ownership of land in excess of a certain area and absentee ownership, and authorised the government to seize surplus land for redistribution. The program began in 1961, but progress was very slow, partly because officials were unskilled but mainly because a land registry could not be established, so the program had to be based on colonial land tax registers (van der Eng 1996). By 1964, only 400,000 hectares had been redistributed to farmers, and Sukarno expressed concern over delays.

Sukarno's Guided Democracy came to an end with the coup of 1965, which brought enormous political and social turmoil and a shift of power from Sukarno to Suharto, as well as the end of the land reform program. Although the program still existed in the late 1960s, the new government did not share Sukarno's interest in it. Altogether about 1 million hectares,

or about 5 per cent of total farmland, were redistributed under the land reform program. Since nearly 70 per cent of the redistributed land was transferred from former public lands, the land redistributed from landlords to farmers was at most 130,000 hectares. Furthermore, in the course of the suppression of PKI members and sympathisers after the coup, some redistributed land was illegally returned to former owners as peasants who had obtained land with support from PKI were either murdered or escaped to cities (Utrecht 1969). Thus, in the end the land reform program had very little impact on the land tenure system in Indonesia.

RURAL DEVELOPMENT AND GOVERNMENT POLICIES

Success of rice under the New Order (1966 – mid 1980s)

It is widely recognised that Indonesian agriculture has achieved remarkable growth since the early 1970s (Booth 1988; van der Eng 1996; World Bank 1993), with food crops, especially rice, experiencing strong growth (Mears 1981).

After the failed coup *d'état* in 1965, Sukarno was removed from power. A bloody purge of PKI members and an attack on ethnic Chinese were extensive, especially on Java. In 1966, Suharto and the Indonesian military took political control, and in 1967 Suharto was nominated acting President. The most urgent issue facing the new regime was the enormous foreign debt of US\$2.36 billion, inherited from the era of Guided Democracy. In 1967, the Inter-Governmental Group on Indonesia (IGGI), an international group of lenders, was established to coordinate multilateral aid to Indonesia. Initially, the New Order government adopted open-door policies, partly to placate debtors and attract investors from Western nations, including the IMF and World Bank, and partly because policymakers recognised the limits of state intervention and the role of the private sector. This is reflected in the 1996 speech by Sultan Hamengkubowono IX, a key figure in the early stages of the New Order regime.²¹

The Government deliberately restricts its program within the limit of its capacity and the prevailing atmosphere in the conviction that it will not reach its goal without public support and aid... The government will abandon its attitude of regarding medium- and large-scale enterprises as... enemies (12 April 1966, reproduced in Chalmers and Hadiz 1997:47–8).

Although US-trained technocrats gradually took control of economic management, there was strong political pressure for government intervention

under the name of social justice and economic equity. As discussed earlier, these technocrats basically shared nationalistic sentiments. The open-door policy of BAPPENAS (National Development Planning Agency) was somehow modified during the drawing up of the First Five-Year Plan in 1968 (Chalmers and Hadiz 1997:42).

Throughout the late 1960s, relatively open policies were maintained. The Indonesian government adopted the principle of a balanced budget, which was somewhat tricky because foreign aid and borrowing were used to attain the nominal balance, but the policy did reduce inflation and help maintain macroeconomic stability (Hill 1996; Woo et al. 1994). In 1963, an extension trial was carried out, and later broadened to become one of the key agricultural policies of the New Order government. The program was intended to intensify food crop production, especially rice. The First Five-Year Plan (1969–73) placed a high priority on rural development. Rehabilitation of irrigation facilities and enhanced extension services were emphasised (Booth 1988), and a new credit policy on agricultural investments was introduced in 1969.

The period that followed the implementation of the First Five-Year Plan was characterised by the rise of economic nationalism and an economic policy shift toward protectionism. Food crops, especially rice, achieved monumental success, and, despite persistent pessimism, Indonesia attained rice self-sufficiency in the mid 1980s.

In the political arena, an authoritarian regime gradually formed. In 1969, parliament passed an election law establishing memberships of a new parliament and People's Consultative Assembly (MPR) and their selection process. Under this law, the government could appoint 22 per cent of parliament seats and 33 per cent of MPR seats. No government employees were allowed to join any political parties other than Golkar (Joint Secretariat of Functional Groups), the de facto ruling party and the body that coordinated army-civilian cooperation. The general election of 1971 resulted in a tremendous victory for Golkar, which gained 62.8 per cent of contested seats. This enabled the government to control 73 per cent of parliament seats and 82 per cent of MPR seats (Ricklefs 1993). In 1973, the newly formed MPR re-elected Suharto to a second five-year presidential term.

When the Japanese Prime Minister visited Jakarta in 1974, massive anti-Japanese protests broke out. Eventually known as the Malari riots, these protests reflected nationalistic sentiment, which regarded foreign capitalists, in this case the Japanese, as exploiters of the Indonesian economy. The

incident marked a shift in the government toward authoritarianism, following which the removal of critics of the President became routine (Bevan et al. 1999; Ricklefs 1993). Aggressive action was taken in external affairs. When East Timor, the former Portuguese colony, declared itself the Democratic Republic of East Timor in 1975, Indonesian forces invaded. In the following year, East Timor was made the twenty-seventh province of Indonesia.

The shift towards authoritarianism and the rise of nationalism were made possible by a great improvement in the government's financial position. The first oil boom in 1973, coupled with high prices in the preceding years, brought a windfall to the Indonesian government. In 1967, oil revenue accounted for only 12 per cent of total revenue; by the mid 1970s this figure had risen to about 60 per cent. This new revenue enabled the government to increase public development and promote the social welfare policies of the Second Five-Year Plan, launched in 1974.²² Further funds for the first year of the plan were allocated to various social policies and subsidies for imported rice and fertiliser (Arndt 1974). As Hill (1996:43) observed, '[t]he central government has had hitherto unimaginable resources...[a]nd until the early 1980s, most of the government's revenue was raised painlessly, financed abroad by taxpayers and oil consumers'.

During the 1960s and 1970s, rice production increased by nearly 250 per cent (Pearson et al. 1991), and the goal of self-sufficiency was finally achieved in 1985. Furthermore, as a result of the activities of BULOG, the State Logistics Agency, rice prices were more stable than the world market (Timmer 1996, 1997).²³ Behind this success lay government policies such as investment in irrigation and adoption of high-yielding varieties (HYVs), though it might also have been helped by costly fertiliser subsidies.

From the late 1960s on, diffusion of HYV rice contributed to the rapid growth of paddy yields. Developed by the Philippines-based International Rice Research Institute (IRRI) since in the mid 1960s, these new rice varieties were fertiliser-responsive semi-dwarf varieties, which could yield more than twice the amount yielded by traditional rice varieties. Furthermore, new varieties ripened in a shorter period and were insensitive to photoperiod, making possible double and triple cropping. Higher yields could only be attained when sufficient fertiliser was applied under well-managed water control, thus irrigation and chemical fertiliser became crucial for desired productivity increases. New varieties disseminated by the IRRI in the mid 1960s have since quickly diffused in the rice-producing areas of tropical Asia.

Rice production in Indonesia has expanded more rapidly than in other Southeast Asian countries. From 1965 to 1990, paddy production increased from about 13 million tons to more than 45 million tons, at an annual growth rate of 5.2 per cent, highest among Asian developing economies.²⁴ This rapid growth can be attributed to both expanded area and yield increases. From 1965 to 1995, the harvested area of rice expanded at an annual rate of 1.7 per cent, while yield per hectare increased 3.7 per cent (Table 6.5). Meanwhile, growth in the Philippines came about mainly through yield increases, because land expansion was limited, while growth in Thailand was attained through an expansion of harvested area up until the late 1970s, then through yield increases from the 1980s on. The production growth rates of these two countries remained at 2.3 per cent and 1.7 per cent, respectively.

In general, harvested area can be expanded by opening new arable land, by intensifying farming, or by both. In the case of rice, intensification can be accomplished by introducing irrigation and double cropping. In Indonesia, the frontier for arable land in Java had already disappeared in the mid 1950s, while in the Outer Islands arable land frontiers still existed.

Table 6.5 Growth of rice production in Indonesia, 1965–90

	Harvested area (’000 ha)	Yield (metric tons/ha)	Production (’000 metric tons)
Growth of rice production ^a			
1965	7,249	1.76	12,750
1970	8,095	2.32	18,793
1975	8,427	2.68	22,590
1980	9,022	3.28	29,615
1985	9,748	3.94	38,455
1990	10,511	4.27	44,902
Annual compound growth rate (per cent)			
1965–70	2.23	5.71	8.07
1970–75	0.81	2.93	3.75
1975–80	1.37	4.11	5.56
1980–85	1.56	3.76	5.36
1985–90	1.52	1.60	3.15

^a Data are five-year averages, with listed date as middle year.

Source: Food and Agriculture Organization of the United Nations (FAO), n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

In the late nineteenth century, the colonial government invested in irrigation, although it did not directly contribute to improved yields because fertiliser and fertiliser-responsive varieties were missing (Booth 1988). In the 1950s and 1960s, the Indonesian government emphasised irrigation rehabilitation in its development policies. Under the New Order, the government also emphasised irrigation. In the First Five-Year Plan (1969–73), a high priority was placed on improving infrastructure in order to increase food production; thus, Rp 236 billion, or 17 per cent of the Plan budget, was assigned to irrigation rehabilitation, and another Rp 50 billion was spent on the rice intensification program at the village level (Palmer 1978).

A series of extension and input subsidy programs formed the core of New Order food policy. In 1963, a small group of students made an intensive extension effort. Regarded as a great success, this program was formalised by the New Order government and expanded as the *Bimas* program, beginning in 1966.²⁵ *Bimas* and its many variations were intended to provide new technologies with a combination of fertiliser and pesticides. The new modern varieties created by IRRI were distributed under this program. Village cooperatives played a key role as agents of implementation by distributing fertiliser.

The high yield of modern varieties can only be achieved through the intensive application of fertiliser. In the early 1960s, Ladejinsky observed that Javanese farmers were capable of adopting H W and fertiliser technologies, and could thus increase production. In his letter of 1964 to the Minister for Agriculture and Agrarian Affairs in Indonesia, he wrote

How does one go about increasing agricultural production?...in the generally favourable soil and climate conditions of Java, your knowledgeable farmers would make the most of the well-known ingredients of agricultural rehabilitation. After all, despite the conservatism of peasant societies of which the Javanese farmers furnish an example, your farmers have successfully incorporated exotic crops into their agriculture without much difficulty (Ladejinsky 1977).

However, Ladejinsky's prophecy seemed to go unheard by policymakers suffering from rural pessimism, who instead sought more direct measures to let farmers apply fertiliser under strong guidance at the village level. The government heavily subsidised fertiliser and provided it to farmers within the framework of the extension service. This was an attempt to overcome some of the organisational problems of Javanese agriculture as pointed out

by Geertz, while the promotion of the fertiliser industry was expected to help overcome technical problems by enabling the sector to supply cheap fertiliser to the market.

The *Bimas* program had many organisational problems, however, such as limited human resources and rigid application formulas that disregarded regional differences. Complaints of coercion and resistance were frequently heard (Palmer 1978). Furthermore, *Bimas* programs were heavily biased toward rice, to the neglect of other food crops. The fertiliser credit provided under the *Bimas* program was stuck at the level of the mid 1970s. The rate of outstanding loans increased rapidly, reaching 91 per cent in the dry season of 1977, partly because more marginal farmers with limited financial means came to be included in the program, and partly because officials were corrupt (Slayton and Exawirya 1978).

In 1973, village-level cooperatives (BUUD/KUD)²⁶ were made the sole distributors of fertiliser and pesticides for food crops (Slayton and Exawirya 1978); however, these government-created bureaucratic institutions did not function properly. In 1976, fertiliser marketing although still subsidised, was deregulated, enabling private traders to distribute fertiliser along the KUD marketing channel. In spite of these institutional problems, fertiliser application increased rapidly, from 31 kilograms per hectare of paddy land in 1969 to 316 kilograms per hectare of paddy land in 1986 (Heytens 1991). We should note, as discussed by Booth (1988), that the rapid adoption of HYVs occurred outside the *Bimas* program and more than 90 per cent of farmers purchased fertiliser from private traders." During the Third Five-Year Plan (1979–84), the problematic *Bimas* program was finally replaced by *INSUS*, a new intensified extension program that did not include fertiliser credit.

The rapid expansion of fertiliser applications²⁶ was attributed to development of a domestic industry and a decline in relative prices. With substantial assistance from international lending agencies, especially the World Bank, fertiliser became one of the fastest growing industries in Indonesia (Booth 1988). In fact, one-half of World Bank lending for industry from 1968 to 1974 was directed to fertiliser production.²⁸ From the late 1970s on, domestic production of fertiliser expanded rapidly and imports came to be replaced by domestic production. The industry's expansion also enabled fertiliser exports, beginning in the mid 1980s. Despite the industry's

successful development, the domestic fertiliser market remained tightly regulated. Tight government control of fertiliser prices and distribution led to distorted resource allocations, a heavy financial burden for the government, and corruption.

Although paddy production grew rapidly, institutional problems arose in rice marketing and fertiliser distribution. Other food crops also contributed to agricultural growth, despite being mostly neglected by government policies. Production of non-rice food crops (often referred to as *palawija* in Indonesian), including maize, cassava, sweet potatoes, soybeans, peanuts and other legumes, and root crops, though lower than rice, still covers an area 60 per cent of the size of the harvested area of rice (Table 6.6). An important element in the farming systems of peasants, these crops are cultivated as mixed crops in the uplands and secondary crops in paddy fields during dry seasons. Some, such as maize and cassava, are staples in

Table 6.6 Production and harvested area of major food crops, 1965–95

	Paddy	Cassava	Maize	Sweet potato	Soya	Groundnuts (unshelled)
Production ('000 metric tonnes) ^a						
1965	12,750	11,713	2,915	2,860	397	414
1975	22,590	12,288	3,064	2,426	553	576
1985	38,455	13,599	5,156	2,127	913	948
1995	48,984	16,105	8,041	1,994	1,566	1,064
Growth rate						
1965–95						
(per cent per year)	4.6	1.1	3.4	-1.2	4.7	3.2
Harvested area ('000 hectares) ^a						
1965	7,249	1,594	3,007	456	578	363
1975	8,427	1,413	2,641	329	708	444
1985	9,748	1,251	2,859	256	950	536
1995	11,165	1,346	3,359	211	1,351	665
Growth rate						
1965–95						
(per cent per year)	1.5	-0.6	0.4	-2.5	2.9	2.0

^a Data are five-year averages, with listed date as middle year.

Source: Food and Agriculture Organization of the United Nations (FAO), n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

some areas and important for the poor in marginal areas. Non-rice crops are also an important source of cash for farmers.

Maize is the second most important food crop in Indonesia. It is a staple for more than 18 million people and is grown by more than 10 million households (Dorosh et al. 1987). Up until the mid 1970s, because local low-yielding varieties were planted under traditional farming systems with little fertiliser, maize yields were low, at less than 1 metric ton per hectare. By the mid 1980s, with their experience of intensive cultivation of modern rice varieties, farmers had recognised the importance of modern farming. Fertiliser input increased and modern varieties were introduced (Mink and Dorosh 1987). As a result, maize yields increased rapidly, to 2.2 metric tons per hectare by the mid 1990s (BPS 1998).

Cassava is another important crop. It is normally produced in marginal areas or as a hedge crop in upland fields, and has been an important source of calories in less favoured areas. At the same time, cassava has been an important export crop in its processed form. In the 1920s, 150,000–500,000 tons of dried cassava products were exported (Falcon et al. 1984). Even today, in rural areas it is extensively processed into products such as starch, feed pellets and snacks for human consumption. These processing activities provide employment and income for the poor in marginal areas.

Development of export crops under the New Order (1966–)

Compared to food crops, especially rice, export crops have not been so prominent. Throughout the New Order era, the most important export crop in terms of value was natural rubber (Table 6.7). Coffee was second until the 1990s, when it was surpassed by palm oil. Copra, once an important edible oil for domestic use, has declined, while cocoa joined the top-five list of Indonesian export crops. The export of tea, a major export item in the early twentieth century, also stagnated. It should be noted that a crop's dominant position as an export crop does not necessarily mean it is the most successful in the sector.

Over the past three decades, natural rubber production has grown at an annual rate of 2.4 per cent, moderate among export crops, and natural rubber remained the top earner among export crops throughout the post-Second World War period. If we compare Indonesia's natural rubber production to that of other Asian rubber exporters, the growth of the former is one of the slowest. Over the past three decades, natural rubber production

in Thailand and the Philippines increased at annual rates of 7.4 per cent and 12.2 per cent, respectively.²⁹ Although Indonesia is still the world's second largest producer of natural rubber, its rubber production only increased 0.8 million tons from 1962 to 1995, while that of Thailand increased 1.8 million tons during the same period. Tea is another stagnant case, with production increasing at a rate of just 2 per cent over the past three decades (Table 6.8). On the other hand, production of other crops grew quite rapidly during the same period. Palm oil production expanded most rapidly, at an annual rate of nearly 11 per cent (Table 6.8). In fact, Indonesia's yield of palm oil was higher than that of Malaysia in the 1970s (Booth 1988). Coffee also grew relatively rapidly, at an annual rate of 4 per cent.

Compared to food crops, especially rice, export crops received much less attention from the government. This negligence can be attributed partly to persistent pessimism about export crops during the post-Second World War era and partly to nationalistic sentiment. During the 1950s and 1960s,

Table 6.7 Value of major export crops, Indonesia, 1965–95
(current US\$ '000)

<i>1965</i>		<i>1985</i>	
Rubber	220	Rubber	836
Coffee	31	Coffee	580
Palm oil	30	Palm oil	185
Tobacco	20	Tea	143
Copra	17	Pepper	96
<i>1975</i>		<i>1995</i>	
Rubber	470	Rubber	1,525
Coffee	222	Palm oil	1,150
Palm oil	152	Coffee	559
Tea	60	Coconuts	252
Tobacco	39	Cocoa	232

Notes: Data are five-year averages, with listed date as middle year. Listed crops include commodities according to FAO commodity classifications codes: Rubber—natural rubber [836] and natural rubber dry [837]; Palm oil—palm kernels [256], palm oil [257], and oil of palm kernels [258]; Coffee—*fee*, green [656]; Coconuts—coconut oil (cake and oil) [253] and oil of coconuts [252]; Cocoa—cocoa beans [661]; Tea [667]; Pepper—pepper (white/long/black) [687]; Tobacco—cigarettes [828] and tobacco leaves [826]; Copra [251].

Source: Food and Agriculture Organization of the United Nations (FAO), n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.hun>.

because of deteriorating trade conditions for non-oil primary commodities, export crops were viewed with pessimism. Nationalistic sentiment also discouraged the government from developing export crops, an approach that created serious difficulties for plantation management. For example, tea had been a traditional export crop in Indonesia since the colonial area, when it was produced on large estates owned by foreigners and smallholdings of indigenous farmers. In the early 1930s, when it was one of the dominant export crops, nearly 80,000 tons of tea were exported. After Independence, Dutch-owned estates were nationalised, and under the New Order they were managed as government-owned cooperatives. Technical and management inadequacies associated with an adverse economic environment resulted in low yields and poor-quality tea during the post-independence period (Etherington 1974).

A fairly large proportion of export crops was produced by smallholders, because the Dutch colonial government did not want to take cultivated land away from indigenous peasants (Hayami, this volume). Although 70–80 per cent of natural rubber was produced by smallholders (Table 6.9), their productivity was low. Most smallholders use few inputs. According to Dillon (1992:124), '[t]raditionally, the farmers have been shifting cultivators, clearing tracts of forest for food crops and intercropping rubber seedlings...They planted unselected seedlings, did not apply any fertiliser

Table 6.8 Production of major export crops in Indonesia, 1962–97
('000 metric tonnes)

	1962 ^a	1975 ^a	1985 ^a	1997 ^a	Growth rate (per cent per year) ^b
Cassava	11,418	12,589	13,845	16,042	0.98
Coconuts	5,587	7,403	9,790	14,519	2.77
Palm oil	145	392	1,247	5,406	10.89
Natural rubber	694	821	1,067	1,570	2.36
Coffee	116	171	328	470	4.07
Tea	78	70	128	157	2.04
Tobacco	87	88	123	139	1.34
Pepper	42	29	44	51	0.55

^a Data are three-year averages, with listed date as middle year.

^b Annual compound growth rate, 1962–97

Source: Food and Agriculture Organization of the United Nations (FAO), n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

and practiced no weed control. Consequently both girth development and yields have been poor...their productivity has remained consistently below that of both government and private estates'.

Some export crops, including palm oil, coffee, and cocoa, were fairly successful, in part because the government did not intervene in these markets. Palm oil production has grown at a rate of nearly 11 per cent per year over the past three decades. Though palm oil was initially introduced on large plantations, smallholders now produce 32 per cent of the national total (Table 6.9). The productivity of smallholders is similar to that of private estates. Production of coffee, mostly carried out by smallholders, has grown at a rate of 4 per cent per year over the past three decades. Smallholders in the Outer Islands use surplus land and family labour with low opportunity costs to produce coffee profitably, despite often unfavourable prices on the world market (McStocker 1987).

Export crops are mainly produced in the Outer Islands and have remained important in these regions. During the oil boom, Indonesian terms of trade greatly improved. While the central government was the main beneficiary of oil dollars, terms of trade for non-oil exports stagnated during the oil boom, despite relatively favourable international prices for major cash crops. Although non-oil terms of trade improved slightly in the early 1970s, they worsened during the oil boom period.

The Outer Islands were negatively affected by the oil boom because all their revenue went to the central government. In an attempt to prevent economic and political turmoil and help sustain non-oil exports from the Outer Islands, the rupiah was devalued by 50 per cent in 1978; this was followed by other devaluations in 1983 and 1986. Warr (1992:156) argues that Indonesia's adoption of a cautious exchange rate policy, though not always to the benefit of the rural population, enabled it to absorb oil revenues into the domestic economy, which 'seem to have been used in a manner to promote economic growth'. Export crops regained their competitiveness, as the central government transferred massive resources to regional governments in an effort to solve infrastructure problems.

Structural adjustment and industrial **growth** (mid 1980s–1990s)

The collapse of the New Order government was triggered by the 1997 financial crisis. During the 1980s, the Indonesian economy had transformed from an oil-dependent developing economy to a newly industrialised economy. Rice self-sufficiency was finally attained in the mid 1980s, while

Table 6.9 Production of major export crops and percentage of production, by type of farm operation, Indonesia, 1974 and 1994 ('000 tons)

	1974			1994		
	Large estates	Smallholders	Total	Large estates	Smallholders	Total
Rubber						
Production	249	573	822	326	1,139	1,465
Per cent share	30	70	100	22	78	100
Coconut						
Production	13	1431	1,444	48	2,601	2,649
Per cent share	1	99	100	2	98	100
Palm oil						
Production	351	—	351	1,930	893	2,824
Per cent share	100	—	100	68	32	100
Coffee						
Production	16	143	159	20	422	441
Per cent share	10	90	100	4	96	100
Cocoa						
Production	2.6	0.8	3.4	44	198	242
Per cent share	76	24	100	18	82	100
Tea						
Production	50	14	64	97	30	128
Per cent share	78	22	100	76	24	100
Tobacco						
Production	9	70	79	5	128	133
Per cent share	11	89	100	4	96	100

Source: Badan Pusat Statistik, 1977:178. *Statistical Pocketbook of Indonesia*, Badan Pusat Statistik Jakarta:198–9; Badan Pusat Statistik, 1995. *Statistical Pocketbook of Indonesia*, Badan Pusat Statistik, Jakarta:216–21.

the relative share of traditional sectors declined substantially in the course of rapid industrialisation. The major policy concern had shifted from agriculture to regional development issues. The importance of regional development in Eastern Indonesia was mentioned for the first time in a presidential speech in 1990, although the imbalance between Western and Eastern Indonesia had already been recognised (Pangestu and Azis 1994). Development issues in Eastern Indonesia are largely agricultural, since one-half of the regional GDP is derived from agriculture (Sondakh 1996).

The year 1982 was a turning point for the Indonesian economy, bringing 'an end to the decade of oil-financed growth and abundance... [S]eemingly automatic increments to revenue from oil and aid evaporated' (Hill 1996:16). In 1982, about 80 per cent of export receipts and more than 65 per cent of non-aid central government revenue came from oil. Confronting softened world oil prices, the government was obliged to reduce spending (McCawley 1983). Currency devaluation was also inevitable. In May 1983, the rupiah was devaluated against the US dollar by 28 per cent and again by 31 per cent in 1986. In addition to these devaluations, major deregulation of trade occurred in the same year, followed by various tax reforms and trade liberalisation. The Fourth Five-Year Plan (1984–88) targeted basic industries, while the Fifth Plan (1989–93) emphasised development of transport and communications. Exports and the private sector became the primary engines of industrial growth (Hill 1996).

In the agricultural sector, limited financial resources tightened long-standing food subsidies, the subsidy on fertiliser was reduced in 1987 (Booth 1988), and the subsidy on pesticides was eliminated in 1989. As discussed earlier, domestic fertiliser production in Indonesia grew rapidly from the late 1970s on, but the government had controlled the price and supply since 1958 (van der Eng 1996). Because the domestic price was maintained at a low level, expensive imported fertiliser had to be heavily subsidised. When Indonesia imported more than 600,000 tons of nitrogen fertiliser in 1974, despite a world-wide shortage, the government's financial burden for fertiliser subsidies reached Rp 272 billion, nearly one-half the value of total paddy production. Until the subsidy was reduced in 1987, it placed a very heavy burden on the national budget.

In the late 1970s, the fertiliser subsidy enabled domestic prices to be lowered substantially relative to international rice prices; they have remained at a low level ever since. Lower fertiliser prices enabled farmers to adopt HYVs that perform optimally with high levels of fertiliser (Dick 1982). About 75 per cent of chemical fertiliser was used for food crops, especially rice, in the 1960s, and more than 90 per cent in the 1980s (van der Eng 1996).

The share of oil revenue in total government revenue dropped to less than 20 per cent in 1995, almost comparable to its share in the late 1960s. The components of non-oil revenue in the 1990s, however, were very different to the components of non-oil revenue in the 1960s. In the earlier period, import duties were a major source of revenue; in 1967, for example,

non-oil revenue accounted for 88 per cent of total central government revenues, of which 46 per cent came from import and export duties, and just 12 per cent from income tax. In 1995, import duties accounted for less than 5 per cent, while the shares of income tax and sales tax came to 27 per cent and 29 per cent respectively.³⁰

These changes can be attributed to rapid growth in the industrial and service sectors. In 1996, these sectors supplied more than 80 per cent of GDP (42 per cent from manufacturing and 41 per cent from services), while the contribution of the agricultural sector had fallen to 17 per cent. National averages, however, hide regional diversity, and agriculture remains as important as ever for the poor in remote regions that have been left out of industrial development.

CONCLUSION

We have examined how the historical, social and ideological factors that influenced Indonesian policymakers in the early stages of the New Order affected rural development policies and how rural development policies reflected these factors. In general, rural development policies in Indonesia were characterised by extensive state intervention, neglect of the traditional sector, and mistrust of markets. The rice sector was an exception, but the policies applied to it were still influenced by the factors mentioned above in addition to mistrust of the ability of farmers and heavy reliance on cooperatives.

In the 1960s, Indonesia relied heavily on imported rice. From 1966 on, under the New Order rule, the country's rice sector underwent successful development. The government made various efforts to enhance the sector by investing in rural infrastructure, especially irrigation, promoting the fertiliser industry, and establishing extension programs. During the first two decades of the New Order, rice yields increased dramatically; rice self-sufficiency was finally attained in the mid 1980s. The Green Revolution and the associated introduction of HYVs in the 1970s were critical to this success.

Influenced by the rural pessimism common among academics and policymakers around the world in the 1950s and 1960s, the government paid little attention to export crops. At the time, industrial development enjoyed wide support in developing countries, while agriculture was not generally regarded as a possible growth engine for the economy. Rice was an exception because it was so important to rural families.

The legacy of colonialism was another important factor in the development of rural development policies. Anti-colonial sentiments were strong and institutions that had prevailed in the colonial era, such as free trade, foreign investments and foreign enterprises, tended to be regarded as evil. Thus, export crops were ignored because they formed the dominant industry in the colonial era.

Development efforts for rice, on the other hand, were substantial. Rice was an important family staple that had always been produced by peasants, not on foreign-owned plantations. Concerned that it would be forced to spend precious foreign currency that could otherwise be used for industrial development to import rice, the government set itself the goal of rice self-sufficiency.

Despite the success of the rice sector, policies were not always implemented adequately. The government tried to intervene in the details of farm operations. Fertiliser was sold on credit to farmers together in a package with seed and extension training. Fertiliser distribution was monopolised by village cooperatives, which soon dropped it because of severe organisational difficulties. Farmers were forced to apply rigid formulas, and regional differences were ignored, partly through bureaucratic rigidity and partly because political attitudes stressed the unitary development of the state. There were frequent complaints of coercion and resistance.

Another controversial issue was the extensive use of village cooperatives, which were assigned key roles in the implementation of *Bimas* and rice marketing. These bureaucratic organisations did not function properly. The government promoted them because the 1945 Constitution proclaims that economically weak groups, including farmers, should be organised through joint effort based on family principles. This state ideology, coupled with several other factors, such as mistrust of markets and farmers' abilities, can be seen to have established a framework for Indonesian rural development policies.

The Indonesian economy is at a crossroads. Great regional diversity still exists, including in agriculture in rural areas. Simple formulas (such as Java versus the Outer Islands) cannot be applied. Despite this regional diversity, New Order rural development policies were characterised by state intervention and integration. Development policies were designed and implemented by the authoritarian leadership of the central government under the slogan of state unity, and massive regional investments were made within this framework. Although on one level the country has become

tightly integrated, large development and income gaps between Eastern and Western Indonesia remain to this day.

In the early 1990s, the Indonesian government began to pay more attention to regional issues. Many critics have stressed the need for government decentralization, and, with the collapse of the New Order regime, regional awareness in the Outer Islands has intensified where it had previously been suppressed. The factors that influenced the rural development policies of the New Order have transformed, and regional issues now play a much more critical role in the creation of rural development policies in Indonesia.

NOTES

- ¹ GNP per capita in current US dollars (World Bank 1998).
- ² This paper does not intend to provide the complete story of Indonesian economic development, but rather a brief outline of economic development in relation to the agricultural and rural sectors.
- ³ The World Bank classifies economies in categories according to per capita GNE. Economies at an income level of US\$786–9,655 in 1997 were classified as middle income, and among those, less than \$3,125 was lower-middle income. Indonesia was at \$1,110 (World Bank 1999:187, 190).
- ⁴ This comparison excludes income from the oil sector because oil revenue does not necessarily affect income levels of the population in the region. If oil income is included, the richest region was East Kalimantan, which nominally earned Rp 9.2 million per capita in 1995 (BPS 1998:559–60).
- ⁵ These crops are often referred to as 'estate crops' or 'plantation crops' because they are mainly produced on large plantations in developing economies. In Indonesia, however, by 1960 almost 70 per cent of the value added from cash crops originated with smallholders (Booth 1988).
- ⁶ Calculated from the 1961 Population Census data provided by Jones (1966).
- ⁷ The figure was 195 million in 1995, based on the 1995 Intercensal Population Survey (BPS 1998).
- ⁸ Longitudinally the island nation stretches 5,760 kilometres from its most western city, Banda Aceh to the most eastern, Jayapura, a distance comparable to the distance between Ireland and the Caspian Sea.
- ⁹ According to the 1980 census, nearly 90 per cent of the Indonesians spoke their own local languages at home. Most of them also spoke *Bahasa Indonesia*, the official language of Indonesia, as a secondary tongue.
- ¹⁰ Detailed discussions on migration issues are treated in Hardjono (1977) and Davis and Garrison (1988).

- ¹¹ For example, Sachs (1997:22) argues that 'tropical agriculture has nowhere led the escape from poverty', although he excludes Indonesia without explanation.
- ¹² The doctrine of *pancasila*, introduced by Sukarno in June 1945 at the Investigating Committee for Preparatory Work for Indonesian Independence, which drafted Indonesia's first constitution, proclaimed belief in God, humanitarianism, the unity of Indonesia, social justice and democracy (Ricklefs 1993).
- ¹³ In the case of the state-owned oil enterprise Pertamina, for example, Lt-Gen. Ibnu Sutowo extracted a large share of the revenue for his personal use and paid nothing to the state treasury (Mackie 1970).
- ¹⁴ Ali Moertopo was one of three major generals who served as personal economic advisors to the President and founded the Center for Strategic and International Studies (CSIS), a policy-oriented think tank, in 1971 (Glassburner 1978; Chalmers and Hadiz 1997).
- ¹⁵ Translated by Rice (1983:61).
- ¹⁶ Emil Salim is an economics PhD from the University of California, Berkeley and held many ministerial positions under the New Order government, including Deputy Chairman of Bappenas (1971–73) and State Minister for the Reform of the State Apparatus (1971–73) (Chalmers and Hadiz 1997:xvi).
- ¹⁷ Reproduced in English translation by Chalmers and Hadiz (1997:48–50).
- ¹⁸ An excerpt of Kwik's paper 'Non-pribumi, dominasi ekonomi dan keadilan sosial (The non-pribumi, economic domination and social justice)', *Kompas*, 23 June 1978, in English translation, is shown in Chalmers and Hadiz (1997:208–11).
- ¹⁹ Average annual sugar output came to 2,948,000 tonnes from 1929 to 1931 and 584,000 tonnes from 1934 to 1936 (Mansvelt and Creutzberg 1975).
- ²⁰ Irian Jaya later became the 26th province of Indonesia in 1969.
- ²¹ Hamengkubowono IX became Sultan of Yogyakarta in 1940 and held several ministerial positions in both the Old and New Order governments, including Deputy Prime Minister for Economics, Finance and Development in 1966 and Vice President from 1973 to 1978 (Chalmers and Hadiz 1997:xi).
- ²² The Second Five-Year Plan (1974–78) placed more emphasis on social welfare issues such as employment generation, income distribution, regional development and education (Grenville 1974).
- ²³ See Amelina, Chapter 4 in this volume, for further discussion of the role of BULOG in rice policy.
- ²⁴ The annual compound rate of growth was calculated between 1965 (1963–67 average) and 1990 (1988–92 average) for 16 developing countries in Asia (FAO n.d.).
- ²⁵ As a variant of *Bimas*, the *Inmas* (*Intensifikasi Massal*) program, a self-financed farmer extension service without inputs, was also launched.

- ²⁶ Viage-level farmer cooperatives (*Badan Unit Usaha Desa/Koperasi Unit Desa*). The government intended these units as unified multi-purpose cooperatives performing the four functions of extension, rural credit, fertiliser distribution, and rice milling and marketing (Arndt 1983).
- ²⁷ Fertiliser data are from the 1983 Agricultural Census (Booth 1988).
- ²⁸ Among the industrial credits of \$71.5 million, \$35 million was used for fertiiser plant projects (Thompson and Manning 1974).
- ²⁹ Although production in the Philippines grew very rapidly, it was stii as low as 0.2 million tons (199496 average) (FAO n.d.).
- ³⁰ Data based on Bank Indonesia, Report of *Bank Indonesia*, various issues.
- ³¹ Spatial price differences over the regions are large in Indonesia. For example, the poverty line in East Nusa Tenggara is 30 per cent lower than that in Jakarta (Bidani and Ravallion 1993), thus the actual income gap would be somewhat narrower.

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ANNEX 1 REGIONAL DEVELOPMENT AND AGRICULTURE

Economic structures and stages of development differ greatly from region to region in Indonesia, from modern cities with modern technologies and capital-intensive industries to tribal settlements in isolated areas (Hill and Weidemann 1989). Not surprisingly, per capita income also differs widely across regions.

Regional income differences can be compared by per capita gross regional domestic product (GRDP)—in effect, GDP estimated by province. The earliest available GRDP estimate was compiled by Arndt (1973) for 1969 (Table A6.1). In 1995, the poorest province, East Nusa Tenggara, generated only one-twelfth the GRDP of the most productive region, East Kalimantan. This does not always mean the people in East Kalimantan are the most productive and richest, because 40 per cent of their GRDP came from the oil (and natural gas) industry, most of the revenue of which went to the central government. Including the oil sector in regional comparisons may be misleading, even though only three provinces are major oil producers. If we exclude oil income from GRDP, the difference between the richest province, Jakarta, and the poorest province, East Nusa Tenggara, shrinks to about a tenfold difference.³¹

In general, provinces comprised of small remote islands in Eastern Indonesia (with no oil or natural gas) are the poorest regions. The coefficients of variation of per capita GRDP support this observation (bottom line of Table A6.1). In 1995, the coefficient of variation of GRDP was 0.83, while that of non-oil GRDP was 0.68. Indonesia's most important resources, oil and natural gas, are located unevenly in certain regions. Although these oil-producing provinces are located in the Outer Islands, half of them are still relatively rich provinces without oil revenue. Thus, if oil revenue were allowed to remain in them, the regional income disparity would be larger.

Is there a trend in regional income disparities in Indonesia?

In 1971, non-oil per capita GRDP in Jakarta was five times higher than GRDP in the provinces of Nusa Tenggara and nearly two times higher than GRDP in the other provinces of Java. In the 1970s and 1980s, most of the higher-income provinces grew slowly at below-average rates, while six of eleven lower-income provinces showed above-average economic growth. The only exception was Jakarta, where an even higher income was attained with its overall rapid growth. If we exclude Jakarta and East Kalimantan, where

income levels are exceptionally high, there is a fairly strong negative correlation of -0.64 between per capita GRDP in 1971 and the average annual growth rate from 1971 to 1992. The coefficient of variation of per capita GRDP declined from 1.28 in 1983 to 0.83 in 1995 (Table A6.1), suggesting that regional income differences converged, although some low-income provinces experienced below-average growth rates and remained at very low income levels. Large income disparities remain, especially between the Jakarta metropolis and the other regions in Eastern Indonesia.

In the early 1990s, the Indonesian government began to pay more attention to regional development, especially for Eastern Indonesia. In 1990, for the first time, a presidential speech stressed the importance of development in the area. In 1994, a Presidential Decree announced the formation of the Eastern Provinces Development Council, which then surveyed Eastern Indonesia in order to propose a development plan for the Sixth Five-Year Plan (1994-98). In the same year, another presidential speech stressed the enhancement of regional autonomy (Pangestu and Azis 1994).

Great differences in agrarian structure distinguish densely populated Java from the spacious Outer Islands (Table A6.2). In some regions, agriculture is still a dominant industry, while other regions have been urbanised or industrialised. Not all regions enjoyed the fruits of rapid economic growth under the New Order regime. The regional difference in income levels is still large, and regional dimensions demand our attention whenever we discuss rural development in Indonesia. Discussions based on nationally aggregated data may provide a useful general overview of the Indonesian economy, but such data easily overshadow important regional differences.

Table A6.1 Per capita GDP by Indonesian province, selected years at current prices ('000 rupiah)

	1969		1983		1990		1995		1995 excluding oil	
	GDP	Rank	GDP	Rank	GDP	Rank	GDP	Rank	GDP	Rank
DI Aceh	22.5		1,221	3	2,448	4	3,358	5	1,838	14
North Sumatra	111.7		393	9	1,063	8	2,190	8	2,143	6
West Sumatra	22.4		347	13	829	14	1,890	15	1,890	12
Riau			3,100	2	4,058	2	5,351	3	2,119	7
Jambi			311	16	709	17	1,436	19	1,403	20
South Sumatra			685	5	1,330	5	1,988	10	1,704	15
Bengkulu			303	18	684	18	1,457	18	1,457	18
Lampung			213	24	540	24	1,206	23	1,206	23
DKI Jakarta	50.5		1,204	4	2,791	3	7,607	2	7,607	1
West Java	13.4		347	12	894	12	1,919	13	1,842	13
Central Java	19.5		278	20	763	16	1,559	16	1,491	17
Yogyakarta	19.7		273	22	654	19	1,915	14	1,915	11
East Java	19.9		360	10	900	11	1,935	12	1,934	10
West Kalimantan	25.1		319	14	854	13	1,936	11	1,936	9
Central Kalimantan			453	7	998	9	2,633	6	2,633	4
South Kalimantan	21.1		410	8	902	10	2,121	9	2,109	8
East Kalimantan			3,163	1	5,821	1	9,218	1	4,777	2
North Sulawesi			304	17	611	21	1,419	20	1,419	19
Central Sulawesi			262	23	580	23	1,276	22	1,276	22
South Sulawesi	13.6		278	21	610	22	1,357	21	1,357	21
Central Sulawesi			285	19	616	20	1,127	24	1,127	24
Bali			353	11	1,090	7	2,539	7	2,539	5
West Nusa Tenggara	14.7		180	25	385	25	940	25	940	25
East Nusa Tenggara	11.3		173	26	361	27	792	27	792	27
Maluku	22.5		315	15	802	15	1,502	17	1,495	16
Irian Jaya			665	6	1,261	6	3,597	4	3,459	3
(East Timor)			137	27	364	26	831	26	831	26
Indonesia	22.7		459		1,068		2,309		2,122	
CV			1.28		1.01		0.83		0.68	

Source: Arndt, H.W., 1973. 'Regional income estimates', *Bulletin of Indonesian Economic Studies*, 9(3):93; BPS (Badan Pusat Statistik), various issues. *Statistical Pocketbook of Indonesia*, Badan Pusat Statistik, Jakarta.

Table A6.2 Contribution of gross regional product by industrial sector, by region, 1992 (per cent)

	Share of GDP					Government	Other	Total
	(per cent)	Agriculture ^a	Mining ^b	Manufacturing ^c	Trade & services ^d			
Sumatra	23.8	23.0	25.9	19.9	23.1	5.2	3.0	100
Java and Bali	59.3	19.5	2.7	31.8	29.9	6.7	6.6	100
Kalimantan	9.2	15.8	23.5	32.2	21.8	4.1	2.7	100
Nusa Tenggara	1.6	45.6	1.1	9.2	25.4	15.3	3.5	100
Sulawesi	4.2	41.2	3.8	12.4	26.8	11.3	4.7	100
Maluku	0.8	31.7	6.0	23.5	26.4	9.8	2.6	100
Irian Jaya	1.2	16.4	55.6	6.8	10.3	9.2	1.6	100
Indonesia	100	19.5	11.5	28.5	27.8	6.7	6.0	100

^a Agriculture, forestry, and fisheries.

^b Mining and quarrying.

^c Manufacturing, electricity, gas, water; construction.

^d Trade, restaurants, hotels; transport, communications, bank and finance.

Source: Badan Pusat Statistik, 1989–94, *Produk Domestik Regional Bruto Propinsi-propinsi Indonesia Menurut Lapangan Usaha*, Badan Pusat Statistik, Jakarta.

7

THE POLITICAL ECONOMY OF PHILIPPINE RURAL DEVELOPMENT SINCE THE 1960s

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This paper reviews the progress of rural development in the Philippines since the 1960s, identifies major government policies that affected rural development, and explores the political economy behind such policies. While Southeast Asia's economic development over the last few decades has generally been quite impressive compared with that of other developing regions such as South Asia and Africa, the Philippines has lagged behind the other two countries of this study in its efforts to improve the welfare of its people.

In 1965, the real per capita GDP of the Philippines (in 1995 PPP US dollars) was more than twice that of Indonesia, with Thailand close behind the Philippines (Table 7.1). In the late 1960s, the Philippines had the smallest share of agricultural value added in GDP of the three countries (Table 7.1). Furthermore, in the early 1960s, the Philippines tended to have the best human development indicators—a longer life expectancy than in Indonesia (but roughly equal to that of Thailand), the lowest infant mortality rate at almost one-half of Indonesia's rate, the highest primary school enrolment ratio, and the lowest illiteracy rate (Table 7.2). During the following decades, however, both Indonesia and Thailand not only caught up to the Philippines, but surpassed it in many aspects of economic development. By the 1990s, both Indonesia and Thailand had achieved higher income growth, more dynamic structural transformation, and much more impressive poverty reduction than the Philippines (Tables 7.1–7.3).

Table 7.1 Per capita GDP and agricultural share of GDP in Thailand, Indonesia and the Philippines

	Real per capita GDP (1995 PPP dollars)		Agricultural share of GDP (per cent)		
	1965	1995	1960	1980	1997
Thailand	1,570	6,723	40	23	11
Indonesia	817	3,346	54	24	16
Philippines	1,736	2,475	26	25	20

Source: Ahuja, V., Bidani, B., Ferreira, F and Walton, M., 1997. *Everyone's Miracle? Revisiting poverty and inequality in East Asia*, World Bank, Washington, DC.

Table 7.2 Human development indicators, 1960–96

	Thailand	Indonesia	Philippines
Life expectancy at birth (years)			
1962	54.0	42.5	54.5
1970	58.4	47.9	57.2
1980	63.5	54.8	61.1
1996	69.1	64.6	66.0
Infant mortality rate (per 1,000 live births)			
1960	95	133	76
1970	73	118	90
1980	49	90	52
1996	34	49	37
Gross primary school enrolment (per cent)			
1960	83	71	95
1970	83	80	108
1980	99	107	112
1996	99	115	116
Adult illiteracy rate			
1960	32.3	61.0	28.1
1970	21.4	43.4	17.4
1980	12.0	32.7	16.7
1996	6.2	16.2	5.4

Source: World Bank, n.d. *World Development Indicators Online*, World Bank, Washington, DC, <http://www.worldbank.org/data/online-databases/online-databases.html>.

A natural question thus arises—relative to its Southeast Asian neighbours, why did the Philippines fail to achieve its economic development goals despite a very favourable initial position in the 1960s? In the next section, we first briefly review the aggregate Philippine economy over the last three decades, then focus on the rural sector by reviewing rural development outcomes such as agricultural production and rural poverty. We then discuss government policies that had major effects on rural development and the background behind these policies, and ask why such policies were adopted in the context of particular political processes and policymaking. Finally, we offer a summary and some conclusions.

A MACROECONOMIC OVERVIEW, 1960–97

During the 1960s and the 1970s, the Philippines experienced macroeconomic growth but relatively little structural transformation compared to Thailand and Indonesia (Tables 7.4 and 7.5). Between 1960 and 1965, aggregate real GNP grew at an annual average rate of 5.4 per cent and real per capita GNP at 2.3 per cent. Inflation averaged about 5 per cent during the 1960s. Though the latter half of the 1960s saw the growth rate slip slightly to 4.3 per cent (aggregate GNP) and 1.1 per cent (per capita GNP), during the 1970s economic growth accelerated. The aggregate annual GNP growth rate averaged 6 per cent and per capita GNP about 3.5 per cent throughout the 1970s. The average inflation rate also accelerated in the 1970s, however, averaging between 9 and 10 per

Table 7.3 Agriculture and gross domestic product growth in Thailand, Indonesia and the Philippines, 1965–97

	Average annual growth rate (per cent)					
	Agriculture			Gross domestic product		
	1965–80	1980–90	1990–97	1965–80	1980–90	1990–97
Thailand	4.6	4.0	3.6	7.2	7.6	7.5
Indonesia	4.3	3.4	2.8	8.0	6.1	7.5
Philippines	4.6	1.0	1.9	5.9	1.0	3.3

Source: World Bank, various years. *World Development Report*, World Bank, Washington, DC, available online at <http://econ.worldbank.org/wdr/>; Asian Development Bank, various years. *Asian Development Outlook*, Asian Development Bank, Manila; Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://lapps.fao.org/>.

Table 7.4 Aggregate economic performance in the Philippines, 1960–97^a

	1961	1971	1981	1991	1996
Per capita GNP (constant 1995 US\$)	723	854	1174	1043	1131
Annual GNP growth rate (per cent)	5.8	4.9	3.6	1.9	5.8
Per capita annual GNP growth rate (per cent)	2.9	1.8	1.3	-0.5	3.4
Gross domestic investment (per cent of GDP)	17.3	21.0	28.1	21.9	23.8
Inflation (GDP deflator)	4.9	9.6	11.6	12.5	7.1
Value added by sector (per cent of GDP)					
Agriculture	25.6	29.8	24.5	21.6	20.3
Industry	27.7	32.4	38.9	33.8	32.1
Exports of goods and services (per cent of GDP)	12.3	20.8	22.6	28.8	42.0
Share of merchandise exports (per cent)					
Food	na	48.3	34.4	18.3	10.5
Manufactured goods	na	7.9	22.6	49.7	56.6
Agricultural labour force (per cent of total)	63.1	57.4	51.7	45.8	na

^a Three-year averages with year indicated as middle year

Source: World Bank, n.d. *World Development Indicators Online*, World Bank, Washington, DC, <http://www.worldbank.org/data/online-databases/online-databases.html>.

Table 7.5 Growth of gross national product in the Philippines

	Average annual GNP growth (per cent)	Average annual per capita GNP growth (per cent)
1960–65	5.4	2.3
1965–70	4.3	1.1
1970–75	6.1	3.2
1975–80	6.1	3.7
1980–85	-1.7	4.1
1985–90	5.2	3.0
1990–95	2.9	0.4
1995–97	6.2	3.9
1960–70	4.9	1.7
1970–80	6.1	3.5
1980–90	1.8	-0.5
1990–97	3.8	1.4

Source: World Bank, n.d. *World Development Indicators Online*, World Bank, Washington, DC, <http://www.worldbank.org/data/online-databases/online-databases.html>.

cent. During this period, the relative importance of exports in the national economy increased, with the share of exports in GDP increasing from 12 per cent in 1961 to 23 per cent in 1981.

Although the Philippines enjoyed relatively high aggregate growth rates roughly comparable to those of its Asian neighbours during the 1960s and 1970s, the sectoral composition of its economy changed relatively little, unlike that of neighbouring economies. The share of industry in GDP increased from 27 per cent in the mid 1960s to 33 per cent in the early 1970s. Industrialisation proceeded moderately during the 1970s, when the share of industrial GDP grew from 32 to 39 per cent. Similarly, the relative importance of agriculture in the national economy changed relatively little in the Philippines compared to its neighbours. The share of agricultural GDP remained stable at 26 per cent between 1961 and 1966, but increased to 30 per cent during the late 1960s and remained at this level through the early 1970s. Subsequently, the share declined to 24 per cent by the early 1980s. The share of the labour force in agriculture, on the other hand, did decline steadily—from 63 per cent in the early 1960s to 57 per cent in the early 1970s and 52 per cent in the early 1980s. Changes in the sectoral composition of exports appear to have been relatively more pronounced. Thus, the share of food exports declined from 54 per cent in the mid 1960s to 34 per cent in the early 1980s, while that of manufacturing exports rose from 6 per cent to 23 per cent during the same period.

The sustained aggregate growth in the national income failed not only to induce structural transformation, but also to significantly reduce the incidence of poverty during the 1960s and 1970s (though the absolute poverty rate declined consistently throughout these two decades, from 75 per cent in 1961 to 62 per cent in 1971 and 60 per cent in 1985). Income inequality already at a high level by international standards, increased slightly during the early 1960s (the Gini index of nationwide income inequality increased from 0.486 to 0.491 during this period), but declined in the latter half of the 1960s (to 0.478 in 1971) and throughout the 1970s (to 0.446 in 1985). However, the rate of this decline was quite modest (Balisacan 1993). Meanwhile, the population grew consistently at a relatively high rate of 2.9 per cent between 1965 and 1980. This high rate of population growth appears to have contributed to the continuous increase in unemployment, the decline in real wages, and the decline in average farm size experienced by the Philippines during the period.

After the growth of the 1960s and 1970s, the Philippines went through a major series of political and economic crises followed by macroeconomic stabilisation measures first implemented in the early 1980s. The economic crisis that occurred in the early 1980s was precipitated in the 1970s by economic growth driven by foreign debt under President Marcos, an unsuccessful expansionary and counter-cyclical policy in 1979–82, and a political crisis, which became especially intense after the assassination of the opposition leader Benigno Aquino. The economic crisis moved the government to implement a series of stabilisation measures including sharp devaluations, a contraction of public investment (due to reduced tax revenues and increased interest payments), massive monetary contraction, and high interest rates (Lim and Montes 2000). As a result, the economy fell into a depression, with the real GNP growth rate turning negative between 1984 and 1985—the average annual GNP growth rate was -1.7 per cent on aggregate and -4.1 per cent on a per capita basis during the first half of the 1980s.

The relatively brief stabilisation episode of 1983–85 was followed by a period of recovery in the latter half of the 1980s. With inflation under control, the balance of payments became positive, the new Aquino administration relaxed the severe stabilisation measures and the Philippines experienced economic recovery. In the latter half of the 1980s, GNP growth recovered to 5 per cent on aggregate and 2.4 per cent on a per capita basis. This period of recovery, however, was short lived. The looming debt and the government's assumption of the liabilities of the private and government sectors guaranteed a quick return to tight fiscal constraints. An increasing import demand and heavy international interest payments also made external constraints strongly binding. Inflation soared again, approaching 15 per cent in 1990 (Lim and Montes 2000). Both fiscal and external constraints triggered another episode of macro stabilisation—tight monetary and fiscal policies and currency devaluation. The economy stagnated once again with negative per capita GNP growth from 1991 to 1993. The population continued to grow at the relatively high rates of 2.5 per cent during the 1980s and 2.3 per cent between 1990 and 1995.

By the early 1980s, the industrialisation process looked to have virtually ended in the Philippines—from 1981 to 1996, the share of industrial GDP fell consistently from 39 per cent to 32 per cent. The share of agricultural GDP, on the other hand, remained stable at 24 per cent during the early

1980s, then declined slightly during the late 1980s to 22 per cent by the early 1990s. As of 1996, agriculture still accounted for 20 per cent of GDP. The share of the labour force in agriculture continued to decline very slowly throughout the 1980s, from 52 per cent in 1981 to 46 per cent in 1991. The structural transformation of exports also continued. The share of food exports fell further from 34 per cent in the early 1980s to 11 per cent in the mid 1990s, while the share of manufacturing exports jumped from 23 per cent to 57 per cent during the same period. Despite this transformation in the composition of exports, manufacturing exports such as garments and electronics (for example, semiconductors) were characterised by low local value added. Furthermore, the pattern of the Philippines' agricultural trade hints at a loss of competitive edge, particularly in light of the generally slow growth of the country's agricultural sector compared to that of other Asian countries, as well as the sluggish pace of industry and manufacturing in recent decades. The ratio of agricultural imports to agricultural exports increased dramatically from 32 per cent in the mid 1960s to 152 per cent in the late 1990s, clearly illustrating the farm sector's shift from being a net foreign exchange earner to a net importer. Noticeable declines in measures of comparative advantage for agriculture as a whole and for all major crops accompanied this trend (David 1999).

A more salient transformation, measured by the change in the share of agriculture in GDP, occurred in other Southeast Asian countries between 1960 and 1997. While the share in the Philippines decreased from 26 per cent to 20 per cent, reductions were far more impressive in other countries in the region—Malaysia (from 37 per cent to 13 per cent), Thailand (from 40 per cent to 11 per cent), and Indonesia (from 54 per cent to 16 per cent). The slow drop of agriculture's share in total employment, along with the sluggish absorption of labour into the industrial sector, points to an inability of the latter to create a sufficient number of jobs. Instead, additions to the labour force over the years were mostly in agriculture and the informal service sector, where self-employment is more common and wages more flexible. Thus, the process has merely served to limit the growth of labour productivity and real income in these two areas (Balisacan 1998b).

After the stabilisation episode of 1990–92, with the balance of payments and domestic inflation under control, monetary and fiscal policies were relaxed and the economy began to recover (Lim and Montes 2000). The

per capita real GNP finally began to grow in 1994, and between 1990 and 1997 the average annual GNP growth rate climbed back to 3.8 per cent on aggregate and 1.4 per cent on a per capita basis. Nevertheless, the economic crisis of the 1980s and early 1990s was severe enough that real per capita income was still at roughly the same level in 1996 as in pre-crisis 1981.

The devaluation of the Thai baht in July 1997 set off the Asian currency crisis, with the Malaysian ringgit, the Philippine peso and the Indonesian rupiah also coming under attack. Within a few weeks, the Thai baht had lost one-third of its value and the rupiah and peso about one-fourth of theirs (Montes 1998). As the effects of the crisis spread throughout the region, the GDP growth rate in the Philippines fell from 5.2 per cent in 1997 to -0.5 per cent in 1998. Compared to its Southeast Asian neighbours, however, the Philippines was affected much less severely by the 'crisis'. For example, the annual GDP growth rate for Indonesia was 4.9 per cent in 1997 and -13.7 per cent in 1998, while for Thailand it was -0.4 per cent in 1997 and -8.0 per cent in 1998 (Asian Development Bank 1999).¹ The Philippines, with the smaller pre-crisis expansion of its financial system, suffered relatively fewer macroeconomic setbacks from the Asian crisis than its neighbours (Montes 1998).

While the 'crisis' effects largely subsided at the macroeconomic level after the initial two years, significant distributional effects from the negative shock of the crisis lingered longer. These negative effects tended to hit the poorest groups hardest, with one of the notable responses among poor households being to withdraw their children from school (Balisacan 1999b). Such issues are, however, beyond the scope of this paper; our focus is on long-term rural development in the Philippines during the 30-year period prior to the outbreak of the Asian crisis in 1997.

AGRICULTURAL AND RURAL DEVELOPMENT IN THE PHILIPPINES, 1965-97

This section focuses on the outcomes of economic development efforts in the rural Philippines over the last three decades. Based on secondary data sources and existing literature, our discussion here covers growth in agricultural production and its sources, changes in rural poverty and income distribution, and changes in human development indicators for rural households.

Regional diversity

Most of the discussion that follows deals with the national aggregate. It is worth noting, however, that there is great diversity in the crops that are grown, as well as in production organisations and socioeconomic structures in different regions. Notably, there is a major contrast between

- the rice-growing 'old-settled areas' (such as Luzon island), where the agrarian structure can be broadly characterised as 'peasant agriculture' of small and medium-sized farms, and the 'frontier areas' (such as Negros Occidental and Mindanao), where large-scale plantations grow cash crops for export (such as sugar, banana and pineapple).

The mode of production in the latter is somewhat reminiscent of the typical Latin American mode of production.' For example, as of 1980 the average size for rice farms and 'old' sugar areas on Luzon island was 2–3 hectares, while the average sugar farm in Negros Occidental was 16 hectares and pineapple farms in Bukidnon and South Cotabato (on the island of Mindanao) averaged 16–18 hectares in size (Census of Agriculture as cited in Hayami et al. 1990). Among traditional export crops such as sugar and coconut, production organisation differs between areas dominated by peasant production with share tenancy (for example, Laguna, Quezon and Bicol) and areas dominated by plantations with central management and hired labour (for example, South Cotabato and Davao Oriental). Even within Luzon island, production organisation varies between 'inner Central Luzon' where rice and sugar haciendas are characterised by a combination of large-scale landlordism and share tenancy, and the 'coastal Luzon' areas (including Southern Tagalog) where small and scattered peasant farms dominate and hacienda-type landlordism is absent.

Agricultural production

During the 1960s and 1970s, the Philippine agricultural sector performed quite well in aggregate, with an average annual growth rate of 4.6 per cent. This rate was substantially higher than the norm for most developing Asian countries and compared favourably with the rates for Thailand and Indonesia (Table 7.3). Growth among the major sub-sectors, however, was far from uniform (Table 7.6). For example, fishing grew fastest, averaging 5.2 per cent during the period in question and accounting for about one-fifth of total agricultural growth. Its share in the sector's gross value added (GVA)

rose from 12 per cent in the mid 1960s to 20 per cent in the 1980s (Table 7.7). The growth of crop GVA, averaging 3 per cent per year during the period, also emerged as outstanding by historical standards. This sub-sector contributed about four-fifths of the observed growth of agricultural output. Exceptional increases were achieved in production of bananas (12 per cent), maize (6 per cent) and 'other crops' (8 per cent). These items contributed 5 per cent, 8 per cent and 40 per cent, respectively, to total agricultural growth.

Growth in the share of 'other crops' in agricultural GVA—from 15 per cent in the mid 1960s to 20 per cent in the mid 1980s—stemmed mainly from the rapid expansion of fruit and vegetable production, as well as of non-traditional exports such as pineapple and coffee.³ On the other hand, the average growth of rice, the nation's staple crop, was not particularly high compared to the average for the entire agricultural sector (although its share in total crop GVA remained substantial at about 25 per cent in the

Table 7.6 Average growth rate of gross value added (GVA) in agriculture, by sector, 1965–97 (per cent per year^a)

	1965–80		1980–90		1990–97		1980–97	
	Growth rate	Sector1 total ag. growth	Growth rate	Sector1 total ag. growth	Growth rate	Sector/ total ag. growth	Growth rate	Sector1 total ag. growth
Agriculture	3.7	100	1.2	100	2.0	100	1.5	100
All crops	3.0	80.4	0.6	29.7	2.2	55.7	1.3	46.5
Rice	4.0	14.2	2.6	24.0	2.9	20.5	2.8	23.0
Maize	5.7	8.0	3.5	13.4	-0.7	-2.0	1.8	6.0
Coconut	3.8	8.8	-4.6	-19.4	0.5	0.9	-2.5	-7.8
Sugarcane	4.2	4.7	-1.6	-2.9	5.8	7.0	1.4	2.2
Banana	11.8	4.8	-3.5	-5.0	3.6	2.7	-0.6	-0.6
Other crops	7.5	39.9	1.5	19.6	2.6	26.6	1.9	23.7
Poultry & livestock	2.3	7.6	6.0	53.6	5.2	46.7	5.7	52.9
Agricultural activities and services	- ^a	..	4.1	10.1	0.6	1.3	2.7	6.3
Fishery	5.2	20.8	3.9	45.3	1.5	13.2	2.9	30.7
Forestry	-1.5	-8.8	-7.8	-38.6	-19.0	-16.9	-12.4	-36.4

^a Included in 'other crops' category.

Source: National Statistical Coordination Board (NSCB), various years. *Philippine Statistical Yearbook*, National Statistical Coordination Board, Manila.

Table 7.7 Crop or sector share in GVA to agriculture, 1965–97^a

	1965	1975	1985	1995	1997
Agriculture	100	100	100	100	100
All crops	45	56	56	54	54
Rice	13	13	15	16	16
Maize	4	6	6	6	6
Coconut	9	9	8	4	4
Sugarcane	4	5	3	3	3
Banana	1	2	3	2	2
Other crops	15	21	20	23	24
Poultry & livestock	14	12	14	21	22
Agricultural activities and services	– ^b	– ^b	4	4	4
Fishery	12	15	20	20	19
Forestry	30	18	7	2	1

Three-year averages centred on year shown. Figures may not tally due to rounding

^b Included in 'other crops' category

Source: National Statistical Coordination Board (NSCB), various years. *Philippine Statistical Yearbook*, National Statistical Coordination Board, Manila.

early 1980s), and increases in rice production contributed a modest share of 14 per cent to total agricultural growth.

In the 1980s and the 1990s, production growth rates for virtually all crops decelerated. Thus, during the crisis period of the 1980s, the annual average growth rate fell to 0.68 per cent, and during the 1990s the sector grew at an annual rate of just 2.2 per cent. Most of the country's main crops experienced a slight resurgence in the late 1990s, at least prior to the slump in 1998 when agricultural output fell by almost 6.6 per cent because of drought brought on by the El Niño phenomenon. The country suffered a brief rice crisis in 1995 when a drought-induced shortage (which also plagued the country's other crops) sent food prices soaring and inflation climbing to double-digit levels, thanks largely to policy missteps.* Crop production, however, still grew by 3.5 per cent yearly from 1995 to 1997, with the biggest recoveries posted in sugar and banana production (where real GVA expanded by 10 and 7 per cent, respectively). Output of almost all crops grew by 2–4 per cent during this period. The exception to this was coconut, whose production has been in decline for over a decade and whose contribution to total agricultural GVA has consequently fallen from 9 per cent in the 1960s and 1970s to only 4 per cent in the 1990s.

The poultry and livestock sub-sector has emerged as the only consistent performer throughout the years, growing at an average of 6 per cent annually in the 1980s and an average of about 5 per cent for most of the succeeding decade. Its strong showing contrasts with the weaker performances of fishing and forestry (Tables 7.6 and 7.7). The share of poultry and livestock output in agricultural GVA climbed steadily from 14 per cent in the mid 1960s to 22 per cent by 1997. This robust performance partially explains why the growth rate of maize, which doubles as animal feed, typically exceeded that of rice up until the 1980s. The macroeconomic difficulties of the 1980s and early 1990s did not prevent poultry and livestock from reaching respectable growth rates. The industry's expansion rate was the highest of all the agricultural sub-sectors', contributing over 50 per cent in the 1980s and 1990s. Growth in poultry production (mainly chicken) accounted for much of this progress, which could partially be explained by the relatively high nominal protection rate induced by domestic policy.

Sources of crop growth

Beginning in the mid 1960s, increases in land productivity became the major source of growth in food production. At the height of the Green Revolution, yield increases accounted for much of the growth in agriculture. These gains were brought about mainly by expanded irrigation systems, increased fertiliser use, adoption of high-yielding varieties, and investments in rural infrastructure and education.

More than 80 per cent of the production growth of rice from 1965 to 1980 (averaging 4.0 per cent annually) can be attributed to yield growth. In the following decades, especially in the late 1980s, output increases narrowed significantly as productivity growth declined. The annual rate subsequently tapered to 2.8 per cent in 1997. Major reasons for the slowdown include the continued decline of world rice prices, stagnation of public investments in irrigation, the fact that high-yielding varieties had reached their production potential, and degradation of the environment from monoculture cultivation (especially in irrigated areas) and soil erosion from rapid deforestation (Balisacan 1998a). Harvested area also stagnated and even fell slightly in some years because of a series of natural calamities and shifts of land out of rice production.

From the mid 1960s to the early half of the 1990s, the area of irrigated rice expanded at 2.6 per cent yearly, while the rain-fed area diminished at an annual rate of 1.4 per cent (Balisacan 1998a). Irrigated area thus

accounted for an increasingly large proportion of the harvested area, from 33 per cent in 1965 to 61 per cent at the start of the 1990s. Because adoption of modern varieties and fertiliser was more rapid in irrigated areas than rain-fed areas, yield growth tended to be faster in them as well, at least during the early stages of the Green Revolution. Irrigated areas also accounted for an increasingly large proportion of total rice production, rising from 43 per cent in the mid 1960s to 71 per cent in the early 1990s.⁵ Even with an expansion in harvested area, growth of rice output continued to decelerate well into the decade as yield increases practically stopped.

From the mid 1960s to the late 1980s, production of maize, the country's other main staple, grew at similarly robust rates, with rapid growth (averaging 5.7 per cent annually) between 1965 and 1980 and exceptionally rapid growth in harvested area in the early 1970s. By the early 1990s, however, the area dedicated to maize had virtually stopped expanding, leading to a slight dip in output growth. In the first half of the 1990s, harvested area contracted drastically, at an average of 6.5 per cent annually from 1990 to 1995. On average, the area planted to maize contracted at a rate of 1 per cent annually from 1980 to 1997, though output rose by 1.8 per cent.

The country's main traditional export crops, coconut and sugar, exhibited similar growth patterns. From 1965 to 1980, even with declines in productivity, coconut production grew by 3.8 per cent annually as planted area expanded. The sector saw outstanding growth in the early 1970s when output grew by about 10 per cent yearly because of significant yield increases. Thereafter, output growth slowed as a result of declines in both harvested area and yield increases, although a brief recovery occurred in the second half of the 1980s when production grew by over 5 per cent on average as yield expanded at about 6 per cent annually. Meanwhile, beginning in the mid 1980s, the area planted to coconut contracted.

Sugar production followed virtually the same pattern as that of coconut, growing rather spectacularly between 1965 and 1980 and contracting in subsequent years. Output growth similarly began to plunge in the mid 1970s but recovered in the late 1980s and the succeeding decade. The area planted to sugar began to decline in the mid 1970s and continued to do so up until the late 1980s, then rebounded in the following decade. Overall, from 1980 to 1997, sugar production rose by an average of only 1 per cent yearly.

The coconut and sugar industries share similar histories in that they were both subject to heavy government intervention in the 1970s (export taxes, production levies and/or export monopolies) and were both negatively

affected by a persistent overvaluation of the local currency (Intal and Power 1990). The two industries were deregulated in the late 1980s, and trade in sugar, a highly protected crop, was partially liberalised in the mid 1990s.

As we have seen, production growth rates for virtually all crops decelerated in the 1980s and early 1990s. One explanation for this deceleration is the decline in new area brought into cultivation. While agricultural land increased at an annual rate of 3.6 per cent in the 1970s (primarily through deforestation), the rate dipped to only 0.8 per cent per year in later decades. Other exogenous factors also contributed to the deceleration in the 1980s, including a drop in world commodity prices that affected traditional export crops, a series of droughts and other natural calamities, and the virtual completion of the Green Revolution in the early 1980s. In addition, however, certain policy-related factors also contributed to the deceleration, including uncertainty about the Comprehensive Agrarian Reform Program (CARP) and a sharp decline in public investments in agriculture.

RURAL POVERTY

We now turn to the pattern of rural poverty in the Philippines over the last four decades. Measured by real per capita income or expenditures, rural families generally do not fare as well as their urban counterparts (Table 7.8). Moreover, at 52 per cent of the total population, the rural sector continues to account for roughly 70 per cent of national poverty using simple headcount indicators.⁶ The agricultural population makes up 63 per cent of the total rural population, and in 1997, following the usual pattern, it accounted for 65 per cent of poor people nationwide and had the highest poverty head count (60 per cent). Available data further demonstrate that agriculture typically registered the lowest rate of poverty reduction of all employment sectors while accounting for a majority of the country's poor.

Characteristics of the rural **poor**

In 1997, the rural poor accounted for about three-fifths of the total national poor and their average income was about 20 per cent lower than the poverty line, a figure that had fallen, albeit not dramatically, over the previous decade. According to past studies, poverty incidence in rural areas has been characteristically high among those engaged in farming and fishing, but less so for households dependent on income earned outside agriculture. Within the agricultural sector, among the poorest were farm workers in

sugarcane, rice, maize, coconut and forestry; maize, 'other crop' and coconut farmers; and fishermen (Balisacan 1993). Rice producers normally have lower average income shortfalls and fewer members below the poverty threshold, but by sheer weight of numbers they account for the majority of the poor in the agricultural sector. The latest estimates show that the self-employed in agriculture account for a sizeable number of the country's poor (Table 7.9). Rural dwellers supporting themselves from their own farm-based enterprises (primarily lessees, tenants and small owner-cultivators) contribute about 54 per cent of total poverty based on the headcount index.

While the majority still earn their livelihood through entrepreneurial activities, increasingly more families in the overall rural population rely on wages and salaries as well as other sources of income (Table 7.10). While only about 5 per cent of all rural families depended on other sources of income in the 1960s, this figure jumped to 16 per cent in 1997. This trend coincides with the substantial growth of overseas employment (mainly contract workers) beginning in the 1970s, which yielded substantial transfer income to rural households. The country's poor still tend to be young, have large families, and be poorly educated (Balisacan 1999b). In the agricultural sector in particular, poor families are characterised by a high level of

Table 7.8 Rural poverty estimates based on official measurements^a

	1985	1988	1991	1994	1997
Rural					
Population share (per cent)	61.3	62.0	49.9	50.2	52.4
Poverty incidence (per cent)	56.4	52.3	55.0	53.1	51.4
No. of poor persons ('000)	18,744	18,118	17,346	17,988	19,591
Share of total poverty (per cent)	70.2	71.4	60.8	65.7	72.2
Agriculture (urban and rural)					
Population share (per cent)	47.4	45.5	44.5	43.3	40.1
Poverty incidence (per cent)	63.7	61.7	63.7	62.0	60.3
No. of poor persons ('000)	16,344	15,552	17,910	18,103	17,561
Share of total poverty (per cent)	61.3	61.7	62.7	66.2	64.7

^a Official methodology uses region-specific poverty lines, differentiated by urban and rural areas and current income as a broad measure of household standard of living.

Source: Authors' estimates based on National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila.

underemployment (partly because of the monsoon-dependent nature of agricultural production), inadequate access to modern technology (mainly because of lack of credit), and poor access to social services, including healthcare and family planning (Balisacan 1993). For a large number of poor owner-cultivators, farms are typically small and located in unfavourable areas (for example, outside irrigated areas).

Table 7.9 Poverty by class of worker, 1997

	Population share	Incidence	Share in total poverty
Wage earners	52.7	17.6	37.2
Agriculture	7.8	43.8	13.7
Non-agriculture	44.9	13.1	23.5
Self-employed	46.7	33.5	62.6
Agriculture	32.0	42.1	53.9
Non-agriculture	14.7	14.8	8.7

Source: Authors' estimates based on National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila.

Table 7.10 Families by main source of income, 1985–97

	1961	1971	1991	1997
National				
Total families ('000)	4,426	6,347	11,975	14,192
Main source of income (per cent of total families)				
Wages and salaries	36.0	43.0	44.1	47.9
Entrepreneurial activities	58.0	51.0	38.9	34.7
Other sources	5.9	6.0	17.0	17.5
Rural				
Total families ('000)	2,921	4,434	6,037	7,442
Main source of income (per cent of total families)				
Wages and salaries	26.0	33.1	34.1	38.3
Entrepreneurial activities	68.7	61.7	50.2	45.3
Other sources	5.3	5.2	15.7	16.4

Source: Authors' estimates based on National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila

Rural poverty is common in areas where agricultural productivity is typically low and where droughts and typhoons occur frequently, such as the Bicol region and Eastern Visayas. In these areas, besides transfers, rural non-farm employment also forms an important source of supplementary household income. In such cases, the poor are concentrated in traditional industries with low skills and capital requirements and very low labour productivity. Moreover, the pressure from brisk growth of the labour force in rural areas (nearly 3 per cent on average over the past three decades) has led to a decline in real wages, especially for unskilled workers (Balisacan 1993). In areas such as Central Luzon, where growth of agricultural productivity is high, the substantial growth of non-farm employment has slowed the decrease in real wages.

Regional profiles of income poverty

Poverty also varies considerably regionally.⁷ In 1997, Metro Manila accounted for about 14 per cent of the population, had the lowest poverty level, and contributed merely 2 per cent of national poverty. On the other hand, Mindanao, the Visayas and Bicol contributed about 70 per cent of national poverty. The latest statistical surveys identify the agriculture-dependent provinces of Eastern Visayas, Bicol, Western Mindanao, Central Visayas and Central Mindanao (in that order) as having the highest poverty levels in the country.

Rural poverty trends over time

Table 7.11 summarises estimated rural poverty measures⁸ at various points in the period 1961–91 on the basis of the Family Income and Expenditures Survey (FIES). Similarly, Table 7.12 shows estimates of changes in the welfare levels of the rural population using the Labor Force Survey (LFS) conducted during the late 1970s and early 1980s, years not adequately covered by FIES but nevertheless important for our present purposes. Meanwhile, Table 7.13 compares poverty estimates for the period 1985–97 using alternative poverty lines including both the 'official poverty lines' and the alternative absolute cost-of-basic-needs (CBN) lines, which we refer to as the 'preferred' approach.⁹

Figures 7.1 and 7.2 summarise long-term poverty trends. Before discussing poverty trends in the rural Philippines over the past four decades, we should note the severe limitations of the available data. As noted above, the poverty data for the period 1977–83 (LFS) and those for all other data

years (FIES) derive from different sources, and income levels captured by different data collection instruments are not directly comparable. Furthermore, the poverty lines used for FIES and LFS data are not the same. For these reasons, the poverty incidence levels estimated using FIES data and those estimated using LFS data are not necessarily comparable. Unfortunately, there is no data series on poverty in the Philippines that covers the entire four decades. In the absence of such data, here we attempt to interpret poverty trends using all available data, remaining mindful of the severe limitations of this exercise.

After a notable decline during the first half of the 1960s, rural poverty remained relatively stable at between 55 per cent and 60 per cent until 1978 (Figures 7.1 and 7.2), suggesting that despite the respectable

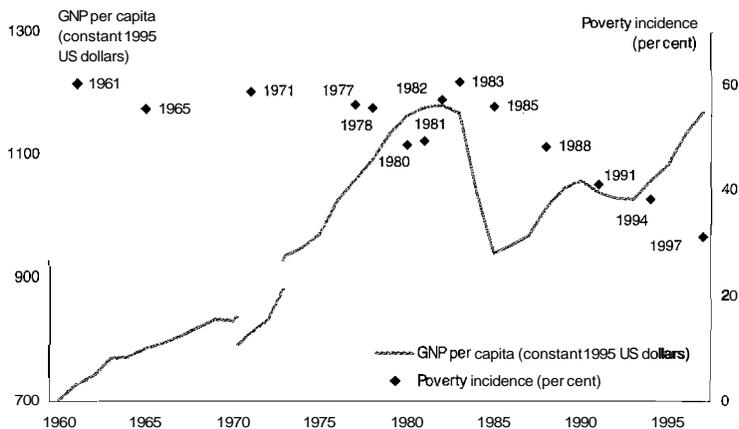
Table 7.11 Rural poverty, FIES and fixed physical areas, 1961–91
(percent, except t-ratios)^a

	1961	1965	1971	1985	1988	1991
FIES rural areas						
Population share	64.5	68.7	69.6	61.4	62.1	50.4
Incidence	64.1	55.2	57.3	59.4	50.2	52.4
		(-6.50)	(1.69)	(2.75)	(-12.46)	(2.48)
Depth	30.4	26.2	27.1	23.5	18.6	19.0
		(-5.08)	(1.20)	(-8.05)	(-13.31)	(1.00)
Severity	18.0	16.1	16.4	12.2	9.0	9.0
		(-2.97)	(0.46)	(-12.33)	(-12.53)	(-0.07)
Fixed physical areas						
Population share	68.5	68.4	68.0	65.3	64.6	64.2
Incidence	60.3	55.5	58.7	55.9	48.3	41.1
		(-3.50)	(2.54)	(-3.51)	(-10.29)	(-8.07)
Depth	28.6	26.3	27.7	22.1	17.9	14.9
		(-2.78)	(1.86)	(-12.64)	(-11.59)	(-7.29)
Severity	17.0	16.2	16.7	11.5	8.7	7.1
		(-1.26)	(0.96)	(-15.70)	(-11.25)	(-6.16)

^a Figures in parentheses are t-ratios for poverty difference between the year indicated and preceding year. The rest is based on Kakwani's (1990) methodology. Critical t-value at 5% significance level is 1.96 and at 1% level is 2.58. This table applies poverty lines estimated by the National Statistical Coordination Board for 1988 with real values held fixed for the period under study.

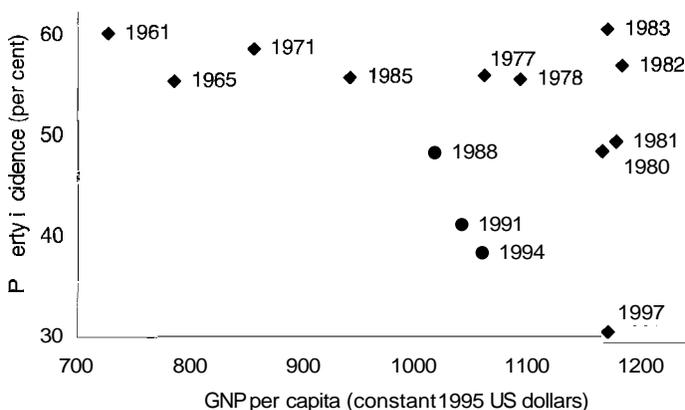
Source: Authors' estimates based on National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila.

Figure 7.1 Rural poverty and per capita GNP, 1961–97



Source: National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila; and National Statistics Office, Republic of the Philippines, various years. *Labor Force Survey*, National Statistics Office, Manila.

Figure 7.2 Rural poverty incidence and per capita income growth, 1985–97



Source: National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila; and National Statistics Office, Republic of the Philippines, various years. *Labor Force Survey*, National Statistics Office, Manila.

performance of national income growth, the level of poverty was hardly affected. Furthermore, poverty in rural areas was also relatively insensitive to aggregate growth in agriculture during most of the 1960s (with the possible exception of the early 1960s when there was a significant reduction in poverty) and up until the late 1970s (Ranis and Stewart 1993; Balisacan 1993; Bautista and Lamberte 1996). The poverty estimates based on the LFS data show that headcount poverty did finally fall sharply between 1978 and 1980, but that rural poverty again increased rapidly between 1980 and 1983 during the early period of the economic and political crises of the 1980s.

While rural poverty did finally decline rapidly between 1978 and 1980, the seeming insensitivity of poverty reduction to economic growth from the mid 1960s until the late 1970s appears to be an anomaly, given the commonly observed pattern in developing countries of agricultural growth serving as a powerful stimulus to increased rural employment and income. In many developing countries where rapid agricultural expansion occurred (for example, Bangladesh, Colombia, Costa Rica and the Punjab of India), relatively strong farm and non-farm links induced increases in rural real wages, reductions in rural poverty and, to some extent, a more egalitarian

Table 7.12 Rural poverty, Labor Force Survey data, 1977–83
(percent, except t-ratios)^a

	1977	1978	1980	1981	1982	1983
Incidence	56.2	55.7	48.6	49.4	57.1	60.6
		(-0.65)	(-10.90)	(1.62)	(15.08)	(7.06)
Depth	28.1	28.4	24.3	24.7	28.5	30.3
		(0.80)	(-12.40)	(1.60)	(15.10)	(7.08)
Sevetyity	14.0	14.5	12.1	12.4	14.3	15.2
		(2.51)	(-14.23)	(1.64)	(15.09)	(7.08)

^a No dam available for 1979. Figures in parentheses are t-ratios for poverty difference between the year indicated and the preceding year. The test is based on Kakwani's (1990) methodology. The critical t-value at 5% significance level is 1.96; 1% level, 2.58. This table applies poverty lines estimated by the National Statistical Coordination Board for 1988 with real values held fixed for the period under study.

Source: Authors' estimates based on National Statistics Office, Republic of the Philippines, various years. *Integrated Survey Of Households (ISH)*, National Statistics Office, Manila; and National Statistics Office, Republic of the Philippines, various years. *Labor Force Survey*, National Statistics Office, Manila.

Table 7.13 Poverty estimates using official and preferred approaches, 1985–97

	Population share	Poverty incidence		Share of total poverty	
		Official approach	Preferred approach	Official approach	Preferred approach
Philippines					
1985	100.0	49.2	40.9	100.0	100.0
1988	100.0	45.4	34.4	100.0	100.0
1991	100.0	45.2	34.3	100.0	100.0
1994	100.0	40.6	32.1	100.0	100.0
1997	100.0	37.4	25.0	100.0	100.0
Urban					
1985	38.7	37.8	21.7	29.8	20.5
1988	38.0	34.2	16.0	28.6	17.7
1991	50.1	35.4	20.1	39.2	29.4
1994	49.8	28.0	18.6	34.3	28.9
1997	47.6	21.9	11.9	27.8	22.6
Rural					
1985	61.3	56.4	53.1	70.2	79.5
1988	62.0	52.3	45.7	71.4	82.3
1991	49.9	55.0	48.6	60.8	70.6
1994	50.2	53.1	45.4	65.7	71.1
1997	52.4	51.4	36.9	72.2	77.4

Source: Authors' estimates based on National Statistical Coordination Board (NSCB), various years. *Family Income and Expenditures Survey*, National Statistical Coordination Board, Manila.

distribution of income. The Philippines has a higher incidence of rural landlessness than its Southeast Asian neighbours, due to a combination of a plantation sector growing tropical cash crops and a high incidence of tenancy within the peasant sector. Such characteristics, as Hayami (this volume) argues, appear to be deeply rooted in both ecological conditions and colonial-era policy development. Furthermore, numerous village level studies suggest a rapid increase in the proportion of landless households in the rural Philippines during the 1960s and 1970s (Kerkvliet 1990; Hayami and Kikuchi 2000; Fuwa 1999; Umehara 1992).¹⁰ Given the high level of inequality in the distribution of land holdings and the increasing proportion of the landless in the rural population, it is no surprise that even the substantial growth in aggregate agricultural production barely benefited the rural poor.

Herdt (1987) and others have argued that the adoption of modern technologies in the 1960s and early 1970s tended to be initially concentrated among large-scale farmers, with small-scale farmers catching up in later years. Finally, some observers have pointed out that various policy measures during the period—including pricing and infrastructure policies, foreign trade and payment restrictions, a low interest rate policy, and effective credit rationing—tended to be biased against small and medium-scale non-farm enterprises in rural areas, weakening the response of the rural economy to agricultural growth (Balisacan 1998a).

The LFS data show that rural poverty increased significantly during the period 1980–83, when unfavourable domestic and global events (political turmoil, current account and fiscal deficits, escalation of foreign debt amid an emerging global debt crisis, and a second world oil price shock), necessitating severe economic stabilisation measures, precipitated an economic crisis. In 1984 and 1985, GDP contracted by over 7 per cent; to this day, this remains as the country's worst post-war performance.

Trends over time in both per-capita GNP and headcount poverty (Figures 7.1 and 7.2) suggest a notable shift in the responsiveness of poverty reduction to aggregate economic growth around the mid 1980s. It appears that poverty reduction became somewhat more sensitive to economic growth after the mid 1980s. Based on the FIES data, headcount poverty declined rapidly from 53 per cent in 1985 to 37 per cent in 1997." Both the very sharp increase in poverty that occurred in the early 1980s and the rapid poverty reduction of the 1990s (as well as between 1978 and 1980) contrast with the relatively stable level of rural poverty that existed between the mid 1960s and the late 1970s, despite sustained growth in national income and agricultural production.

We need to be careful in interpreting these data, however, because they are based on poverty estimates obtained from different data sources that are not necessarily comparable. For example, there is a possibility that the poverty levels derived from Labor Force Survey data tend to be overestimated compared to those based on FIES data. If this is the case, then the poverty rates comparable to the FIES estimates between 1977 and 1983 might have been lower than those shown in Figure 7.1, which would mean that during the 1970s and early 1980s rural poverty levels declined significantly in response to economic growth. Such a scenario cannot be ruled out. On the other hand, some studies have argued that poverty remained unchanged or even worsened during the 1970s (International Labour Organization

1974; Boyce 1993). Given the absence of a data series on poverty that is consistent throughout the 1970s and 1980s, it is very difficult to draw a definitive conclusion about whether, and to what extent, poverty reduction occurred in the Philippines in response to aggregate growth during this period. Nevertheless, it is possible to conclude that poverty reduction was relatively more responsive to economic growth after the mid 1980s than during the 1960s (and possibly the 1970s).

On the basis of their case study of a village in Laguna province, Hayami and Kikuchi (2000) argue that increases in the income of the rural poor were due to both greater integration of rural into urban labour markets and increased non-farm income opportunities within rural areas (such as petty trading and local transportation services). In a larger context, rural poverty reduction arising from increased non-farm income opportunities for the poor can be seen as a part of a process of widening industrialisation that began in the mid 1980s, when foreign direct investments moved towards lower wage countries in regions like Southeast Asia (Hayami and Kikuchi 2000).

In addition, as we will discuss later, substantial deregulation of agricultural markets, particularly in coconuts, sugarcane and to some extent grains, was introduced during the early Aquino period. Consequently, some observers have noted that the significant reduction in rural poverty that occurred after the mid 1980s seems to suggest that policy measures for deregulation benefited small-scale farmers as well.

In sum, despite some fluctuations in the poverty level over relatively short horizons, since the mid 1980s there has clearly been a consistent trend in poverty reduction in rural areas. Overall, however, the pace of poverty reduction over the past four decades in the Philippines is disappointing in comparison with that of poverty reduction in neighbouring Asian countries. Using the internationally comparable '\$1 a day' poverty line used by the World Bank, for example, headcount poverty at the national aggregate in the Philippines fell by 10 percentage points from 36 per cent to 26 per cent between 1975 and 1995. During the same period, poverty reduction was far more impressive in Indonesia, where headcount poverty dropped from 64 per cent to 11 per cent, and in Thailand, where poverty fell from 8 per cent to near zero (Table 7.1).

Non-income dimensions of rural poverty. Changes in the welfare level of the rural population cannot be captured solely by changes in income and consumption. Equally important are access to the resources needed to live

a long and healthy life and to acquire and use knowledge. Between the early 1960s and the 1980s, the Philippines achieved considerable improvements in life expectancy, literacy and child health; as with income growth, however, these achievements paled in comparison to those of neighbouring Thailand and Indonesia (Table 7.2).

In the 1980s, just over one-half of the entire rural population in the Philippines had access to safe water and sanitation services, however in the next decade the situation substantially improved (Table 7.14). Rural–urban disparities in access to services have also narrowed somewhat over time. Access to safe water used to be available to a greater proportion of the rural population than it was for the urban population, while the opposite was

Table 7.14 Access to water and sanitation, 1985–93

	Thailand	Indonesia	Philippines
Rural population (per cent)	78	73	62
Rural population with access to services (per cent)			
Water			
1985–87	66	36	54
1988–93	72	43	79
Sanitation			
1985–87	46	38	56
1988–93	72	36	62
Urban population with access to services (per cent)			
Water			
1985–87	56	43	49
1988–93	87	68	85
Sanitation			
1985–87	78	33	83
1988–93	80	64	79
Rural–urban disparity (parity = 100)			
Water			
1985–87	118	84	110
1988–93	83	63	93
Sanitation			
1985–87	59	115	67
1988–93	90	56	78

Source: United Nations Development Programme (UNDP), n.d. Database, UNDP, Washington, DC; Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

true for sanitation services. Despite such developments, however, rural households still enjoy much less access to sanitation services than their urban counterparts.

From an international perspective, a relatively large percentage of the rural population in the Philippines has access to basic services. On average, only about 60 per cent of rural populations in developing Asia have access to safe water. For sanitation services, the corresponding figure is even lower at slightly less than 40 per cent.¹²

GOVERNMENT POLICIES AFFECTING RURAL DEVELOPMENT

In this section we review the evolution of government policies over the last four decades. Instead of attempting a comprehensive review of different aspects of economic policies, we focus primarily on policy measures likely to have had major effects on rural development, especially agricultural growth and rural poverty reduction. We begin with a discussion of development strategies and economy-wide policies, then look at agricultural policies and other policy instruments directly related to rural areas.

For a long time, the Philippines maintained an import substitution-oriented development strategy that heavily protected the industrial sector. Such industrial protection policies, however, tend to raise the price of protected industrial products relative to the price of agricultural products and thus hinder agricultural and rural development. It is now widely accepted that depression of agricultural prices through industrial protection had major negative effects on the growth of agricultural production and thus rural development in many developing countries (Krueger et al. 1988). In the case of the Philippines, such negative 'indirect protection' against agriculture remained much larger in magnitude than the negative 'direct protection' aimed at the agricultural sector. Furthermore, import substitution policies also encouraged capital-intensive, rather than labour-intensive, patterns of industrialisation, thereby limiting the absorptive capacity of the industrial sector for labour and thus seriously hampering the poverty reduction effects of industrialisation and economic growth.

Development strategies and macroeconomic policies

The Philippines failed to grow robustly on a sustainable basis and reduce poverty during the last half century because it had no 'effective allocation mechanism' to allow the true comparative advantage of various industries

to emerge (Bautista and Lamberte 1996; Power and Sicat 1971; Bautista et al. 1979; Medalla 1990). Instead, past governments introduced distortions in economic policies, which, in not a few cases, made socially undesirable investments attractive to private investors and desirable ones (that is, promising and efficient activities) relatively unprofitable (Power and Sicat 1971; Bautista et al. 1979; Medalla et al. 1995). Such policies not only hampered economic growth at the national aggregate level, but also produced side effects deleterious to rural development. From the 1950s to the 1980s, an array of import substitution-oriented policies meant to push the country towards industrialisation inadvertently stunted the development of the rural sector by creating a bias towards large-scale, capital-intensive manufacturing industries located in urban areas (especially Metro Manila). These policies were detrimental to rural enterprises, which are inherently smaller and more labour-intensive, and make greater use of local materials (Medalla et al. 1995; Ranis and Stewart 1987).

These policies also created an incentive structure that was significantly biased against agriculture, the economic backbone of the rural sector. Trade and exchange rate policies then distorted the relative prices of agricultural inputs and products, preventing efficient resource allocation, and tended to heavily favour manufacturing over agriculture, non-tradable over tradable goods, and import-competing over export products. In the long run, resources moved away from agriculture and export sectors, and new investment in these sectors was discouraged. Because agricultural production is more labour-intensive, less import-dependent and more efficient in earning (or saving) foreign exchange than industrial production, the premature shift of resources away from agriculture dampened employment and product growth in rural areas.

The bias largely came not from measures aimed directly at agricultural commodities — although government interventions in the form of taxes, customs duties, subsidies, quantitative trade restrictions, import prohibitions, price controls, and monopoly control in international trade did, up until the late 1980s and mid 1990s, affect agricultural incentives— but rather from the *indirect* effect of overall development strategy (Intal and Power 1990; Bautista 1987; David 1983). The primary channel had been an overvalued domestic currency traced to the industrial protection system and fiscal, monetary, and exchange rate policies, specifically those adopted to promote import substitution and accommodate current account imbalances.

The Marcos administration, 1965–86. By 1965, the Philippines had for 15 years been using an import substitution policy for industrialisation characterised by a protective tariff system and an incentive scheme that favoured (mostly capital-intensive) manufacturing at the expense of agriculture and exports. Under President Ferdinand Marcos, the government implemented the Investment Incentives Act of 1967, which provided a comprehensive approach to industrial development and created the Board of Investments (BOI). The Act empowered the BOI to determine preferred areas of investments and administer granting incentives—mainly tax exemptions and tax credits—to BOI-registered firms. The incentive scheme, however, remained strongly biased in favour of import-substituting firms, particularly in capital-intensive manufacturing. In the 1970s, efforts were made to adopt outward-looking development policies, such as a flexible exchange rate (partly in response to the foreign exchange crisis of late 1969) and a broadening of the fiscal incentives granted to preferred firms by the Export Incentives Act of 1969.¹³ Coupled with a (partial) peso devaluation, these fiscal incentives partly offset the anti-export bias of the country's protection system.

Nevertheless, these measures failed to affect the structure of the Philippine economy substantially. Despite the various laws granting fiscal incentives to the export sector, the industrial protection system still favoured industrial consumer goods over capital goods and penalised export production relative to other industries (Medalla et al. 1995; Tan 1979). Nor did the large nominal devaluation that occurred in 1970 or the subsequent (managed) floating of the peso correct for overvaluation of the local currency. Intal and Power (1990) estimate the average overvaluation to have been 24 per cent in 1970–74 and 32 per cent in 1975–79, figures higher than those derived for Thailand (16 per cent and 24 per cent, respectively) and Malaysia (2 per cent and 0.4 per cent) using the same estimating method (Medalla et al. 1995; Bautista 1990).

As a result of continuing import substitution-oriented industrialisation policies, relative agricultural prices remained depressed, probably hampering agricultural development. While the agricultural sector recorded respectable growth during this period, the growth might have been even higher if not for the bias against agriculture in the pricing system. Without the policy bias against labour-intensive industries resulting from import substitution strategies that favoured capital intensive industrialisation, economic growth could have been more successful at reducing poverty in rural areas through the employment of more people in the industrial sector.

Several policy developments that can be considered either transitional or emergency measures marked the early 1980s. Pressure for reform came from a confluence of factors, including the oil shock of 1979–80, deep recession in the country's trading partners, the emerging global debt crisis, soaring interest rates, a sharp fall in the country's external terms of trade, and domestic political instability. These factors also caused the rural poverty situation to worsen significantly in the early 1980s (Table 7.11), possibly leading to further political destabilisation. In response to these pressures and with financial and technical support from the World Bank, the Marcos government initiated structural reforms in the early 1980s, including rationalisation of fiscal incentives, restructuring of the tariff system, liberalisation of imports and finances, and exchange rate adjustment.¹⁴ These reforms were cut short, however, by the external debt-related foreign exchange crisis of 1983. Deregulation measures would have been accompanied by import liberalisation and agricultural pricing reform, but short-term considerations arising from the balance of payments crisis that erupted in the latter part of 1983 led to a return of import and foreign exchange controls. These controls also rendered the ongoing tariff reform ineffective.

Given the situation, the government had to undertake a stabilisation program, including fiscal and monetary restraints and devaluation of the domestic currency. This meant a sharp fall in economic activity, particularly in the import-dependent manufacturing sector and overall government spending. The fall in government spending was proportionately greater for economic (particularly agricultural) and social services, thus those it most severely affected were low-income households whose welfare depended on such services. Inflation also reached its highest post-war level (50 per cent in 1984), affecting fixed-income, low-paid, blue-collar workers and landless rural farmers the most severely.

The Aquino administration, 1986–92. The departure of the Marcos government from the political scene in 1986 presented the newly instituted Aquino government with an opportunity to undertake deep economic reforms. Accordingly, the Aquino government adopted a strategy designed to signal a complete break from the distortionary policies of the past, with liberalisation, privatisation and decentralisation as its key elements. In essence, the reform package of the new government was a continuation of economic reforms initiated in the early 1980s but postponed because of the crisis.

The Aquino government made greater headway with the import liberalisation program that had failed to take off under the previous

administration as the economy collapsed in the mid 1980s (Albuero 1993). Non-tariff barriers and import quotas were removed, especially in the critical years of 1986–88. The coverage of non-tariff measures in all sectors of the economy fell from 33 per cent (of total product categories) in 1984 to a mere 8 per cent in 1990 (Medalla 1992). Reductions in the indicators of the extent of quantitative restrictions were substantial for the agriculture, fishing and forestry sectors (from a coverage of 31 per cent in 1984 to 5 per cent in 1990) as well as the manufacturing sector (from 33 per cent to 8 per cent during the same period).

Although attempts to liberalise the economy met with some success, much remained to be desired. The continued failure to match ongoing liberalisation efforts with appropriate macroeconomic policies was considered a serious flaw (Albuero 1993). The exchange rate, which remained overvalued by over 20 per cent, barely adjusted to trade policy requirements to prevent a dilution of the new policy's efficacy. Moreover, trade reforms of the early 1990s might have brought down the overall protection level of the economy, but studies later showed that these were not enough to completely remove the bias of the trade regime, which continued to confer greater protection to import-competing rather than export activities (Tan 1994).

Furthermore, apart from the limited structural effects of the trade liberalisation program, the industrial incentive scheme hardly improved, as the Aquino administration opted to grant perks to favoured firms and industries. Indeed, the new industrial policy proved even worse than that of the final years of the Marcos regime (Lim 1996). Under the new investments code, fiscal incentives were to be given only to those enterprises listed in the Investments Priorities Plan (IPP) or those exporting at least half their output. While policy guidelines introduced some degree of neutrality between exporters and non-exporters, they tended to encourage capital-intensive over labour-intensive production, since tax holidays and duty exemptions significantly reduced user costs (Medalla et al. 1995; Manasan 1990). As a result, the Marcos-era policy bias against agricultural growth and poverty reduction in rural areas continued, if to a somewhat lesser degree.

The Aquino government also undertook substantial fiscal reforms almost as soon as it came into office. By July 1986, it had removed export taxes on all items except logs and issued several executive orders to launch its tax reform program. Vast improvements were made in direct and indirect taxation, especially in terms of simplifying the income tax system, unifying corporate taxes, applying a single ad valorem system, and enhancing revenue

collection through a value-added system. According to some critics, however, the nation's tax system could have been substantially strengthened had the government been able to introduce property taxes (Montes 1991). The focus on decentralisation sharpened in 1991 when Congress passed a law devolving government functions—mainly in social services and infrastructure development—to local government units.

From 1986 to 1992, financial liberalisation proceeded gradually as the Aquino government grappled with a severely weakened financial system (Paderanga 1996). It was only in 1990 that monetary authorities lifted the freeze on the entry of new domestic banks, and only in 1991 that bank branching was liberalised. Foreign exchange transactions were partially liberalised in 1991, when the central bank lifted the 100 per cent surrender requirement and allowed foreign exchange earners to retain at most 2 per cent of their holdings in foreign currency (with certain restrictions on use). Monetary authorities raised this retention limit to 40 per cent in January 1992, and allowed unrestricted use of foreign exchange holdings in April 1992. The intention was to abolish foreign exchange controls by December that year, but the succeeding government fast-tracked the plan and pushed through full liberalisation in August 1992, four months earlier than scheduled. The **Ramos** administration, 1992–98. The Ramos government came to power during an economic recession that was prompted by an energy crisis and high interest rates that stifled local production. The first order of the day was to deal with the severe power shortage and continue to manage growing macroeconomic imbalances. The new administration, with a strong intention to continue the structural changes initiated during the previous two governments, was able to fast-track at least one reform in its initial year—full liberalisation of foreign exchange transactions. In addition, inroads were made in the tariff reform program, with several executive orders made in the mid 1990s further reducing tariffs. These tariff cuts were scheduled to be phased out over a period of 10 years and replaced with a uniform tariff level of 5 per cent by 2004. The target was the same for agricultural products, a number of which were still subject to quantitative restrictions. The progress in trade liberalisation made during this period owed much to the country's entry into various free trade agreements such as those created by ASEAN, the WTO and APEC. The conversion of all quantitative restrictions—including those applying to all sensitive agricultural products except rice—into equivalent tariffs formed part of the country's commitment to the WTO.¹⁵

The country's industrial incentive system, however, continued to be governed largely by the Omnibus Investment Code of 1987, which gave firms registered with the Board of Investments blanket income tax holidays lasting 8–10 years and allowed duty-free import of capital equipment. This approach retained some of the traditional bias against agriculture, but leaned in favour of capital-intensive industrial products and import substitutes.

The real exchange rate continued to be highly overvalued, although this was largely brought about by a strong inflow of capital due to improved investor sentiment rather than by measures related to fiscal imbalance. The domestic currency appreciated sharply between 1993 and 1996 as foreign capital was lured to the Philippines by an apparently improved domestic economy and encouraged by the deregulation of foreign exchange transactions. Tight monetary policies contributed to the strong capital inflow by keeping domestic interest rates attractively high. The stock market boomed and remained strong until 1996. The Export Development Act, which served to offset the policy bias against exports to some extent by granting fiscal incentives, was signed into law in 1995 after intense lobbying by exporters for 'a more competitive exchange rate'.

Overall, the Ramos government's main economic strategy was to foster competition and encourage private-sector participation in the domestic economy. The biggest impact could be seen in the services sector, where entry was liberalised and monopolies dismantled, with the most visible improvements occurring in the telecommunications, banking and transport industries. The privatisation program was also given a big push by the Ramos administration, thus it progressed more rapidly from 1992 to 1998 than during the Aquino term. Fiscal surpluses in the mid 1990s traced largely to the non-recurring privatisation revenue, raising concerns about the sustainability of the country's strong fiscal position. Greater private sector participation was also encouraged in the provision of basic infrastructure and services such as power, roads and transportation, and utilities.

Between 1994 and 1997, aggregate national income grew at an annual average rate of 5 per cent, with the agricultural sector growing at a rate of 3 per cent. Though incomplete, the sweeping reforms aimed at increasing competition in key sectors appear to have worked as a stimulus during the period. Furthermore, as a result of the nation's robust economic growth, the incidence of poverty (in both urban and rural areas) continued to decline

significantly between 1991 and 1997 (Table 7.12 and Figure 7.1). Meanwhile, income inequality declined substantially between 1991 and 1994 but had returned to the 1991 level by 1997.

While the privatisation strategy certainly helped the country's fiscal position, there was a pressing need for reforms to improve long-term revenue generation. The Ramos government attempted to address this through the 1997 Comprehensive Tax Reform Program (CTRP), which was meant to widen the revenue base, plug tax loopholes and make the tariff structure more equitable. In 1993, an earlier restructuring of the tax system had expanded the valued-added system to cover services as well as goods, replacing various excise and indirect taxes and substantially improving government collection. The Ramos government failed, however, to rationalise fiscal incentives substantially as originally planned under the proposed tax reform package.

Sectoral policies

Agricultural **policies** under the Marcos **presidency**.¹⁶ Agricultural policies during the Marcos era are relatively well documented (David 1983; Bautista 1987; Intal and Power 1990). Government intervention increased to unprecedented levels in the early 1970s, while earlier, direct government intervention was usually limited to rice and maize. The primary form of intervention was import disbursements to consuming centres. For export crops, direct marketing and policy intervention were largely confined to sugar, and mainly involved allocation of the US sugar import quota to local sugar producers. The import quota provided an export premium for Philippine sugar, since the sugar price in the US market was almost always higher than in the world market (Intal and Power 1990).

Intervention in the rice sector was precipitated by a crisis in 1971/72 resulting from local conditions (poor weather, pest infestation, and the great flood in Central Luzon) and a sharp price hike in the world market. The government responded by imposing price controls on rice and embarking on a massive program aimed at achieving rice self-sufficiency. Dubbed *Masagana 99* and launched in 1974, the program called for government assistance in the form of credit, irrigation, extension services and fertiliser subsidies. During its initial year, the program provided subsidised credit to 529,000 rice farmers in the wet season and 356,000 in the dry season, with coverage reaching 40 per cent of the rice area. The program soon faced serious repayment problems, however, and coverage

declined to 100,000 farmers per season with only about 10 per cent coverage by the end of the 1970s.¹⁷ Furthermore, the National Grains Authority (NGA), the state rice and maize agency, expanded its control of the food sector to include effective monopolisation of wheat imports (beginning in 1975) and soya imports (beginning in 1978).

By the early 1980s, when the NGA was transformed into the National Food Authority (NFA) to become the government's food price stabilisation arm, marketing controls applied to all food commodities. The NFA financed its expanded operations partly from price margins on its duty-free imports." The Marcos administration's intervention in export crops shifted from its traditional role of allocating domestic sugar quotas, collecting minor export taxes, and undertaking research and extension in tandem with the private sector, to one of monopolising domestic and export marketing. For example, the government mandated that the Philippine Exchange (Philex)—a subsidiary of the Philippine National Bank (PNB) and the primary financial institution serving the sugar industry at the time—be the sole buyer of sugar from mills as well as the sole exporter.¹⁹ In the coconut industry, the intervention broadened from a collection of minor export taxes to direct control on production, processing and international trade, including collection of the Coconut Consumer Stabilization Fund (CCSF) levy and the export premium and taxes on coconut products. As with rice, the sharp rise in the world prices of coconut oil and copra in the early 1970s—the so-called 'cooking oil crisis'—provided a major impetus for the intervention.

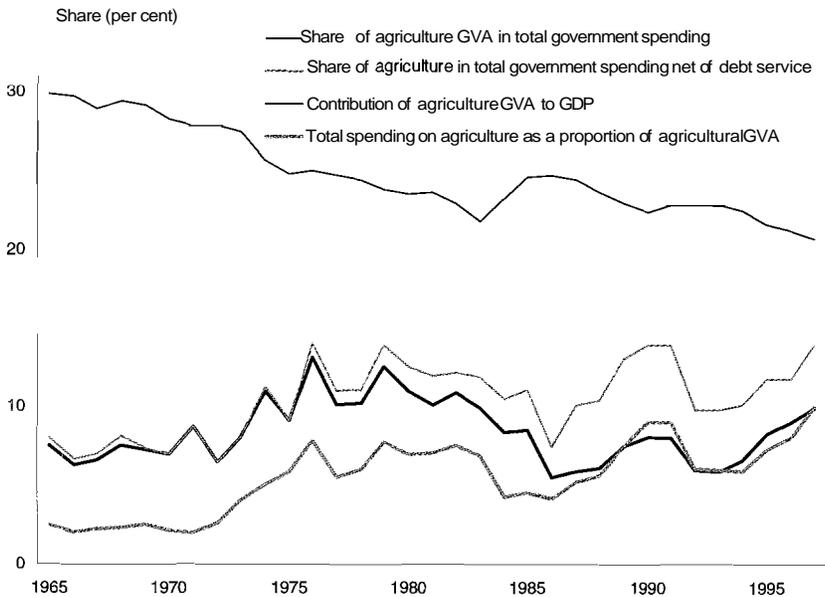
In most cases, the government's interventions were either ineffective or yielded results contrary to avowed intentions. In the case of rice, for example, while government intervention during the 1970s did reduce seasonal fluctuations of paddy prices, it failed to maintain producer prices at the official floor price (Unnevehr 1985). This meant that opportunities to sell at the official price had to be rationed, often to the disadvantage of small-scale farmers. In addition, because the difference between official ceiling and floor prices was insufficient to cover normal marketing margins, the intervention prevented the development of private trading and storage. Arguably, the government's objective of reducing marketing margins could have been achieved with non-price policy interventions such as investments in transport and communications infrastructure.

In the 1960s and 1970s, yield gains from high-yielding varieties (HYV) of irrigated rice were impressive, and irrigation received the largest part of public spending on agriculture (Figure 7.3). Thus, the combination of

Green Revolution technologies and increased government spending on agriculture appeared to contribute significantly to agricultural growth in the 1970s. Critics have suggested, however, that the patterns of public investment in agricultural research, input and output subsidies, and infrastructure tended to disproportionately benefit large-scale farmers at the expense of small-scale farmers (Balisacan 1998a). Since small-scale farmers, along with landless labourers, represent such a significant proportion of the rural population, such bias in public investment patterns can partly explain the sluggishness of rural poverty reduction despite robust growth in aggregate agricultural production.

The effectiveness of the *Masagana 99* program in facilitating the growth of rice production in the 1970s, on the other hand, has been seriously

Figure 7.3 Share of agriculture in government expenditures and agricultural GVA



Source: David, C.C. and Inocencio, A.B., 2000. *Key Indicators for Public Expenditures in Agriculture, Natural Resources and the Environment*, Philippine Institute for Development Studies Discussion Paper No. 2000-26, Philippine Institute for Development Studies, Makati.

questioned in the literature. Observers argue that the growth would perhaps have occurred even without the program, given the use of HYV and increased investment in irrigation, and that the program was overly expensive (Sacay et al. 1985). Furthermore, access to the program by its intended beneficiaries—small-scale farmers—was limited. For example, despite the substantial resources devoted to subsidising formal credit institutions, the amount that actually reached small-scale farmers was small. Esguerra (1981) estimates that only one-third of the potential credit subsidies reached farmer beneficiaries.²⁰ A number of studies have concluded that the unfavourable effects of the low interest rate policy and the effective rationing of institutional credit, as well as foreign trade and payment restrictions, were often much more severe for small-scale farmers than for large-scale farmers (Bautista 1987). Moreover, the credit policy spurred lending (by formal commercial sources) away from agriculture, thereby reducing the overall flow of credit to the sector (Tolentino 1986).

The huge fertiliser subsidies of 1973–82 mainly benefited a few local fertiliser producers/importers rather than farmers (Balisacan 1990). Controls on fertiliser imports and distribution raised domestic prices to levels higher than would have prevailed in the absence of controls. Together with the high level of landlessness characteristic of the traditional rural social structure, policy biases against small-scale farmers and ineffective fertiliser subsidies appear to have contributed to the slow pace of poverty reduction in rural areas.

During the period 1973–82, the domestic price of copra was on average 22 per cent lower than its export price, an effect of coconut policies (David 1983). The attempt to influence the world price also proved futile since the country's exports of copra and coconut oil were only 5 per cent of the world's fat and oil market; in fact it led to widespread substitution of other oils, thus depressing the country's earnings from coconut exports.

Sugar interventions, on the other hand, led to payments from sugar producers to a select few close to the ruling elite.²¹ In addition to heavy intervention by the government (through export taxes and production levies), the persistent overvaluation of the exchange rate during the 1970s also negatively affected export crops such as coconut and sugar. The negative impact of these policies appears to partly explain the rather unspectacular production growth and low (in the case of sugar) and negative (in the case of coconut) productivity growth of the 1970s, which were followed by stagnation in the early 1980s. Honma and Hagino (this volume) show that

raw sugar exports from the Philippines lost market share as world demand stagnated between the early 1970s and mid 1990s. Sugar exports from Thailand, on the other hand, increased during the same period because their market share rose.

Finally, there was one other policy high on the agenda during the initial years of the Marcos regime--land reform." Land reform had continuously been on the political agenda in the Philippines at least since the early twentieth century. Just one month after the declaration of martial law in September 1972, President Marcos issued a decree that all rice and maize fields larger than 7 hectares were to be transferred to the tenants who tilled them at a price 2.5 times the value of the average annual production. In addition, all rice and maize fields smaller than 7 hectares under share tenancy were to be converted to fixed-rent leasehold with the official rental ceiling at 25 per cent of the average output for the three 'normal' years prior to land reform. Compared to earlier land reform legislation, this decree expanded the potential coverage of the reform program.

Despite Marcos's rhetoric and the increase in potential coverage, however, land reform under the Aquino and Ramos administrations was much more effective than under the Marcos administrations. Of the total area potentially covered by the three administrations' programs, 59 per cent was redistributed under Aquino, 27 per cent under Ramos, and a mere 3 per cent under Marcos. Nonetheless, while implementation of the Marcos decree was limited to rather specific geographical regions (mainly for political reasons), many village-level studies found significant effects from land reform in target areas (such as Central Luzon).

The decree virtually eliminated the traditional rice hacienda system in much of inner Central Luzon, and also led to significant income transfer from former landowners to former share tenants because the large increase in land rent due to the Green Revolution was appropriated by the latter (Fegan 1989; Hayami et al. 1990; Hayami and Kikuchi 2000; Otsuka 1991; Umehara 1997; Riedinger 1995). At the same time, the decree adversely affected rural landless labourers because not only were they excluded as land reform beneficiaries, but their potential access to land through tenancy contracts was also severely restricted by landowners' increasing reluctance to rent their land due to their fear of confiscation. In addition, the reported incidence of tenant eviction as a response to the land reform program further crowded rural labour markets (Hayami et al. 1990; Otsuka 1991).

Agricultural policies under the Aquino presidency As noted previously, the 1970s under President Marcos saw unprecedented government intervention in agriculture with price and quantitative controls, levies and taxes, as well as entry into activities for which the public good argument was unjustified. The Aquino government promised to undo these policies and move toward a market-oriented agricultural economy. Deregulation began as soon as the new leadership stepped into power.

- The export ban on copra and export taxes on copra (10 per cent) and coconut oil (5 per cent) were lifted.
- Sugar and coconut trading were reformed, and monopoly control over international trade in coconut oil, maize, soya, and soya meal were removed.
- Fertiliser distribution and imports were liberalised.
- Price controls on rice, poultry products, and pork were removed.
- Imports of wheat, flour, and animal feeds were privatised.
- The NFA was removed from non-grain activities and reoriented to its primary function of price stabilisation for rice and maize.
- Commodity-specific funds were consolidated into the Comprehensive Agricultural Loan Fund (CALF) to unify various agricultural lending programs and minimise government participation.

As we noted earlier, the national economy registered robust aggregate growth and rural poverty declined substantially through the latter half of the 1980s. The benefits to small-scale farmers in rural areas appear to have derived from the swift and wide-ranging deregulation of agricultural markets during the early years of the Aquino administration (Balisacan 1998b).

Despite these reform measures, deregulation of agriculture was incomplete. Reforms did not include the abolition of remaining restrictions, including

- NFA monopoly of international trade and domestic market operations in rice and maize
- import controls on sugar
- import prohibitions on onions, potatoes, garlic, cabbage, coffee, and seeds
- area controls on banana production
- centralised import of ruminants (for breeding and/or slaughter) and beef
- bans on *buntal* and *ramie* planting materials
- export restrictions on animal and animal products

- licensing and/or registration of production and domestic trade for some agricultural goods.

Rather than expanding the scope of deregulation to benefit the rural population, the Aquino government instead strengthened agricultural regulations, especially for international trade. A few months prior to the 1992 national elections, Congress passed the Magna Carta of Small Farmers, which barred imports of agricultural products that were produced domestically in sufficient quantities.²³

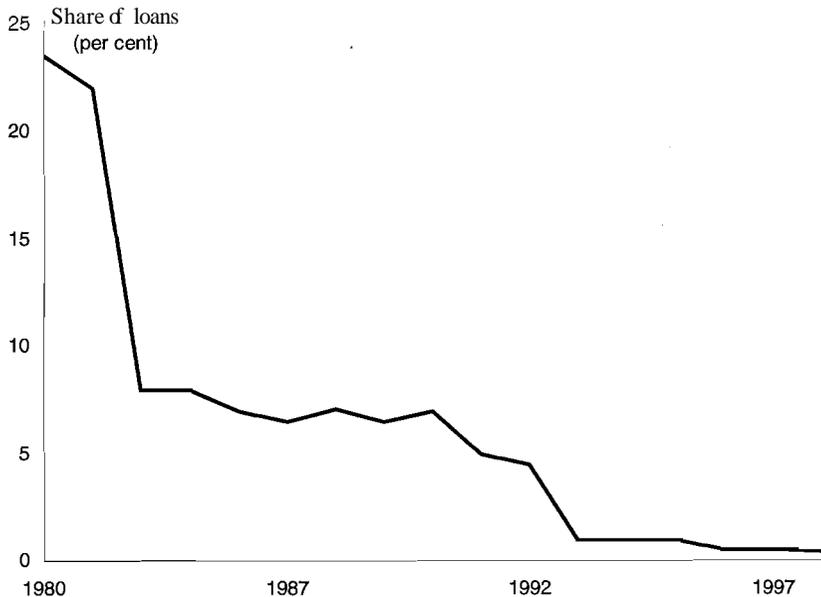
Another major program of the Aquino government with the potential for profound effects on agriculture was the Comprehensive Agrarian Reform Program (CARP). Unlike its predecessor land reform programs, this program covered all agricultural land regardless of commodity and tenure arrangements, and included provision of support services for farmers. CARP intended to redistribute about 580,000 hectares of rice and maize land (which had been covered under the old order), and more than 2 million hectares of privately-owned non-ricelmaize land (newly covered under CARP) over a period of 10 years. The program budget was estimated at P221 billion, roughly 30 per cent of the 1987 national budget (Balisacan 1995a), of which one-quarter was initially allocated by the administration. The program's huge budget, however, together with the limited capacities of agencies assigned to implement it, stood in the way of swift implementation. Thus, 59 per cent of the potential rice and maize land and only 4 per cent of the non-ricelmaize land were redistributed. In the end, the Aquino administration spent P17 billion with an average per beneficiary expenditure of P3,600 for land acquisition plus P10,000 for support services.

Moreover, certain sectors (for example, prawn and sugar farms) constantly lobbied Congress for exclusion from the land reform coverage. The consequent uncertainty surrounding the program's implementation both discouraged private investment in agriculture and encouraged landowners to leave land idle and prematurely convert agricultural land to non-agricultural uses. This trend was exacerbated by weak government monitoring and absence of a comprehensive land use policy (Medalla and Centeno 1994). In addition, CARP also diminished the collateral value of agricultural land by constraining private land sales." This feature of the program caused the demise of private markets for agricultural land. Indeed, the size of loans granted by private and government banks in the early 1990s was only one-

half that of loans granted in the early 1980s (at constant prices). Loans by private institutions, including private commercial banks, dropped by much more than loans by public institutions (Figure 7.4). Loans per peso of agricultural value added fell from about 0.42 in 1980–82 to 0.20 in 1985–87 and 0.16 in 1991–92 (Balisacan 1998b).

During the 1980s and early 1990s, production growth rates for most crops decelerated, a trend that can be attributed to a combination of some exogenous factors (such as price changes in world markets, natural calamities, and droughts) and government policies. The negative impact of a sharp fall in public investment in agriculture—specially rural roads, irrigation, and research—in the 1980s and early 1990s also contributed (David 1999). Investments in agricultural research and development, the single most

Figure 7.4 Share of agriculture in total loans granted by formal financial institutions



Source: Llanto, G., 2000. *Assessing the Performance of the Rural Financial Sector*, Paper presented at the Philippine Institute for Development Studies—Department of Agriculture—Bureau of Agricultural Research Second Agricultural Policy Forum on Credit Policy Improvement, Makati, 11 February 2000.

important source of long-term output growth, stagnated in the 1970s and then dropped in absolute value in the 1980s. The total amount spent on research and development in the early 1990s was a mere 60 per cent of that spent in the early 1970s.

Agricultural policies under the Ramos presidency. In order to open market competition, the Ramos administration embarked on major economic policy reforms. Although much was achieved in opening local industries to competition, the same cannot be said for agriculture, which seemed to have moved in the opposite direction (David 1999; Bautista and Lamberte 1996). Even in the beginning, the Ramos administration's agricultural policy was constrained by laws such as the newly enacted Magna Carta of Small Farmers, which kept major commodities subject to quantitative restrictions until early 1996.

A change in the policy environment was anticipated with the country's entry into the WTO in 1995. Local agricultural markets were required to be open to competition and laws prescribed by the trade treaty were to be enacted.²⁵ Political negotiations to win public support severely weakened the drive toward greater openness in the farm sector. Rice, for instance, was exempted from the trade commitments for a period of 10 years. In 1996, Congress passed a law that lifted all quantitative restrictions on agricultural imports (except rice) but replaced non-tariff barriers with the highest possible tariff protection of 100 per cent (that is, the ceiling or binding tariff rates).²⁶ This 'tarrification' resulted in tariff levels that exceeded the corresponding equivalent rates of most products (Clarete 1999). The tariff rate equivalent of quantitative restrictions on maize, for example, was estimated to be only 60 per cent, but the government set the maximum rate of 100 per cent.²⁷

The WTO allowed a provision that enabled consumers of major agricultural commodities to take advantage of lower tariffs through a minimum access volume (MAV) system. This provision was designed to lessen the effects of high tariffs and avoid disruption of the flow of farm products in the world trading system due to apparent overcompensation for lost protection levels. Under this scheme, lower (in-quota) tariffs are applied to imports falling within an assigned quota, which comprises a small fraction of domestic consumption, while higher (out-quota) tariffs are paid on imports exceeding this limit. Despite some effort for greater transparency in the allocation of import quotas and improved access to the MAV system, the incentive for rent seeking remains high given the size of the quotas. With the exception of live pork and poultry, allocated volumes

are typically lower than import demand at the in-quota tariff, creating a situation where large quota rents cannot be controlled unless a reliable and fair bidding mechanism is established (David 1999). Aside from the resulting inequities, the MAV system has been criticised for its high administrative costs, its inefficiency in allocating government revenue from imports (supposedly earmarked for agricultural support services), and its prolonging of government intervention in agricultural trade.

After a decade of stagnation in the 1980s, production growth in the agricultural sector recovered in the 1990s (Table 7.5). This upturn may be partly explained by a combination of sweeping reforms in non-agricultural sectors and increasing government protection for agriculture, which apparently led to a rise in relative prices of agricultural products in the domestic market (David 1999).

In 1997, the Ramos government enacted the Agriculture and Fisheries Modernization Act (AFMA) in response to opposition to WTO entry coming from farmer groups, which argued that their inability to compete in the world market was partly caused by lack of infrastructure development. The AFMA prescribes a coordinated set of measures, including guidelines on the devolution of communal irrigation systems to local government units, simplified public bidding for irrigation projects, budgetary allocation for research and development projects, a phase-out of directed credit programs, and the creation of a council to coordinate research, development and extension work.²⁸

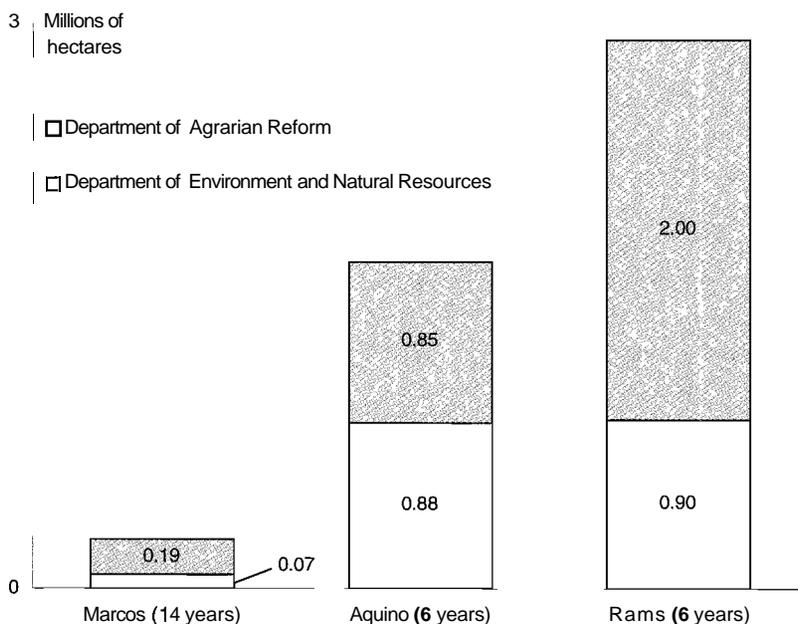
While the Ramos administration persuaded the legislature to enact vital reforms, crucial restrictions remained, such as the continued monopoly of the NFA over rice trade and area controls on banana production. In addition, the profitability of sugar and maize was becoming artificially high because of the increased protection afforded by the new tariff regime as well as regulatory barriers that reduced the competitiveness of allied industries. Yellow maize is the primary feed used by the livestock sector, while sugar is an essential ingredient for the food processing industry.

The land reform program, meanwhile, could not be completed as scheduled by 1997, although the relevant local agencies performed relatively well compared to their predecessors (Figure 7.5). Only a little more than one-half the total planned coverage was achieved. Implementation was particularly slow for public alienable and disposable (A&D) lands and private agricultural lands (other than rice and maize lands). Of the total coverage planned under the program, the former constituted 45 per cent and the

latter 25 per cent. For public land, the poor performance was mainly due to delays in land surveys, slow reconstitution of land records, and sluggish resolution of land conflicts among competing claimants (Balisacan 1996a). For private agricultural land, the main problems included the time-consuming process of land acquisition and distribution, insufficient technical capacity of implementing agencies, legal disputes over coverage and land valuation, landowner resistance, harassment, an unstable 'peace and order' condition, and budget constraints. The negative side effects of this slow and incomplete implementation and the uncertainty created as a result continue to be a serious problem for agricultural development.

Poverty reduction policies during the **Ramos** presidency. Unlike the Aquino government, which faced constant problems ranging from coup *de états* to volcanic eruptions, the Ramos administration was able to establish a program

Figure 7.5 Titled lands distributed by administration, 1972–97 (million hectares)



Source: Department of Agrarian Reform, from Abueva, J.V., Alfiler, Ma. Concepcion I?, Domingo, Ma. Oliva Z. and Nicolas, E.F., 1998. *The Ramos Presidency and Administration: record and legacy (1992–1998)*, University of the Philippines Press, Diliman.

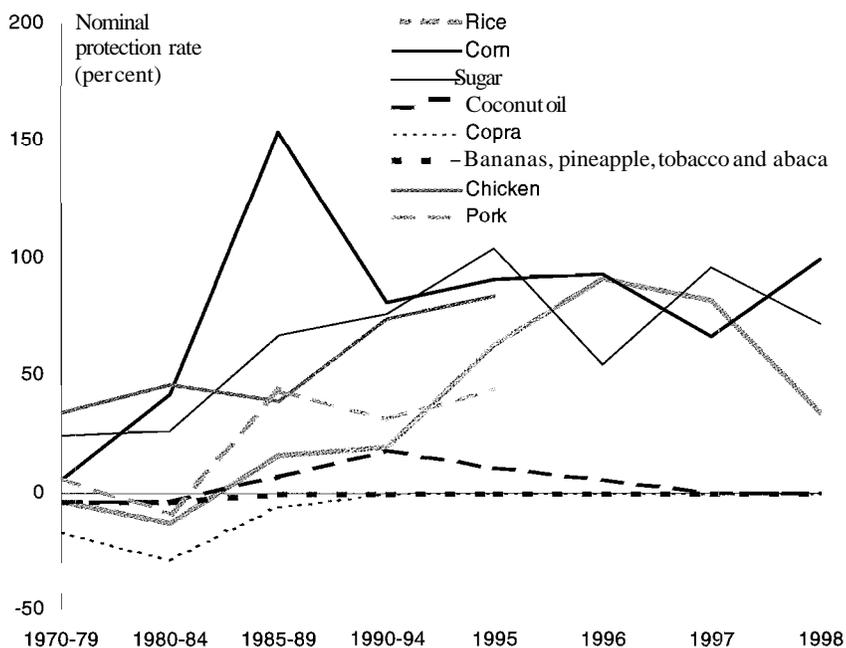
to alleviate poverty in the short term. In 1994, it launched the Social Reform Agenda (SRA), which mainly targeted 20 priority provinces, poor municipalities around the country, and special peace and development zones in Mindanao and Palawan.²⁹ The distinguishing feature of this effort was recognition of the government's limited resources and a focus on areas where the majority of the population failed to achieve even minimum basic needs (Collas-Monsod and Monsod 1999). It also consolidated the various social reform programs of different government agencies and entrusted local government units with greater responsibility over poverty alleviation efforts. To ensure project implementation, poverty targets were included in the criteria used to appraise local officials and cabinet officers. Provincial governors and city mayors were held accountable for welfare improvements in their territories. It would appear, however, that political concessions continued to be made, since some of the chosen provinces were not necessarily 'the poorest. To date, no rigorous empirical study has been made on the impact of these policies.

Measuring policy consequences

Nominal protection rates (NPRs). The effects of commodity-specific policies on agriculture can be summarised by the nominal protection rate (NPR), defined as the proportional difference between the domestic price and the comparable border price evaluated at the official exchange rate. NPR measures the effect of price controls, export taxes or quotas, and other such policies affecting the domestic (producer) price of a tradable agricultural product. A positive NPR value suggests that domestic policies confer protection to producers of the commodity while a negative figure indicates that policies penalise them.

Figure 7.6 shows the trends in nominal protection for various agricultural commodities between the 1970s and the late 1990s. With the exception of a few (for example, sugar, maize and chicken), NPRs for most products were either negative or near zero until the mid 1980s, suggesting that price incentives provided to the agricultural sector were relatively weak during this period. NPRs for most products (including major import-competing goods such as sugar, maize and rice), however, moved up in the late 1980s, a period of pervasive government intervention. NPRs in the early 1990s were similarly higher than those in the early 1980s, also a period of heavy regulation of agricultural markets. Evidently, then, reforms of distorted pricing policies instituted over the past two decades have been favourable to agricultural producers.

Figure 7.6 Nominal protection rate for various agricultural products, 1970–98 (per cent)



Note: The nominal protection rate (NPR) is the percentage difference between the domestic price and the comparable border price evaluated at the official exchange rate. For exportable products, the border price is the f.o.b. export value unit. For importable products, it is the world price adjusted by 15 per cent to approximate the c.i.f. import unit value. For pork and chicken, the c.i.f. import unit value of Singapore was used. For sugar, figures are the weighted averages of NPR on sugar exported to the United States (ratio of export unit value to the border price) and NPR on sugar for domestic use (ratio of domestic wholesale price to the border price). Border price is the f.o.b. world price of sugar adjusted by 15 per cent to obtain c.i.f. price. From 1995 to 1998, imports of rice, sugar, and recently, maize, did not pay either in-quota or out-quota tariffs except for sugar imports in late 1998, which paid out-quota tariffs.

Source: David, C.C., 1999. Constraints to Food Security: the Philippine case, Paper presented at the Ministerial Roundtable on *Beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium*, FAO Regional Office for Asia and the Pacific, Bangkok, 14-15 June; Intal, Jr. ES. and Power, J.H., 1990. *Trade, Exchange Rate, and Agricultural Pricing Policies in the Philippines*, World Bank Comparative Studies: The Political Economy of Agricultural Pricing Policy, World Bank, Washington, DC.

Among the major import-competing agricultural commodities, sugar continues to be the most highly protected. Historically, nominal protection of sugar was strong because of the quota system, which allowed sugar producers favoured access to the US market at premium prices. The sector experienced a period of low (even negative) nominal protection between the 1970s and early 1980s (the quota system was terminated in 1973), when the government attempted to control domestic sugar prices and taxed sugar exports in response to sharp increases in world sugar prices (Intal and Power 1990). In the late 1980s, NPRs eventually resumed their upward trend, and ever since the domestic sugar price has been about equal to (and often greater than) export prices to the United States and much higher than c.i.f. world prices.

Maize has received comparably high nominal protection over the past three decades because import substitution has remained a major government policy. It became a specific concern in the 1970s, which was also a time when the nominal rate of protection from direct price interventions noticeably increased. The commodity was briefly unprotected in the mid 1970s when world maize prices soared, although it still enjoyed greater protection than other major crops whose border prices also rose during the period. The dried livestock industry received equally high nominal protection from the 1970s until the mid 1990s. By 1995, the NPRs of chicken and pork had risen to a high of 84 per cent and 44 per cent, respectively.

Nominal protection of rice was negative during the 1970s and up until the early 1980s, when rice self-sufficiency was achieved. Subsequently, during the 1980s and up until the mid 1990s it increased, rising to about 65 per cent higher than the world price in 1995 and 1996, indicating an apparent reversal of rice policy, from a historically pro-urban to a pro-farm bias (David 1999).³⁰

After a major devaluation in 1997, nominal protection levels of import-competing commodities (except sugar) dipped, because relative prices fell when evaluated against the (higher) official exchange rate. This trend is expected to continue given the government's attempts to protect domestic consumers from sharp increases in food prices. David (1999) reports that the nominal protection rates for rice and maize (and most likely pork and chicken) predictably declined in 1998, an election year, when the government authorised more imports to prevent domestic price increases. In contrast, the NPR of sugar rose substantially in 1998 to about 100 per cent, indicative of a surge in domestic prices.

In sum, exportable agricultural commodities entered a more neutral environment after being penalised from the 1970s to the early 1980s through various taxes and levies and monopsonistic control of quasi-government agencies (particularly for coconut). Towards the end of the 1990s, NPR levels for coconut products, bananas, pineapple, tobacco and abaca stabilised at zero. In general, protection levels of the various agricultural commodities have become more widely dispersed in recent years than they were a couple of decades ago.

Positive or negative protection of the agricultural sector can result from indirect protection directed to non-agricultural sectors as well as from direct protection directed to agricultural sectors. Indirect protection occurs from economy-wide measures such as fiscal and exchange rate management and industrialisation policy (including trade interventions and domestic taxes and subsidies on non-agricultural products), which all affect the relative price of agricultural commodities (Schiff and Valdes 1992).

The magnitude of the bias against agriculture (that is, the negative nominal total protection rate) has consistently been greater in the Philippines than in Indonesia or Thailand, except for a period in the 1960s when it was lowest in the Philippines (Akiyama and Kajisa, Chapter 9, Table 9.2, this volume, which extends the earlier study by Schiff and Valdes 1992). In the 1980s, the negative total protection rate declined dramatically, then the total protection rate turned positive in both Indonesia and in Thailand, whereas in the Philippines the negative protection rate remained quite sizable even until the early 1990s. Furthermore, in the Philippines (and in Indonesia as well, but not in Thailand), relatively large indirect negative protection rather than direct (negative) protection was the major source of the bias against agriculture. Indirect protection policies, but not direct protection policies, had significant negative effects on the competitiveness of agricultural exports from the Philippines (although the explanatory power of the regression model is quite low) (Honma and Hagino, Chapter 10, this volume).

As Table 9.2 (Akiyama and Kajisa, Chapter 9, this volume) shows, from the 1970s to the 1990s, the magnitude of negative indirect protection remained substantially larger in the Philippines than in the other two countries. Table 9.2 also shows that in the 1980s there occurred a major policy shift from negative to positive nominal direct protection for agriculture in Indonesia and Thailand, but that a similar policy shift in the Philippines did not occur until the 1990s.

Effective rate of protection (ERP). Another convenient summary measure of the direct effects of trade and industrial policies is the effective rate of protection (ERP), defined as the percentage excess of the protected value added of a particular economic activity over its non-protected value added. This measure takes into account the changes in the domestic prices of both inputs and output arising from tariffs and import controls. Analogous to the NPR, a positive ERP implies that the sector is accorded protection by the system of tariffs and import controls, while a negative ERP indicates that the system penalises the activity of the sector.

Between 1965 and the early 1990s (most of the period under our review), the primary and agricultural sectors typically had lower ERPs than manufacturing; thus, compared to the manufacturing sector, the agricultural sector as a whole was penalised in terms of relative prices up until the early 1990s. During the 1990s, however, the bias against agriculture (at least on aggregate) seemed to disappear, as the ERPs for agriculture became roughly equivalent to the ERPs for manufacturing. Such a result can largely be attributed to the substantial changes made to the country's tariff structure over the past 10 years. Medalla (1992) observes that the tariff reform program moved the country toward a lower, sector-neutral and trade-neutral effective protection policy.³¹

With the steady progression of the tariff reform program, the 1990s saw both declining protection rates for manufactured inputs (including agricultural inputs) and increased (tariff) protection for major agricultural commodities for which quantitative restrictions had been removed. Falling input prices (with the obvious exception of yellow maize for the livestock industry) imply that the *effective* protection level of agriculture afforded by domestic policy has outstripped the *nominal* protection level of the sector. Exchange rate movements. One major source of 'indirect' protection is overvaluation of the domestic currency, which in turn results from protectionist policies. An overvalued domestic currency acts as a tax on tradable goods, depressing their prices (in domestic currency terms) relative to those of non-tradable goods. This distorts incentives and encourages the movement of resources toward non-tradable or domestic production. Since domestic goods form a larger part of non-agricultural than agricultural production, the effect of exchange rate overvaluation on domestic relative prices shifts resources toward non-agricultural production.

Trade restrictions, movements in external terms of trade, and the balance of trade all influence the real exchange rate. In the 1950s and 1960s,

protectionist trade policies and large trade deficits accounted for much of the overvaluation of the Philippine peso. In the 1970s and 1980s, however, deterioration of external terms of trade and an unsustainable imbalance in external accounts assumed greater importance.

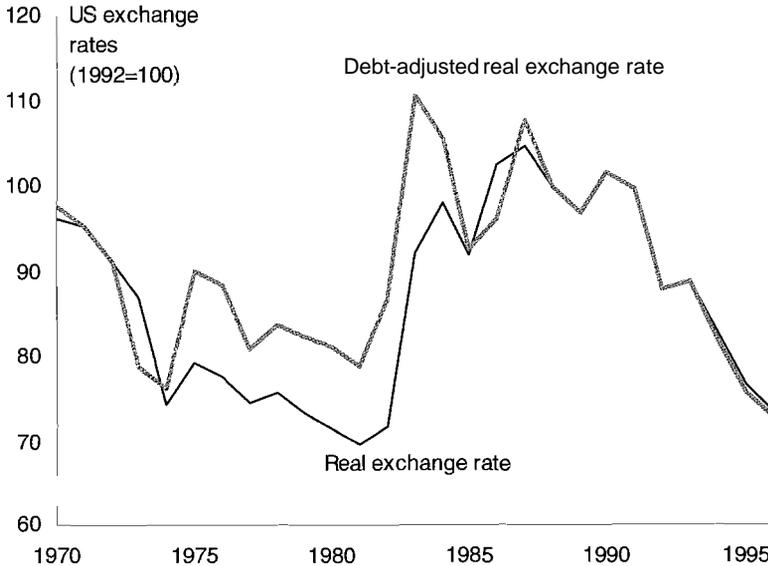
Several studies have documented the overwhelming negative influence of domestic currency overvaluation on production incentives in the agriculture and export sectors (Bautista 1987; Intal and Power 1990). The overvaluation of the local currency (averaging 38 per cent in the 1960s, 20 per cent in the 1970s, and 25 per cent in the 1980s) penalised agriculture and labour-intensive exports. In 1992, the figure was estimated at about 20 per cent, which still represents a hefty penalty, especially for traded agricultural goods (Medalla et al. 1995). The extent of peso overvaluation clearly increased between 1990 and 1996 (by about 28 per cent for both RER and DARER), as the nominal exchange rate fell and domestic inflation exceeded that of major trading partners (Figure 7.7). The deregulation of foreign exchange transactions and increased investor confidence in the economy attracted large amounts of foreign capital, allowing the country to accommodate a growing current account deficit and maintain a strong domestic currency. The real exchange rate fell substantially with the (de facto) devaluation of 1997³² (depreciating by about 30 per cent from 1996 to 1998), improving the comparative (price) advantage of the tradable goods sector, including both exportable and import-competing agricultural commodities. Nevertheless, domestic terms of trade in agriculture (that is, agriculture/non-agriculture) declined slightly during the period, since the government allowed greater imports of agricultural products, still (effectively) subject to quantitative trade restrictions (David 1999).

Incremental output–capital ratios (IOCR). The continuing application of many of the import substitution policies created distortions in the incentive structure that made socially low-return investments attractive to private investors and efficient activities relatively unprofitable. As a crude indicator of such a policy consequence, we can examine the changes in the incremental output–capital ratios (IOCR), defined as the ratio of increase in GDP to net fixed capital formation in the current year (Boyce 1993). The aggregate ratio of investment to income increased steadily during the 1960s and 1970s. IOCR, on the other hand, displayed a somewhat upward trend until the early 1970s, then declined rather sharply during the late 1970s through to the early 1980s. Thus, a decline in investment returns set in amidst rapid and sustained economic growth in the 1970s, well before the

debt crisis began in the early 1980s. This observation is consistent with our argument that distortions introduced with the industrial protection policies during the 1960s and 1970s encouraged relatively inefficient economic activities at the expense of investment in activities where the Philippines had a comparative advantage.

Trends in real wage rates. In the 1970s, the level of rural poverty remained relatively stable despite sustained economic growth. In contrast, from the mid 1980s onward, poverty reduction appeared to become more sensitive to aggregate growth. The difference between these two growth episodes can be seen in the trend in real wage rates. After relative stability during the 1960s, both skilled and unskilled urban wages declined consistently during the 1970s and early 1980s (Table 7.15). Thus, by the mid 1980s, the real wages of urban skilled and unskilled workers had fallen to nearly one-quarter their level in the early 1960s. Given such a sharp decline in real wages, the

Figure 7.7 Trends in real exchange rate (RER) and debt-adjusted real exchange rate (DARER)



Source: Author's calculations. DARER based on Fabella, Raul V., 1996. 'The debt-adjusted real exchange rate'. *Journal of International Money and Finance*, 15(3):475-84.

Table 7.15 Trends in real wages (1986 pesos, deflated by consumer price index as reported by the IMF)

	Agriculture ^a	Urban wage (unskilled) ^b	Urban wage (skilled) ^b
1962	41.31	89.50	126.74
1963	41.37	87.31	120.77
1964	36.16	80.92	112.94
1965	34.07	84.07	112.76
1966	38.68	86.02	112.90
1967	38.99	85.19	111.81
1968	39.04	92.95	118.38
1969	36.39	96.06	123.03
1970	31.36	92.42	113.37
1971	29.76	81.27	98.25
1972	30.68	79.61	95.27
1973	28.19	70.08	86.08
1974	22.40	56.42	70.12
1975	29.13	57.27	68.31
1976	37.17	55.11	65.01
1977	36.62	52.79	65.36
1978	36.20	51.23	68.40
1979	31.87	45.92	64.12
1980	27.18	40.37	57.69
1981	25.68	na	na
1982	26.84	na	na
1983	29.96	36.83	61.81
1984	25.51	27.29	43.42
1985	26.82	23.21	35.55
1986	29.20	23.04	35.28

^aAverage of rice and maize daily wages (without meals) as reported by the Bureau of Agricultural Economics. Estimates for 1962–65 are the derived seven-crop aggregates reported by Balagot and Librero (1975).

^bDaily wage data for 1962–80 as reported by the Central Bank. Wages estimates for 1983–86 were calculated from the March 1983 data given in World Bank (1985) and the quarterly nominal wage growth rates for 1983–86 reported in Montes (1987).

Source: Boyce, J.K., 1993. *The Philippines: the political economy of growth and impoverishment in the Marcos era*, University of Hawaii Press, Honolulu.

sluggishness of poverty reduction despite the aggregate growth is not surprising. Policies oriented toward import substitution adopted in the Philippines during the 1960s and 1970s tended to encourage capital-intensive industries at the expense of labour-intensive ones. As a result, growth in labour demand in the industrial sector was slow and unable to absorb the rapidly increasing labour force in both urban and rural areas. While the high rate of population growth placed constant downward pressure on the wage rate, it is likely that slow growth in the labour-absorbing capacity of the economy due to government policies further exacerbated the decline in the real wage rate through to the 1970s.

Though the real wage rate in agriculture (deflated by the consumer price index) fluctuated widely, the downward long-term trend is obvious, with the real agricultural wage rate declining from 41 pesos (in 1986 pesos) in the early 1960s to around 30 pesos in the mid 1980s. This decline in the agricultural wage rate appears to be the result of slow growth in employment in rural and urban areas. In addition to slow growth in labour absorption in the industrial sector, some observers have argued that farm mechanisation during the 1970s also contributed to the decline of rural wage rates. In the late 1970s, the adoption of modern rice varieties, which tends to increase labour demand, was followed by the adoption of labour-saving technologies (such as tractors, threshers and direct seeding)—though the former does not necessarily cause (or require) the latter (David and Otsuka 1994). Some observers have attributed, at least partially, the substitution of machinery for labour amid stagnating agricultural wage rates to policy distortions such as cheap credit and overvalued exchange rates, which made farm mechanisation artificially more profitable than its social return (Boyce 1993; Barker 1978).³³

In contrast, the trend in real wages appears to have turned upward at some point in the early to mid 1980s. While consistent nationwide data on wages throughout the past four decades is not available, the available data seem to indicate that real wages increased between the mid 1980s and the 1990s. For example, Hayami and Kikuchi (2000) show that real agricultural wages in a Laguna village declined during the 1970s by almost two-thirds but then recovered after 1980, and that real wages in the mid 1990s were roughly equivalent to those in the late 1960s. Industrial sector wages also increased after the mid 1980s, after a sharp downward trend during the 1960s and 1970s (Hayami and Kikuchi 2000). To the extent

that policy reforms in the manufacturing and service sectors after the mid 1980s encouraged expansion of labour demand (as reflected in the rise in real wages), these policy reforms may have contributed to a higher responsiveness of poverty reduction to aggregate growth during the economic recovery of the late 1980s and 1990s.

POLITICAL ECONOMY OF DELAYED ECONOMIC REFORMS

The adoption and continued application of industrial protection policies appears to have been a major cause of the sluggishness of rural growth and rural poverty reduction in the Philippines over the past few decades.³⁴ While import-substitution industrialisation (ISI) became a universal development strategy in the post-war period (especially in the 1950s), from the 1960s onwards many developing countries shifted their development strategies away from ISI toward more export-oriented policies. The Philippines, however, maintained policies oriented toward import substitution and depression of agricultural prices (mainly through negative indirect protection on agriculture via industrial protection) for a much longer period than most of its Asian neighbours. In Indonesia and Thailand, a major policy shift toward reducing the bias against agriculture occurred in the 1980s, whereas a similar policy shift in the Philippines only took place in the 1990s. In this section we examine the history of the political dynamics behind such policies and address the question of why the Philippines retained a policy orientation toward import substitution longer than many other developing countries.

Historical dominance of the 'landed oligarchy' and the **weak** state

In order to understand industrial protection policies it is necessary to start with the history of Philippine politics, which largely shapes today's political economy.³⁵ The combination of the historical dominance of politics by a 'landed oligarchy', the weak state bureaucracy *vis-à-vis* such family enterprises, and the largely personal basis of politics without well-defined political parties is the prominent theme in the literature on the Philippine political economy. Perhaps one of the most notable features of Philippine politics is the historical dominance of the initially land-based family enterprises, or the 'landed oligarchy', and their rampant rent seeking (McCoy 1994; Hutchcroft 1998; Intal and Power 1990; Putzel 1992;

Riedinger 1995). The origin of their dominance dates back to the Spanish colonial period. The islands' vast lands were initially held by the Catholic Church, but later (especially in the nineteenth and twentieth centuries) acquired (through lease, purchase and government transfer) by a small number of tlite families. The opening of the colony to exports of tropical agricultural products in the late eighteenth century provided a major impetus for land consolidation by the Filipino tlite (Fegan 1989; Hayami et al. 1990; Hayami and Kikuchi 1982; Putzel 1992). By the end of the nineteenth century, many of the prominent family enterprises, such as Ayala (1834), Soriano (1890) and Cojuangco (1870), as well as sugar haciendas in Negros had already been founded (Putzel 1992).

From the late nineteenth century onwards, the US colonial government introduced an elected legislature, political parties, a strong presidency, and independent judiciary (Wurfel 1988). Shortly after the introduction of these institutions, government positions in the bureaucracy and legislature were rapidly 'Filipinised' (mainly between 1913 and 1921) by the landowning tlite (Wurfel 1988; Putzel 1992). Thus, by the early twentieth century, a pattern of prominent family enterprises, initially based on vast land ownership, gaining almost exclusive access to government policymaking and engaging in various rent-seeking activities had been established (Hutchcroft 1998; McCoy 1994). This dominance of the landed oligarchy has been reflected in many aspects of economic policymaking in recent decades, including the extremely slow pace of land reform legislation and implementation (Hayami et al. 1990; Putzel 1992; Riedinger 1995).

A relatively weak state bureaucracy reflects the dominance of the landed oligarchy in Philippine politics. Political offices at the national level are won with the electoral support of provincial élites and Manila's oligarchs. During the Second World War, 'the collapse of central authority and the distribution of infantry weapons to anti-Japanese guerillas broke Manila's monopoly on firearms', leading to the loss of central government control of the countryside to regional politicians and the emergence of local 'warlords' and endemic political violence (McCoy 1994:14). The dependence of the president and members of Congress on the provincial elite for votes and the loss of monopoly control of the military to the same élite thus set the stage for a political economy characterised by a weak state and powerful oligarchy throughout the post-war period.

Origin of import substitution policies

As a result of reciprocal free trade with the United States during the colonial period, the Philippines became heavily dependent on the US market for its exports of agricultural products such as sugar, copra, coconut oil and abaca. Diversification was discouraged. After independence, the free trade regime remained in place, together with limitations placed on economic policymaking under the Bell Trade Act, such as the requirement for permission from the US president to make any alteration to the peso/dollar exchange rate.

After independence, the exchange rate was maintained at the pre-war level despite high inflation, presumably to protect the interests of US investors and agricultural producers. Despite the channeling of US aid funds into the correction of large trade deficits, in 1949 the Philippines experienced the first of numerous post-war balance of payments crises. In the face of the crisis, the newly founded Central Bank instituted import controls on foreign exchange while continuing to overvalue the peso (Montes 1991; Intal and Power 1990; Hutchcroft 1998). Given the prominence of the landed oligarchy in Philippine politics and their heavy dependence on primary exports to the United States at the time, there was strong domestic pressure, especially from the powerful sugar bloc, to devalue the peso. Despite such domestic political dynamics, however, the overvalued peso was maintained and import controls were imposed, apparently because the United States' influence on economic policymaking was greater than that of the landed oligarchy (Hutchcroft 1998; Intal and Power 1991).³⁶ The system of import controls and an overvalued domestic currency—common ingredients of the ISI strategy—was initially introduced in the Philippines not as a conscious part of such a strategy, but rather as a response to the 1949 balance of payments crisis (Hutchcroft 1998; Intal and Power 1990; Alburo 1993).

For many other developing countries, the explanation for the adoption of the ISI strategy could often be found in the prevailing political influence of a thin layer of mostly urban entrepreneurs over the rural population, as well as the rest of the urban population, 'an uneasy alliance of sorts between the protected industries and the bureaucrats administering the protection' (Rodrik 1996:12).³⁷ In the case of the Philippines, however, we could argue that the main components of the ISI strategy were put in place *before*

domestic interests for the industrial sector developed sufficiently. Instead, the ISI policies were instituted exogenously and domestic vested interests emerged in response to the new policy regime. This reflects the relative lack of competitive interest-group politics in economic policymaking, a defining characteristic of the Philippine political economy.

Emerging vested interests under the ISI regime

The ISI strategy was the prevailing economic philosophy in many developing countries during the 1950s, and the Philippines was no exception. As we have shown, however, import controls were already in place and an overvalued domestic currency was maintained *before* the Philippines entered what is commonly known as the ISI period. Most of the country's industrial infrastructure was established during this period, beginning in the 1950s (Montes 1991). Once instituted, ISI policies in turn induced the landed oligarchy to diversify their investment portfolios into industrial sectors that were protected under ISI policies.

For example, based on the description of company history given by Yoshihara (1985), about 15 per cent of the 250 largest manufacturing firms of the late 1960s could be identified as originating from the landed oligarchy. If we restrict our attention to Filipino firms, roughly one-third of the largest Filipino manufacturing sales were accounted for, at least initially, by land interests. If we further restrict our attention to non-Chinese Filipino (that is, mainly Spanish mestizos and Malay Filipinos) manufacturers, the share rises to more than one-half (56 per cent).

A bloc of vested interests forming a powerful 'enduring coalition' to perpetuate the protectionist system was created (Hutchcroft 1998:76; Intal and Power 1990; Albuero 1993). As more of the landed oligarchy diversified their portfolios into ISI, conflicts of interest over economic policy (for example, exchange rates) between export agriculture (the landed oligarchy's traditional sector) and the import substitution industry (the landed oligarchy's new investment portfolio) became increasingly blurred, and possible policy conflicts were muted by family ties among the economic elite. Thus, a situation emerged where economic policymaking was characterised by a bias toward the rich and powerful, but interest group politics, such as agricultural versus non-agricultural, were conspicuously absent. Thus, it is no surprise that agricultural pricing policies of the past few decades cannot be explained in terms of interest groups based on specific sub-sectors or crops (Intal and Power 1991).

The Marcos regime and policy reform

In some aspects, the Marcos martial law regime broke from traditional Philippine politics. By suspending the Congress, martial law limited access by the traditional oligarchy, now with fairly diversified economic interests, to state policymaking (Montes 1991; Intal and Power 1991). On the other hand, under martial law, the relative importance of the government bureaucracy increased, allowing implementation of policy reforms advocated by technocrats (as well as prescribed by international financial institutions such as the IMF and World Bank) independently of the interests of the traditional elite. In the end, however, this departure from traditional politics did not lead to significant policy reforms as some had hoped it would.

To the extent that the traditional landed oligarchy's access to policymaking was limited, the individual and ad hoc access of a new oligarchy of cronies closely associated with the Marcos family increased. The authoritarian Marcos government needed to create its own social base in order to sustain its political control and bureaucratic machinery. President Marcos relied on a group of new elites mainly recruited from among his loyalists, who appeared to be the only reasonable constituency for his authoritarian regime (Montes 1991). Creation of a new élite, in turn, required the bending of rules in order to provide favours to specific individuals (Montes 1991). Furthermore, from 1978 onwards, President Marcos 'became increasingly reliant upon courtiers to deliver the blocs of provincial votes that he would need for a new mandate' (McCoy 1994:18). As a result, the Marcos martial law regime 'rested upon a coalition of rent-seeking families not unlike those that had dominated electoral politics before martial law' (McCoy 1994:17).

Despite the initial hopes of some, Marcos's authoritarian rule did not facilitate sweeping policy reforms, because, despite its apparent autonomy from interest groups, his regime's survival imperative prevented it from implementing reform. At least in the Philippines, authoritarianism (and other forms of concentrated executive power such as the early Aquino presidency) proved to be no more conducive to policy reform than democratic regimes.³⁸

Restoration of democracy and return of the traditional oligarchy

In 1986, the 'people power revolution' forced President Marcos into exile and a broad but shallow anti-Marcos coalition brought Mrs Corazon Cojuangco Aquino to the presidency 'with a revolutionary mandate for change and few debts to any of the prominent political families allied with

Marcos' (McCoy 1994:18). A significant number of policy reform measures were implemented during the first year of Aquino's presidency prior to the restoration of Congress, including elimination of the monopolies for sugar, coconut, beef, wheat and fertiliser, rehabilitation of the rural banking system, and tax reform (Tolentino 1994).

Many observers contend, however, that the return to democracy under the Aquino presidency largely meant a return to pre-martial law politics dominated by the *tlite* (Montes 1991; Tolentino 1994; Riedinger 1995; McCoy 1994). The protectionist interests of the traditional oligarchy were represented in the administration, for example, by the appointment of an entrepreneur in import-substituting manufacturing as secretary of the Department of Trade and Industry (DTI), and, more generally, the wealthy *élite's* access to policymaking was assured by a proliferation of government-private sector collaborative councils and other dialogue channels.³⁹ The DTI secretary 'did his best to delay the implementation of the TRP [tariff reform program] and the ILP [import liberalisation program]...and was quite successful' (Tolentino 1994:100). Industries that could be affected by liberalisation also mounted aggressive and successful lobbying campaigns (Tolentino 1994). As a result, trade liberalisation was slow, an overvalued exchange rate was maintained, and industry-specific exemptions (for example, cars, phosphatic fertilisers, tinsplate, appliances and so on) were introduced. The landed oligarchy's recapture of the policymaking process also manifested itself in the relative inaction of President Aquino prior to the reopening of Congress and the substantial dilution of land reform in the legislature, as well as very long delays in its implementation (Hayami et al. 1990; Putzel 1992; Riedinger 1995).

Delay in departing from the ISI strategy

The ISI strategy was a popular development strategy in the 1950s (Rodrik 1996), but powerful vested interests in the Philippines prevailed upon the government to maintain protectionist policies long after most other developing countries had abandoned them.

One possible explanation for this difference could be the absence of a political environment in which interest groups with distinct economic interests could compete (Hara 1994). After the landed oligarchy diversified its investments under an ISI regime, their economic interests were not clearly defined by economic sectors. Because the interests of the dominant *tlite*

encompassed a range of sectors, from export agriculture to import-substitution manufacturing to banking, there were not many opportunities for a powerful and coherent economic interest group to emerge to challenge its dominance. The enduring influence of vested interests in policies oriented towards import substitution can be partially attributed to the way the policies were initially introduced.

Unlike in countries where the adoption of an ISI strategy was mainly due to political pressures *in competition with* rural landlords, in the Philippines the (indigenous) pre-ISI industrial sector might not have been a strong political force pushing for the adoption of ISI policies.⁴⁰ Instead, a powerful coalition of landed oligarchy who were also import-substituting manufacturers *emerged in response to* the adoption of policies favouring import substitution that had initially been *externally imposed* by US economic interests. As a result, a local social force distinct from the landed oligarchy never developed.

Rodrik (1996) suggests that the East Asian tigers managed to adopt ISI-oriented policies without inviting excessive rent seeking because of their well-educated labour force (which leads to a competent bureaucracy) and, more importantly, their relatively egalitarian distribution of wealth and income. Such egalitarian distribution prevents the emergence of powerful interest groups, reducing the need for government redistribution policies.⁴¹ In addition, a low incidence of income and wealth inequality may encourage the early adoption of policy reforms, since it is easier for a government to convince its constituency that the burden of economic adjustment will be evenly distributed and thus build a consensus for reform within it (Rodrik 1996). The Philippine example is apparently consistent with the general proposition that higher inequality hinders good governance and policy reform.

Comparing the Philippine political economy to its Southeast Asian neighbours, Hutchcroft (1998) argues that the Philippine state can be characterised as a 'patrimonial *oligarchic* state' as opposed to its Indonesian (especially during the earlier Suharto period) and Thai (especially in the years 1932–73) counterparts, which can be characterised as 'patrimonial *bureaucratic* states.' In Hutchcroft's terminology, a 'patrimonial state' is a polity where rent seeking is rampant. Among such patrimonial states he makes a further distinction according to the relative strengths between the state apparatus (that is, state bureaucracy, or 'political aristocracy') and

private business interests. In a 'patrimonial administrative state', a bureaucratic elite tends to 'extract privilege from a weak business class', while in a 'patrimonial oligarchic state' a powerful business class extracts privilege from a largely incoherent bureaucracy' (Hutchcroft 1998:20). Hutchcroft argues that in an 'oligarchic patrimonial state' such as the Philippines, it is difficult for policy reforms 'from above' to succeed given the relatively weak position of the state bureaucracy vis-à-vis private business interests. The absence of social forces that could challenge the control of the oligarchy allowed the 'oligarchic patrimonial' nature of the state to endure (Hutchcroft 1998:52–4).

Political behaviour and rationality—some remaining puzzles

Hutchcroft's argument is not without controversy. Some observers maintain that the differences between the Philippine and Thai political economies may not be as large as Hutchcroft claims. A veteran scholar of Philippine politics argues that 'the two political economies are converging—with Thai elections and political parties, for instance, becoming more like their Philippine counterparts—in turn affecting the role of private interests in state decisions on the economy, and thus reducing the strength of the bureaucracy' (Wurfel 2000:893). Furthermore, no explanation is offered as to why one type of 'patrimonial' state emerges in some societies and the other type emerges in others. In addition, if the bureaucrats in a 'patrimonial bureaucratic state' are rational, it is not clear why they initiate policy reforms that eventually lead to the loss of their own economic advantages. As Rodrik (1996) notes, political explanations for policy changes often presume, implicitly or explicitly, myopic behaviour on the part of political actors. Economists, however, have a strong tendency not to give up the assumption of rational (thus non-myopic) agents 'until they become older—wiser?—and distinguished' (Rodrik 1996:23). Without maintaining the rationality assumption at some level, any 'explanation' of past events would have little predictive power. Thus, such apparently *collective* irrational behaviour would still need to be explained in terms of the rational behaviour of *individual* members.

Among the policy instruments commonly associated with the ISI strategy, a distinction can be made between unsustainable macroeconomic policies (such as overvalued domestic currency or large fiscal deficits) and microeconomic policies that lead to inefficient resource allocation but have relatively limited effects on macroeconomic stability (such as trade restrictions

or industry-specific subsidies/taxes). This distinction is often lost in policy discussions (Rodrik 1996). In the Philippines, both sets of policies have tended to be maintained under the long sustained ISI regime (at least prior to the 1990s). By definition, unsustainable macroeconomic policies will eventually lead to macroeconomic instability that will set off costly adjustment processes for everyone, and 'the longer they [unsustainable macroeconomic policies] are pursued the more drastic their eventual reversal must be' (Rodrik 1996:21). If the vested interest groups (landed oligarchy-cum-industrial manufacturers) are rational, it would appear that they have a good reason to sustain the distortionary microeconomic policies (such as trade restrictions and industry-specific taxes or subsidies) but not to sustain the macro components of the ISI strategy (such as overvalued exchange rates) that would eventually hurt them as well as others. Explaining the maintenance of the whole ISI package in terms of 'vested interest' groups may also contain an assumption of collective myopia/irrationality that would need to be further explained, an area that needs further exploration in the literature.⁴²

Rural organisations **and** local politics—potential for **changes**?⁴³

Much of the literature on Philippine politics focuses on the persistent dominance of the landed oligarchy. As we have seen, such a view can explain the continued implementation of development strategies that ran counter to rural development and poverty reduction. Domination of political processes by the landed oligarchy can also explain the slow and prolonged pace of land reform (Riedinger 1995; Putzel 1992; Fuwa 2000). In contrast, small farmers and landless labourers, who comprise the overwhelming majority of the rural poor, have relatively little influence over the policies that very much determine their livelihood. Because they are large in number and dispersed geographically, it is particularly difficult for them to organise against the well-organised landed oligarchy.

However, the political influence of peasants and the landless could to some extent be enhanced in local political dynamics by the efforts of grassroots organisations. Case studies in local implementation of land reform programs, for example, indicate that small-scale farmers and landless labourers who organise and build coalitions mediated by NGOs and people's organisations could make a significant difference at the local level. Under the Comprehensive Agrarian Reform Program (CARP), the Ramos administration redistributed a far larger amount of land than any of its

predecessors, although it still fell short of the initial targets stipulated by the program (Figure 7.5). Some observers attribute this redistribution to changes in civil society originating in the late 1980s. According to these accounts, the 'people power revolution' of February 1986 that ousted President Marcos not only returned the landed oligarchy to the centre stage of national politics, but also led to the emergence of various peasant organisations (Borras 1999; Putzel 1992).⁴⁴ There have been some reported cases (in areas such as Nueva Ecija, Davao del Norte, Pampanga, Quizon and Laguna) of increasingly active involvement in land redistribution by local and national NGOs. Linking local peasant groups to pro-reform officials within the national agrarian reform bureaucracy, linking peasant groups from different regions, and media campaigns⁴⁵ contributed to successful land redistribution despite strong resistance from local landowners (Borras 1999). Such actions suggest a potential for a political force to counteract the traditionally powerful landed oligarchy.

SUMMARY AND CONCLUSIONS

In this paper we have reviewed overall rural development and government policies that had major effects on rural development over the past four decades in the Philippines. We have then explored the dynamics of the political economy behind some of those policies. While there was sustained growth in national income during the 1960s and through to the 1970s, the Philippine's growth rate was lower than Indonesia's and Thailand's. Furthermore, the Philippines' economic structure has changed very little compared to that of its neighbours—the share of agriculture in GDP in the Philippines, for example, was much smaller than the share of agriculture in GDP in Indonesia or Thailand as of 1960, but the subsequent decline of agriculture's share in GDP was much slower in the Philippines than in its Southeast Asian neighbours. As a result, as of 1997 the share of agriculture in GDP was higher in the Philippines than in Indonesia or Thailand.

More importantly, the pace of poverty reduction in the past few decades has been much slower in the Philippines than it was in its neighbours. Poverty incidence (headcount ratios) in Indonesia fell from nearly twice as high as in the Philippines in 1975 to less than one-half as high as in the Philippines in 1995. The incidence of poverty in Thailand, on the other hand, was already less than one-quarter that in the Philippines in 1975, then it dropped to near zero by 1993 (Table 7.1). The disappointing

performance of the Philippine economy relative to its neighbouring economies is among the most notable observations emerging from our comparative study.

With regards to the Philippine agricultural or rural sector in particular, aggregate growth in agricultural production during the 1960s and 1970s was quite substantial and comparable to the pace of agricultural growth in Indonesia or Thailand. Much of the agricultural growth during this period resulted from increased productivity, as new technology was introduced (especially high-yielding varieties and increased use of fertiliser) and public investment (especially irrigation) expanded. However, while growth in total agricultural production before the early 1980s was impressive, its effect on the reduction of rural poverty was not. While the incidence of rural poverty has generally declined over the past four decades, the pace of poverty reduction in the Philippines (measured by income or expenditure or by non-income dimensions) has been quite disappointing compared to the pace of poverty reduction in its neighbours.

Among the main reasons for the weak effects of aggregate growth on rural poverty reduction are the historical processes that led to the emergence of the social structure of the rural Philippines and the growing incidence of landlessness that characterised the period (Hayami, Chapter 3, this volume). Additional reasons can be found in a layer of policy measures that were 'anti small-scale farmer' and thus 'anti-poor.' It has been well documented that economy-wide ISI-oriented policies (overvalued exchange rates, industrial protection) implemented during the 1960s and 1970s depressed the relative price of agricultural products and encouraged capital-intensive patterns of industrialisation, thereby limiting the capacity of economic growth and industrialisation to absorb labour. Furthermore, critics have argued that policy interventions targeted at the agricultural sector appear to have had a bias against small-scale farmers. For example, the subsidised credit program reached relatively few small-scale farmers and fertiliser subsidies were largely ineffective.

Growth in agricultural production stagnated in the 1980s as a result of several factors, including price declines in world markets, stagnation in public investments (especially rural roads, irrigation and research), and high-yielding varieties exhausting their potential. In addition, the sluggishness and uncertainty of the land reform program (CARP) in the late 1980s appear to have had negative effects on private investment and

encouraged non-planting and premature land conversion as means of avoiding land redistribution. In the meantime, unlike in neighbouring countries and despite a series of policy reforms, an import substitution orientation was maintained throughout the 1980s, and as a result the magnitude of negative indirect protection on the agricultural sector remained relatively high.

Policy measures biased against small-scale farmers that had been introduced in the 1970s were reformed in the 1980s. Meanwhile, despite the substantial slowdown in agricultural growth in the 1980s, rural poverty continued to decline, albeit very slowly, throughout the 1980s and 1990s. A main factor contributing to the increased responsiveness of poverty reduction to economic growth during this period appears to have been expanded opportunities for non-farm income in rural areas (Hayami and Kikuchi 2000). In addition, the policy reforms of the 1980s and 1990s may have made the effect of aggregate growth more 'pro-poor' than in the earlier period (Balisacan 1998b; Balisacan 1999a). In the 1990s, however, there were both accelerated policy reforms (liberalisation of foreign exchange markets, trade liberalisation, privatisation in the services sector) and increased protection for the agricultural sector (introduction of high tariffs). As a result, the effective rate of protection for the agricultural sector became roughly equal to that of the manufacturing sector in the 1990s, a major policy shift from previous decades when the effective protection for agriculture was substantially less than that for manufacturing.

Many observers have argued that policies based on import-substitution industrialisation (indirect negative protection) hindered rural development, and that such policies encouraged a capital-intensive pattern of industrialisation, which hampered the growth of labour-intensive industries that could have helped reduce rural poverty. Despite such negative consequences for rural development and the rural poor, an import substitution orientation persisted in the Philippines right through to the 1980s, a much longer period than in other developing countries. The absence of competitive interest groups that could have influenced policies contributed to this persistence.

The historical dominance of the landed oligarchy, which originated during the Spanish colonial period, has consistently characterised Philippine politics and the introduction of an ISI orientation. This orientation induced the landed oligarchy to diversify into the newly protected industrial sector, thus creating a formidable vested interest group. In the absence of any

counter-balancing group to challenge the dominance of the oligarchy, the ISI policy orientation persisted. Neither the introduction of authoritarianism in the 1970s nor the restoration of democracy in 1986 altered this basic structure of Philippine politics.

While definitive quantitative evidence is scarce, the Philippines is well known for its highly unequal wealth distribution (especially land ownership), which also originated in the colonial period (Hayami, Chapter 3, this volume). The effects of economic growth on poverty reduction are likely to be smaller when income inequality is high. Empirical evidence shows a negative relationship between initial inequality and subsequent growth, although the exact mechanisms of the correlation are not clear (Persson and Tabellini 1994). Many of the government policies implemented over the past three decades apparently contributed to the disappointing performance of Philippine development. The political processes behind these policies, in turn, could have stemmed from high initial inequality in wealth distribution. Some have argued that high inequality hinders the emergence of a political process involving competitive interest groups and may encourage a political process characterised by rampant rent seeking (Binswanger and Deininger 1998; Rodrik 1996). Philippine development over the past few decades appears to be a prototypical example of the thesis that initial inequality (the lingering legacy of the colonial era in the Philippines) hurts subsequent economic development by creating the conditions for a political environment lacking in competitive interest groups and thus conducive to poor policymaking.

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NOTES

- ¹ It should be noted, however, that the contraction in 1998 was as much the result of the El Niño phenomenon that hit the agricultural sector.
- ² This paragraph draws heavily on Hayami et al. (1990:Chapter 2).
- ³ This is an understatement, because the share of 'other crops' in agricultural GVA might have actually doubled with the lumping together of agricultural activities and services under this classification in periods prior to 1980.

- ⁴ These include the government's failure to make quick import decisions and the imposition of ill-fated price ceilings. According to Abrenica et al. (1996), the government predicted the rice shortage, but may have delayed imports because of possible effects on an upcoming election (in May 1995).
- ⁵ In addition, development of irrigated areas and the widespread adoption of high-yielding varieties contributed substantially to more intensive fertiliser use in the rice sector. Fertiliser use on rice rose from an average of only 9 kg/ha NPK in 1964 to 67 kg/ha in 1990. Harvested area planted to modern varieties also soared, from barely 10 per cent of total harvested area in the mid 1960s to about 90 per cent at the turn of the 1990s.
- ⁶ Other poverty measures are more sensitive to income and expenditure distributions—for example, the poverty gap index (which measures depth) and the distribution-sensitive Foster–Greer–Thorbecke index (which measures poverty severity), but the simple headcount index is sufficient for present purposes and does not change the general direction of results and conclusions.
- ⁷ While we would prefer in this paper to focus on poverty measures in the rural sector of the various regions of the country, such estimates present comparability problems similar to those discussed in Appendix I.
- ⁸ Because definitions of 'rural areas' changed frequently over different rounds of FIES, here we report changes in rural poverty using both official definitions of rural areas (which changed over time) and rural areas as fixed physical areas identified as 'rural' by the 1970 population census (that is, controlling for the problem of 'shifting physical areas' in the official definitions).
- ⁹ The preferred approach differs from the official one in three ways: (a) it makes use of current consumption or expenditures rather than current income as the broad indicator of household/individual welfare; (b) it imposes consistency in the construction of absolute poverty lines to track progress in the reduction of, or increase in, absolute poverty, and (c) it fixes the standard of living used for provincial comparison (although not the composition of goods) and does not depend on a food consumption survey (for food menu construction) independent of the household expenditure survey used to identify household welfare levels.
- ¹⁰ For example, in the Laguna village studied by Hayami and Kikuchi (2000) the share of 'agricultural labourer' households increased from 30 per cent in 1966 to 61 per cent in 1997.
- ¹¹ In fact, the direction of change in rural poverty levels between 1988 and 1991 requires a closer examination given conflicting results depending on the definition of rural areas (Table 7.11). Rural poverty levels, as measured by headcount, worsened significantly during the period if the physical area of the rural sector is allowed to change in accordance with the shifting official definition of rural areas, although there was no significant change if poverty was measured by alternative poverty indices. In contrast, the same data show that rural

poverty declined between 1988 and 1991 if poverty estimates were based on population distributions using the physically fixed rural areas (that is, rural villages as defined under the 1970 census). The discrepancy arises mainly from 'shifting of physical areas' as rural villages become urbanised due to a rise in population and/or greater economic activity leading to the decline in poverty in fixed areas. The sharp contrast in the direction of rural poverty changes between poverty estimates apparently highlights the scale of this phenomenon (that is, urbanisation) during the period (see Appendix I).

- ¹² These figures must of course be taken with extreme caution given the low quality of available data in many developing countries, including the Philippines.
- ¹³ Designed to complement the Investment Incentives Act of 1967, this law granted BOI-registered firms various kinds of tax exemptions (including exemptions from export taxes), deductions (of export revenues) from taxable income, and tax credits on raw materials used in export production. These benefits combined effectively constituted a tax subsidy of about 15 per cent of input value, or a 5–16 per cent increase in the rate of return for projects (Tan 1979).
- ¹⁴ The Investment Incentive Act of 1983 changed the character of BOI incentives from being predominantly capital-biased to being more dependent on performance. The 1981–85 tariff reform program reduced the spread of statutory rates from 0–100 per cent to 10–50 per cent. About 31 per cent of import items that had been banned or required the prior approval' of the Central Bank and other government agencies were liberalised.
- ¹⁵ Some reforms, however, were unilaterally adopted by the Philippine government over and above its trade commitments. A 'practical' reason for a relatively speedy schedule (that is, uniform, low tariff rates by 2004) traces to AFTA, under which imports from the ASEAN region will be charged tariffs of up to 5 per cent (Clarete 1999). Adopting rates that are close to this structure both makes tariff collection administratively simpler and discourages smuggling.
- ¹⁶ This section draws largely from Balisacan (1989).
- ¹⁷ Lim (1986) as quoted in Boyce (1993:94), and David (1979) as quoted in Fegan (1989).
- ¹⁸ A more detailed discussion of the NFA in conjunction with the political regime can be found in the chapter by Amelina (this volume).
- ¹⁹ In addition, the government further strengthened its hold on the industry by acquiring and operating leading transport and bulk storage enterprises. An additional discussion of the sugar sector policy can be found in the chapter by Amelina (this volume).
- ²⁰ The potential credit subsidies were estimated as the difference between the market interest rates and the nominal interest rates under the *Masagana 99* program multiplied by the total loan amount (Esguerra 1981).
- ²¹ de Dios (1984) shows that the sugar trade monopoly resulted in: a loss to producers of between P11 billion and P14 billion; additions to the marketing chain that either increased

mark-ups, redistributed income from actual traders to favoured 'paper traders,' or both; a loss of foreign exchange due to financing through foreign loans; and a loss to the economy because from operating losses by the agencies, despite estimated gross profits enjoyed from the differential between export revenue and purchase price.

- ²² The following two paragraphs draw heavily on Hayami et al. (1990), Riedinger (1995), Putzel (1992), and Fuwa (2000).
- ²³ The implementing order issued by the succeeding administration specifically prohibited import of maize and its substitutes (including wheat used for feeds), poultry and poultry products, hogs and pork products, and meat and meat products (except beef and beef products), unless certified by the Department of Agriculture as necessary to meet an actual or anticipated shortage in local output. The order gave enormous regulatory power to the department, and practically swept away whatever gains were made from earlier trade deregulation.
- ²⁴ If a farmer defaulted on a loan from a lending institution, the lender could only sell the land to the government, which had the sole right to set the price and timing of the sale, as well as decide who was eventually allowed to buy the land.
- ²⁵ Commitments included a prohibition on the use of (additional) non-tariff measures, conversion of all existing quantitative restrictions to tariff measures (except for restrictions on rice, which were deferred for 10 years), binding tariffs at ceiling rates, tariff reductions (averaging 30 per cent), and harmonisation of sanitary and phytosanitary measures.
- ²⁶ These binding (tariff) rates are slated to drop to 40–50 per cent for the various crops in 2004 in accordance with the WTO agreement.
- ²⁷ Binding rates on maize are scheduled to drop to 50 per cent after 10 years. High tariff protection of maize, which is used as livestock feed, in turn spurred high tariff protection of hogs, poultry, and meat products as a compensatory measure.
- ²⁸ The law also focused on food security and poverty alleviation and appropriated some P120 billion over a period of seven years to carry out the plan. This step to fund agricultural modernisation follows similar initiatives to prepare the country for global free trade by setting aside resources to develop the agricultural sector. For example, the budget of the grains sector alone increased from P540 million in 1993 to P4 billion in 1997 (Clarete 1999).
- ²⁹ The program encompassed agricultural development; conservation, management, and development of fisheries and aquatic resources; protection of ancestral domains; delivery of social services; workers' welfare and protection; socialised housing; credit expansion; livelihood programs; and institution building and political participation.
- ³⁰ For example, rice tended to be protected when imports occurred and less protected as self-sufficiency or an export surplus was achieved. Also, government tended to control domestic rice prices in the event of a sharp increase in the world price or a devaluation of the domestic currency (for example, through price controls, anti-hoarding, and quantity-rationing measures).

- ³¹ The problem, however, was that complementary adjustment in the exchange rate was not pursued. Imports rose substantially, while export supply response was very sluggish. Consequently, deficits in the government budget and current accounts rose to unsustainable levels in 1991, and another round of monetary and fiscal contraction occurred in 1992.
- ³² Monetary authorities allowed the peso to 'trade on a wider band' and 'reflect the underlying market sentiment' in July 1997, after a staunch defense of the domestic currency against speculators and after keeping the nominal exchange rate virtually fixed for three years despite the pronounced policy of a market-determined exchange rate.
- ³³ Other than policy distortions, however, one of the main explanations for mechanisation is the motivation to save in the cost of supervision of hired labour, especially on larger farms (Boyce 1993; David and Otsuka 1994). On the other hand, Hayami and Kikuchi (2000) explain the adoption of labour-saving technologies in a Laguna village in the late 1970s in terms of the upturn in agricultural wages (relative to the price of outputs) that appears to have occurred at around the same time.
- ³⁴ A detailed discussion comparing government interventions in the rice and sugar sectors *can* be found in Amelina (this volume). Because our discussions attempt to explain very different sets of policy outcomes, Amelina's discussion points to different characteristics of Philippine politics than ours. In particular, the current discussion of ISI policies tends to emphasise the factors that did not change before, during or after the Marcos dictatorship (despite the regime changes), while Amelina highlights the differences between the Marcos era and the periods preceding and following it to explain the rise and demise of the NFA.
- ³⁵ See Hayami's Chapter 3 in this volume for a more detailed discussion of how geography and colonial policies have historically interacted to form the different socioeconomic structures of Indonesia, the Philippines and Thailand.
- ³⁶ The roots of economic protectionism *can* be traced further back to at least as early as the idea of economic nationalism pursued by President Quezon in the late 1930s (Gopinath 1986).
- ³⁷ For example, focusing on Latin America, de Janvry (1981:198) argues that the adoption of the ISI strategy was 'a concerted effort of all the dominant classes--commercial bourgeoisie, agrarian oligarchy, and emerging national industrial bourgeoisie', under the condition of relative autonomy of the 'peripheral' states from external forces (from the 'centre').
- ³⁸ Similarly, the global literature review by Rodrik (1996) also fails to find support for the hypothesis that economic policy reforms conducive to growth (or the types of policy reforms implemented by the East Asian tigers) require authoritarianism.
- ³⁹ For example, according to Tolentino, '[organised farmers' and peasants] groups would request to see the President to discuss issues affecting agriculture and agrarian reform. They would need to go through all the formal channels of protocol and appointments, and if lucky, would get to see the President about four to six weeks later. In sharp contrast, it was,

- common for prominent businessmen and the representatives of the business groups to request for meetings with the President and get to see her within a day or two' (1994:143).
- ⁴⁰ There was some indigenous development in import-substituting manufacturing in the pre-war period (Yoshihara 1985).
- ⁴¹ These are likely to be only partial answers. Rodrik (1996:19) notes that we do not really know why 'the East Asian governments [were] able to avoid the rent-seeking activities that typically accompanied microeconomic interventions'. Nor has the link between high inequality and delayed reform through political channels yet been empirically and directly tested in the literature (Rodrik 1996:21).
- ⁴² It is interesting to note that the Philippine example is the complete opposite of the wholesale adoption of both macroeconomic and microeconomic policy reforms in Latin America during the 1980s. This is in marked contrast as well to the earlier policy reforms made by the East Asian tigers where reforms were limited to macro-stabilisation policies with selective microeconomic interventions, as illustrated by Rodrik (1996).
- ⁴³ This section draws heavily on Fuwa (2000).
- ⁴⁴ Such a diversified mode of mobilisation included organised attempts at land occupation that peaked in 1987–88 when the Comprehensive Agrarian Reform Law was being debated in Congress.
- ⁴⁵ Other potential involvement by local and national NGOs includes providing legal advice to counter the common landowner tactic of bringing legal cases against land reform beneficiaries, supporting peasant demonstrations and picketing, providing logistical support for lobbying in the national capital, and providing links to international NGOs.

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APPENDIX 1 IS THE RURAL–URBAN MIGRATION STORY A STATISTICAL ILLUSION?

Judging only by statistics, it appears that there have been few improvements in the Philippine countryside over the past few decades. Indeed, looking at official estimates, the poverty incidence in rural areas has fallen very sluggishly (from 56 per cent in 1985 to 51 per cent in 1997). Despite substantial economic growth, the distribution of wealth seems to have hardly changed. The rural poor still account for about 70 per cent of all the nation's poor and their numbers appear to be growing (from 18.7 million in 1985 to 19.6 million in 1997).

These numbers contrast starkly with the apparent 'success' of urban areas in poverty alleviation. As shown in earlier studies, poverty reduction in urban areas has been quite substantial (Balisacan 1999c). The poverty head count, for example, fell by 13.5 percentage points from 1991 to 1997, in sharp contrast to the 3.6 percentage point reduction in rural areas.

Two caveats are necessary. First, rural estimates may not be strictly comparable, because changes in rural–urban classifications over time create a downward bias on the usual indicators of rural development performance. Second, even if examining roughly comparable estimates (for example, for the 1990s), problems still emerge because of the phenomenon of 'shifting physical areas' as rural areas become increasingly urbanised, again dampening rural performance as reflected in the statistics.

Changing definitions

The definition of 'urban areas' in the Family Income and Expenditures Survey (FIES), the main source of data for rural household indicators over time, has changed substantially over the years. In the 1961 FIES, urban areas included Metro Manila (including its adjacent cities and municipalities), chartered cities, provincial capitals, and all town centres of municipalities.

The 1965 FIES added population density as a criterion for the urban classification, including as urban all town centres of municipalities with a density of at least 500 persons per square km as well as villages contiguous to these centres having at least 2,500 inhabitants. Since 1971, any district with at least six establishments (commercial, manufacturing, recreational and/or personal services) can also qualify as an urban area, regardless of population density. As classifications change, a statistical migration has been added to the human migration.

Shifting physical areas

In addition to changing definitions, the physical area of the 'rural' sector is shifting over time. As population grows and/or economic activity expands, an initially rural area will sooner or later be classified as urban. While this may not pose a problem in measuring, for example, urbanisation trends, it tends to depress rural performance indicators.

Suppose that rapid agricultural growth in some regions leads to a similarly rapid expansion of non-farm employment and income. This change induces urbanisation, thereby reducing the physical size of 'rural' areas. Poverty incidence in urbanising areas tends to fall relative to that in shrinking rural areas because household income rises faster in the former. This is particularly true if there are constraints to labour movement from slow to rapidly growing areas, or if there are considerable lags to such movement.

Although growth stimulus is initially rural-based, gains in poverty reduction appear to happen in urban areas. The data in population censuses would then suggest that rural development programs, even if they spur rural income growth and reduce rural poverty, do not matter much.

Rural–urban migration trends: an exaggeration?

The reclassification of physical areas over time has a particularly important implication for rural–urban migration stories. High urban population growth in less developed countries is, for example, commonly attributed to rapid rural–urban migration, with evidence of such migration drawn mainly from published population censuses. If reclassification of physical areas is driving the commonly observed high urban population growth, then the rural–urban story in the development literature can be vastly exaggerated.

For the country as a whole, it is the reclassification of physical areas—not the *physical* movement of *population from* rural to urban areas—that mainly accounts for the growing share of urban areas in the total population. This is easy to demonstrate. Table A7.1 highlights rural and urban population counts based on published population censuses, as well as population estimates for *fixed* physical rural and urban areas (requiring the reclassification of geographic areas in various population censuses according to their urban–rural classification in the 1970 population census). Estimates based on fixed areas indicate that 'rural' areas had a population share of nearly 69 per cent, which fell to 64 per cent in 1990. According to the census, on the other hand, the population share of 'rural' areas fell from nearly 69 per cent to 51 per cent during the same period.

Table A7.1 Urban–rural population changes in the Philippines, 1960–90

	1960	1970	1980	1990
Total population (millions)	27.09	36.66	48.10	60.69
Per cent change per year	..	3.0	2.7	2.3
<i>Rural population (percent)</i>				
Census report	70.20	68.20	62.50	51.20
Fixed rural areas ^a	68.60	68.20	66.40	64.20
<i>Urban population (per cent)</i>				
Census report	29.80	31.80	37.50	48.80
Fixed rural areas	31.50	31.80	33.70	35.80
<i>Rural population growth</i>				
Census report		2.7	1.8	0.3
Fixed rural areas		3.0	2.4	2.0
<i>Tempo of urbanisation^b</i>				
Census report		0.95	2.51	4.64
Fixed rural areas		0.80	0.83	0.97

^a Based on 1970 urban–rural classification of villages.

^b Urban–rural growth difference.

Source: National Statistical Coordination Board (NSCB), various years. *Philippine Statistical Yearbook*, National Statistical Coordination Board, Manila.

COMPARABILITY PROBLEMS

Reclassification obviously reduces the comparability of rural poverty indicators. It has been demonstrated that a failure to consider the phenomenon of 'shifting physical areas' arising from reclassification of villages *can* distort the overall picture of actual performance. We *can* return to the example of (extremely slow) rural development in the late 1980s and early 1990s for illustration. Sampling for the 1985 and 1988 FIES was based on the 1980 population census, while for the 1991 FIES it was based on the 1990 census (note that both censuses applied the same set of criteria in classifying villages into 'urban' and 'rural' areas).

A large number of rural areas in 1980 became urban areas in 1990 when they were found to satisfy the necessary criteria. This reclassification, in addition to net migration from rural to urban areas, reduced the population share of FIES rural areas from 62 per cent in 1988 to 50 per cent in 1991. In contrast, the estimated rural population share based on fixed physical areas remained virtually the same—64 per cent. More importantly, it was

estimated that in FIES rural areas, poverty incidence *increased* from 50 per cent in 1988 to 52 per cent in 1991. In the 'fixed' rural areas, the count actually *fell*, from 48 per cent to 41 per cent.

Clearly, much can be explained by construction of statistics alone, and other convoluted explanations might not be required. Viewed in this perspective, the rural sector might not be as lethargic as it is often made out to be, and may have even been a source of considerable dynamism.

8

FOUR DECADES OF DEVELOPMENT IN THAILAND'S RURAL SECTOR AND THE ROLE OF GOVERNMENT

Shinichi Shigetomi

Recognised as one of the developing countries that have succeeded in developing their rural sector, Thailand has excelled in exporting agricultural commodities (World Bank 1987). In 1950, it was the third-largest exporter of rice and rubber; now it is far ahead of all other countries in these exports. Thailand has also successfully diversified its export of primary commodities. Since the 1960s, it has greatly increased production and export of several upland crops, thus reducing its dependency on rice and rubber in earning foreign currency. In the 1950s, Thailand's tapioca exports were negligible; during the 1960s, however, it became the world's largest tapioca exporter. The country was a net sugar importer in the 1960s; it is now one of the world's largest sugar exporters. In addition to these upland crops, since the 1970s Thailand has increased its production and export of value-added commodities such as canned pineapple and frozen chicken.

Thailand has shifted its economic structure to rely increasingly on secondary and tertiary industries, thus considerably reducing agriculture's share in the GDP and the share of primary goods in exports. Agriculture's own GDP and export value, however, continue to grow. Thus, Thailand has both successfully industrialised and maintained the growth of its rural sector.

Thailand has also managed to reduce rural poverty, at least in absolute terms (World Bank 1996), and social development indices such as literacy rate, access to medical care, infant death rate, and the growth of rural electricity show considerable improvements (UNDP 1999).

These successes notwithstanding, and despite praise from international agencies such as the World Bank and the United Nations Development Programme (UNDP), most Thai people recognise that their rural sector is backward and poverty stricken. With industrialisation, the contrast between urban and rural areas grew starker, and from the mid 1970s onwards rural poverty became an important political issue, with certain political parties promising to seriously tackle rural poverty. This strategy, aimed at defeating an opposition inclined to favour the urban middle class, was used successfully in 1996 by Chavalit's New Aspiration Party and in 2000 by Thaksin's Thai Rak Thai Party. Today, a strong union of rural people calls itself Assembly of the Poor, and political confrontation is often cast in a frame of urban (middle class) versus rural (poor).

Thus, Thailand's rural sector has experienced both success and failure: production and trade of agricultural commodities has expanded, but efforts to narrow the income gap have failed. This chapter describes these contrasting developments, and examines the Thai government's role in their occurrence.

THAI AGRICULTURAL AND SOCIOECONOMIC DEVELOPMENT SINCE 1945

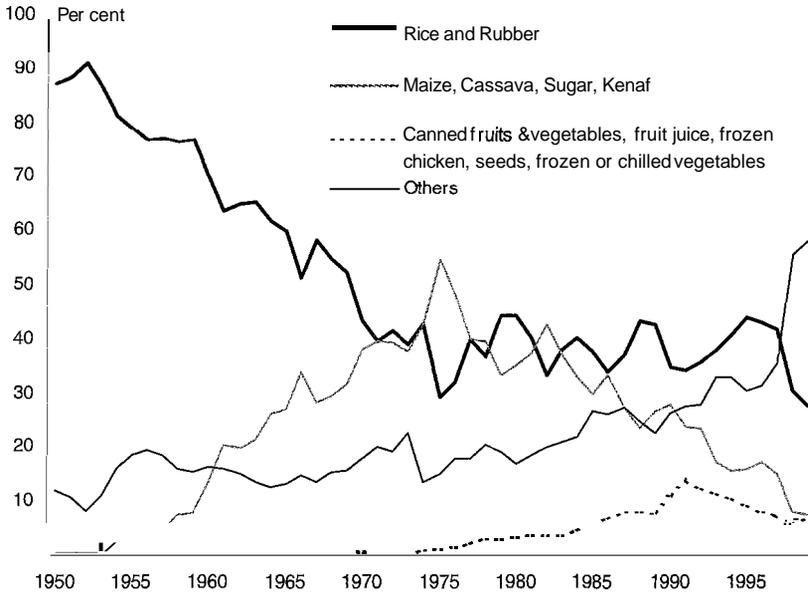
This section reviews the development of Thai agriculture and agricultural policy since the end of the Second World War, dividing these four decades into four distinct periods.

Thai agricultural development

As Figure 8.1 shows, Thai agricultural development since 1945 can be divided into four periods.

- Up until the end of the 1950s, Thai agriculture and the economy as a whole relied heavily on rice and rubber production.
- From the end of the 1950s to the early 1980s, the first wave of diversification, led by export-oriented upland crops such as maize, cassava, sugarcane and kenaf, brought about a structural transformation of agriculture and the rural economy.

Figure 8.1 Export share of primary Thai agricultural commodities (except fish products)



Note: Excludes fish products.

Source: Office of Agricultural Economics, various dates. *Agricultural Statistics of Thailand*, Office of Agricultural Economics, Bangkok; Bank of Thailand, various dates. *Month & Report*, Bank of Thailand, Bangkok; Bank of Thailand, various dates. *Quarterly Bulletin*, Bank of Thailand, Bangkok; Ministry of Finance, various dates. *Foreign Trade Statistics of Thailand*, Ministry of Finance, Bangkok.

- From the early 1980s to the early 1990s, the second wave of diversification involved the production of high value-added commodities such as canned fruit and frozen chicken by large agribusinesses.
- Since the early 1990s, commodities in the 'others' category of Figure 8.1 have increased their share. Although there is no conspicuous commodity like those in the first and second waves of diversification, total agricultural exports are growing with increases in animals and animal products, forest products, and garden crops.

Changes in agricultural policy

Changes in Thai agricultural policy since 1945, on the other hand, can be roughly divided into two periods. Before the mid 1970s, government policies did not favour agriculture (Akiyama and Kajisa, this volume). Rice and rubber, the two major export commodities, were heavily taxed, with especially high export duties imposed on rice. Because rice was a major source of farmer income at the time, this hurt farmers. Although the government invested heavily in irrigation and extension after the 1960s, policies generally continued to hurt farmers. This situation began to change in the 1970s, when a civilian government replaced the former military government and began to make price interventions in order to appease rural dwellers, who represented the majority of voters (and were more sensitive to food prices than urban dwellers). From the early 1980s onwards, export taxes on agricultural commodities were gradually eliminated (Siamwalla et al. 1993:113), and the government took various other measures to protect farmers. A policy implemented in the early 1980s promoted profit sharing between farmers and agribusinesses, and designated Thailand a 'NAIC', or 'newly agro-industrializing country', suggesting a future development course for the country. The policy was not a great success, but was also not a total failure. Beginning in the early 1990s, the government began to play a major role in diversification, in the expectation that farmer income would increase with the shift to production of newly introduced items with greater market opportunities.

Macroeconomic and political transformation

These developments in agriculture and agricultural policy were part of the more general macroeconomic and political transformation of Thailand. This transformation has already received considerable attention in the literature (Warr and Nidhiprabha 1996; Warr 1993; Phongpaichit and Baker 1997; Dixon 1999), thus we limit our discussion to the stages of the transformation that most affected agriculture and agricultural policy.

Around 1960, the then-military government implemented a policy of private sector-led industrialisation, and the Thai economy grew rapidly up until the end of the 1970s. This growth widened the development gap between the rural and urban sectors, to the point where in the early 1970s a farmer movement formed and allied itself with the student-led

pro-democracy movement. In 1973, the military government was ousted and replaced the following year by a civilian government, whose policies were more supportive of rural residents, including farmers. In the 1980s, a sluggish world market for primary commodities affected the Thai rural sector, moving the government to emphasise the role of agro-industries that produced more value-added products and found new markets.

Thailand's comparative advantage in exporting farm commodities was strengthened by the 1986 Plaza Accord. Rapidly increasing direct foreign investment in agribusinesses and other economic sectors led to an unprecedented economic boom, which widened the gap between the rural and urban sectors still further. During this boom period, an increasing number of middle-class Thais became conscious of democratic politics. The government underestimated the people's democratic aspirations when it installed military strongman Suchinda Kraprayoon as Prime Minister. In May 1992, the army and police force shot into a crowd of thousands of people who had gathered to call for the Prime Minister's resignation, and the public furore that followed led to the abolishment of the authoritarian system. Encouraged by this development, the pro-democracy movement worked hard to institutionalise popular participation in political decision making, and in 1997 a constitution promoting the political roles of non-government organisations (NGOs) and rural people's organisations was adopted.

The last stage in Thailand's macroeconomic and politic transformation to affect agriculture and agricultural policy was the ending of the economic boom in July 1997. After this, the rural sector had been regarded as a 'social safety net'; now, its economic sustainability has become a major policy issue.

Periods of change

Agricultural changes in Thailand occurred over four distinct periods (Figure 8.2). The first of these extended from the end of the Second World War to the end of the 1950s and was characterised by a 'rice and rubber' economy. During this period, both Thai agriculture and the economy as a whole relied heavily on rice and rubber production.

During the second period, a wave of diversification, led by export-oriented upland crops such as maize, cassava, sugarcane and kenaf, structurally transformed agriculture, and at the same time the non-farm sector led rapid macroeconomic growth. Meanwhile, political changes fostered agricultural protectionism.

Figure 8.2 Changes in agriculture, agricultural policy, and the political economy in Thailand, 1945–97

	Descriptive period	Agricultural development/diversification	Agricultural policy		Macroeconomic and political circumstances	
1945	I. Rice and rubber economy	Rice and rubber dominate agriculture	Exploitative agriculture	Promotion for agricultural production	Economy heavily relied on export of primary commodities	Authoritarian regime or bureaucratic polity
1960	II. Diversification by upland crops	First wave of diversification by upland crops				
1973			Protective agriculture	Start of price support policy	High economic growth and industrialization by private sector initiative	Populistic policy under half democracy
1980	III. Diversification by agribusiness	Second wave of diversification by agroindustry commodities	Protective for agriculture	Agribusiness promotion support policy		
1986					Recession of macro economy and primary commodity exports	
1992	IV. Intervention to agricultural production	Third wave of diversification by minor items		Agribusiness promotion initiative for diversification and production control	Economic boom	Direct popular participation
1997					Economic crisis	

Source: Prepared by the author.

During the third period, which began in the early 1980s, upland crop-led diversification stagnated somewhat, while high value-added products introduced by big agribusinesses showed more promise. A short recession of the economy as a whole gave the government an incentive to promote agro-industries.

During the fourth period, which began in the early 1990s, the government intervened more directly in agriculture in order to boost farmer income through diversification. The government also faced strong pressure from various rural groups at this time.

Before describing each of these periods in detail, we need to discuss regional differences in the Thai rural sector.

Regional differences

Thailand is officially divided into four regions: Central, Northern, Northeastern and Southern (Figure 8.3).

Central Thailand covers the Chao Phraya River delta and the uplands surrounding it. Following Bangkok's establishment as a major port for the export of rice and other commodities in 1855, large areas of the Chao Phraya River delta underwent rapid excavation for rice cultivation. The delta thus became Thailand's major producer of rice for export, and

Figure 8.3 Thailand



Source: Prepared by the author.

a market economy was established here much earlier than in other regions. Rice production occurred mainly on small family farms, though farmers did not necessarily own the land. The widespread construction of irrigation facilities made dry-season rice production possible, while during the first wave of diversification upland areas in the eastern and western fringes of the delta became major bases for crops such as sugarcane and cassava. The region also includes Bangkok, where non-agricultural sectors are highly concentrated.

Northern Thailand encompasses Thailand's Upper and Lower North, the latter of which includes the upper plain adjacent to the Chao Phraya River delta, another major area of production of rice for export. In terms of agro-economic conditions and rural social structure, the Central region and the Lower North can be treated as one region. Agricultural conditions in the Upper North, however, differ considerably from those in the Lower North. While rice is cultivated in the river basin and on the lower slopes of the area's mountains, the cultivation of tobacco, tea and other upland crops dominates the mountain's upper slopes. Market-oriented cultivation of fruits and vegetables is also active in this region. Historically, local people developed a communal irrigation system using water from rivers and streams; this system allows higher paddy yields than in other regions and dry-season cultivation of crops such as soybeans.

Northeastern Thailand consists of the Korat Plateau, in the watershed of the Mekong River. The region's major crops are rice, cassava and sugarcane. Because soil is poor and the water supply is unstable (only a small area being irrigated), rice yields are low. Most of the rice is a glutinous type that is mainly consumed domestically. Cassava and sugarcane are planted in upland areas and are an important cash crop, but generally unfavourable agricultural conditions make this region the poorest in Thailand and the largest supplier of migrant workers to Bangkok and foreign countries.

Southern Thailand lies on the Malay Peninsula. The major crops in this region are rubber, fruit, coffee and oil palm. Rice is also cultivated, but most of it is consumed within the region. Since rubber and other tree crops are cultivated for sale on the market, Southern Thailand is a cash-rich region.

Period I: the rice **and** rubber economy (1945 to late 1950s)

Up until the late 1950s, Thailand's economy relied on production and trade of primary commodities, especially rice, rubber, teak and tin. Among these, rice and rubber were dominant, accounting for nearly 70 per cent of the total value of Thai exports during the second half of the 1950s. Up until 1965, the rice premium, a specific duty levied on exported rice, accounted for more than 10 per cent of total government revenue (Siamwalla 1975). The value added of these two commodities accounted for more than 20 per cent of GDP in the early 1950s and 14 per cent in 1959.' In the rural areas during the 1950s, paddy fields

occupied more than 63 per cent of total farmland (Office of Agricultural Economics 1979) and rice sales contributed about 40 per cent of total farm cash income (OUSS 1955). This relatively low figure reflected the fact that most rice was consumed by its producers. During this period, rice was the crucial commodity for farmer subsistence. Up until the 1950s, industrialisation remained primitive, and most entrepreneurs concentrated on the production and trade of the four primary commodities listed above (Suehiro 1989). Rice milling, sawmills and rubber smoking dominated manufacturing.

The government's involvement in agricultural development during this period was restricted to irrigation. In 1957, it built the Chainat Dam as part of the Greater Chaophraya Project, which was intended to distribute water in the delta region. Most of the canals, however, were constructed in the 1960s, after Thailand received a loan from the World Bank. Some agricultural research had been conducted before the Second World War, but full-scale development only began in the 1950s with support from the United States government (Ministry of Agricultural 1957).

Period II: diversification led by upland crops (late 1950s to early 1980s)

From the late 1950s onwards, the expansion of export-oriented upland crops such as maize, cassava, sugarcane and kenaf gradually transformed the rural economy and led to the end of the rice and rubber economy. Between 1958 and 1965, the areas planted to maize and kenaf grew fourfold and nineteen-fold respectively. Cassava and sugarcane were comparative latecomers, but their areas both grew almost fivefold in the decade following 1965.

Several factors led to this diversification.

- Farmers became more aware of market opportunities from their contact with buyers and middlemen who travelled to villages
- Export crops were usually grown on small family farms, not on estates or large farms, and most farmers grew them for their economic survival, not to seek large capital returns.
- Reclaimed forest land became available for the cultivation of the new crops.
- Because the new crops were grown in the uplands, paddy fields mostly remained untouched, thus farmers did not have to sacrifice any of the land they used to grow staples.

- Though the government played a (limited) role in the process, the private sector dominated diversification.

Industrialisation was another factor that contributed to the end of the rice and rubber economy. In 1958, Sarit Thanarat came to power in a coup and adopted an economic policy of promoting private investment to replace his predecessor's policy of supporting public enterprises. A World Bank advisory team was invited to come up with an economic development plan for the country, and in 1959 the government established a planning agency, the National Economic Development Board, later to become the National Economic and Social Development Board (NESDB). A year later it created a committee to promote private investment, later to be named the Board of Investment (BOI) (Board of Investment 1989; Panpiemras 1978).

It was under the Sarit regime that economic development really took off in Thailand. During this period, per capita GDP grew at a stable rate of more than 7 per cent per annum, and the manufacturing share of GDP also trended upward. The urban sector developed more rapidly than the rural sector, causing the gap between the two to widen. Between 1965 and 1970, migration from the provinces to Bangkok was twice as large as during the 1955–60 period. Bangkok was the centre not just of politics, but also of industrialisation: with the exception of food-processing factories such as rice mills and sugar refineries, Thai industry concentrated in the vicinity of the capital. If a farm household needed cash, it sent a family member to Bangkok. Cottage industries did not flourish in rural Thailand as they did in Indonesia at the time.

Job opportunities for rural migrants, however, were not necessarily stable. Meanwhile, most farmers, especially those in the Northeast (the source of the largest number of migrants), had their own land, or stood to inherit land from their parents. This combination of uncertain urban job prospects and secure land in rural areas led to return migration and helped keep labour on farms.

Rapid economic development also altered rural life. Up until the 1950s, rural Thailand—with the exception of the Chao Phraya delta, which grew rice for export, and the South, which produced rubber—represented a highly self-sufficient economy. Rice stored in a household was sold only when its owner felt secure. Other crops were grown mostly for home consumption, and certain foodstuffs were gathered in the forest. It was not easy for farmers to earn cash, but they did not need much cash. Chemical fertilisers were very rarely used, and new farmers did not need

to purchase draft animals because they could be obtained from their parents. When a farm household needed help, it relied on a Thai tradition of reciprocal labour exchange known as *long khaek* (Shigetomi 1998).

During the 1960s, however, the market economy began to intrude into rural society at an increasingly rapid pace. Villagers bought clothes and daily necessities rather than make them. Though many farmers, especially in the North and Northeast, continued to produce sufficient rice for home consumption, increasingly they bought food from merchants. Farming became more costly, with fertiliser and other chemicals being applied first to newly introduced cash crops and later to rice, and labour hire coming more and more often to replace *long khaek*. Farmers needed more cash, and many earned it by planting cash crops and sending family members to Bangkok. Debt became a serious problem, especially among farmers in Central Thailand.

The mid 1970s: the policy shift from exploitation to protection of agriculture

With the introduction of cash crops and more opportunities to earn non-farm income, households obtained more cash and their economic situation improved considerably, even as cash expenses increased.

At the same time, however, as a result of slow growth in farm income and instability in non-farm income for farmers, the income gap between rural and urban dwellers widened. As Dowling and Soo (1983) show, the Gini coefficient increased from 41.4 in 1962 to 49.9 in 1971. By the late 1960s, poverty had become widespread enough to warrant serious study, and empirical data on poverty were published a few years later by Wattanavitukul (1978; see also Krongkaew 1989).

In early 1974, student activists overthrew the military government, and the civilian government that subsequently came to power allowed farmers to express their grievances openly. In March that year, farmers from the central region demonstrated in Bangkok to demand price supports for rice (Jumbala 1987). In April, leaders of the farmers' movement made initial contact with the student activists, and a collaboration began. In November, the Federation of Farmers was established, and farmers gathered in Bangkok and forced the government to accept their demands (Murashima 1980). In 1975, right-wing terrorists began to assassinate leaders of the farmers' movement. Then, in October 1976, in events that led to a military coup and the installation

of Thanin Kraivixien as Prime Minister, students' movements were attacked by right-wing activists and members of the police and military forces. Many students were killed, arrested, or forced to flee into the forest to join the Communist Party of Thailand.

The government's violent response, however, only strengthened the anti-government movement's resolve. During the 1970s, the increasing disparity between the rural and urban sectors and farm and non-farm sectors, which occurred in spite of the upward trend of farm household income in absolute terms, led to widespread rural unrest. Recognising that this disparity might bring serious political problems even at a time when absolute poverty was decreasing, the government implemented policies designed to enhance the welfare of rural residents directly. In 1974 it established the Farmers' Aid Fund using revenue from the rice premium, and in 1975 it set up the Marketing Organization for Farmers to implement price supports (Phetprasert n.d.). Also in 1975, the government began to intervene in farm product prices (Siarnwalla and Setboonsarng 1989). Another strategy adopted by the government at this time was a rural development policy of delivering resources directly to rural people.

Period III: diversification led by agribusiness and expansion of non-agricultural sectors (early 1980s to early 1990s)

During the 1980s, the major upland crops' share of total export value decreased, while that of high value-added commodities such as canned fruit and frozen chicken, produced by businesses that made heavy investments in food processing, increased (Figure 8.1 and Table 8.1). After the 1980s, food processing received emphasis in economic policy, the government's intention being for the industry to not only benefit agricultural producers but also hasten the macroeconomic development of the country as a whole.

- In comparison to its growth in the 1960s and 1970s, the growth of the non-agricultural sector in the early 1980s stagnated. The government recognised that agricultural growth was crucial for both macroeconomic growth and the expansion of the domestic market for non-agricultural goods, since the majority of the population still resided in rural areas.
- While traditional agriculture did not live up to expectations, new agricultural commodities and agribusinesses performed well. For

Table 8.1 Export value of agro-industrial commodities from Thailand, 1980–99 (million baht)

	1980	1985	1990	1995	1999
Shrimp ^a	1,961	3,439	20,454	50,302	48,348
Frozen fowl	656	1,467	7,752	10,047	15,450
Canned pineapple	1,432	3,292	5,524	5,763	11,434
Canned fish	603	5,204	15,742	18,842	29,648
Canned crustaceans	987	2,143	6,983	18,653	42,808
Total exports	133,197	193,366	589,813	1,406,311	2,213,965

^a Does not include dried shrimp.

Source: Bank of Thailand, 1980. *Quarterly Bulletin*, 25(4), Bank of Thailand, Bangkok; Bank of Thailand, 1985. *Quarterly Bulletin* 28(4), Bank of Thailand, Bangkok; Bank of Thailand, 1990. *Quarterly Bulletin* 35(3), Bank of Thailand, Bangkok; Bank of Thailand, 2000. *Monthly Report*, September, Bank of Thailand, Bangkok.

example, frozen chicken exports increased rapidly, canned pineapple expanded its export markets, and frozen and canned seafood looked to have bright prospects; all of these commodities were produced by relatively new companies.

- The government decided to allow the private sector to play a more significant role in agricultural development, since it could not deny that agricultural development had traditionally been led by the private sector, and it did not have the budget for farm supports.
- In the early 1980s, the government devalued the baht twice, thus stimulating direct foreign investment in the agricultural and food sectors.

By 1984, NESDB had conceptualised a policy promoting development led by agribusiness. Certain high-ranking bureaucrats in the agency labelled this the NAIC strategy (Suehiro and Yasuda 1986), implying that Thailand's economic development would be driven by agro-industries rather than the non-agricultural sector as in other newly industrialising countries (NICs) (Chulalongkorn University 1991). In line with this strategy, in 1987 the government set up the *Si Prasan* (Four-Pronged) Project, aimed at facilitating coordination among agribusiness, farmers, banks and the government. Unfortunately, some of the activities related to this project left farmers in debt.

Not long after the government adopted its NAIC strategy, the regional economic environment changed drastically. By the Plaza Accord of 1986, the Japanese yen soared against the dollar, putting Japanese manufacturers at a disadvantage in export markets. Forced to find an overseas production base that would allow them to regain their competitiveness in export markets, many Japanese manufacturers chose Thailand for its low wages, excellent work habits and stable political situation.

Thus, direct foreign investment in Thailand increased dramatically, especially from Japan after 1986, and manufacturing of textiles, machinery, automobiles and electric utensils and parts grew rapidly. Manufacturing firms were mostly joint ventures between Thai and foreign investors with established export channels, thus it was easy for them to find and enter overseas markets, and they could grow without relying on the Thai domestic market. Using investment promotion privileges, the Thai government also helped investors find overseas markets. The legitimacy of the NAIC strategy was soon compromised. Chatchai Choonhawan's government and the new leadership of NESDB placed more emphasis on growth rather than distribution (Chulalongkorn University 1991), and the country's development strategy shifted from that of a NAIC to that of a newly-industrialising country (NIC), like the strategies of other East Asian developing countries. Between 1987 and 1992, Thailand enjoyed an annual average growth rate of 10.5 per cent.

One impact of the economic boom was increased labour migration from rural to urban areas. The net number of migrants from rural to urban areas between 1985 and 1990 was 1.8 times greater than the net number between 1975 and 1980. Some factories relocated to provincial areas in search of more privileged investment promotions and cheaper labourers, thus offering new employment opportunities to villagers near municipalities. For example, in Khon Kaen province in Northeastern Thailand, the number of employees in the textile industry grew from 186 in 1987 to 1,633 in 1991 (Shigetomi 1995b). The composition of farm household income changed considerably during this boom time. Up until 1988/89, net farm cash income was roughly equal to net non-farm cash income; after the boom period, however, it fell to less than half the latter. The farm household economy thus relied increasingly on non-farm income.

Period IV: government initiative for crop diversification (early 1990s to the present)

The sluggish international commodity market of the early 1980s caused farm income in Thailand to fall, even in absolute terms (Khampha 1993). Earlier, the government had regarded increasing productivity as the best way to develop agriculture; because this was not very successful, however, the government later emphasised diversification and the introduction of new commodities (Phanthurat 1991). The sixth National Economic and Social Development Plan, implemented in 1987, designated diversification as the central instrument to agricultural development (Samohantharak 1988).

Diversification programs began in 1987. The cabinet approved a plan for research on agricultural diversification, and 1987/1988 saw the implementation of the Production System Restructuring Project, which recommended 34 commodities to farmers. Also in 1987, the Bank of Agriculture and Agricultural Cooperatives (BAAC) made 1,000 million baht available as loans for farmers to diversify their production. The failure of the *Si Prasan* Project, which belonged to this policy trend, made the government realise that it could not be so optimistic about private-sector initiatives and moved it to attempt to guide diversification. The first attempt at guidance was made in 1991, in the form of the Agricultural Rehabilitation Plan (ARP). This was followed by the Project for Restructuring and Production System (RAPS), which provided considerable subsidies to farmers to enable them to diversify their crops. Another idea was to demarcate production zones in order to control production and prevent falling prices due to overproduction. The government also supported farm prices, establishing the Integrated Farmers' Aid Fund (IFAF) as a comprehensive scheme for price intervention in 1991.

As these policies indicate, since the early 1990s the Thai government has increased its intervention in agricultural production and trade. This trend can be partly explained by the political atmosphere after 1992. After May 1992, the military's influence on politics decreased considerably, thus political parties must now seek the support of voters, the majority of whom live in rural areas. In addition, during the 1990s, rural people formed pressure groups to persuade the government to support commodity prices and reduce the burden of debt repayments.

Even farmers who are not affiliated with such organisations now often gather in an ad hoc manner to deliver their demands to the government.

The economic crisis of 1997 drastically decreased opportunities for rural people to earn money in the non-farm sector, since a number of factories were forced to close or reduce their operations and many construction projects were halted. On the other hand, the crisis cast a new light on agriculture. Because an economy once highly dependent on foreign capital has been disabled, agriculture is now better appreciated as the basis for 'self-reliance', and also expected to work as a safety net for those who have lost jobs in urban areas. While many policies promoting self-reliance have already been implemented, the extent to which the rural sector has absorbed unemployed labourers remains unclear. Recent reports from the Labor Force Survey show that the agricultural labour force increased just after the crisis, but decreased in 1998 and remained low in 1999. Many agricultural commodity prices surged just after the devaluation of the baht, but returned to their pre-crisis levels a few months later.

THAI AGRICULTURAL DEVELOPMENT

Agricultural development can drive economic growth in three general areas

- in the macroeconomy, by promoting GDP growth and earning foreign currency, especially in the early stages of development
- in domestic food supply, by providing sufficient, safe and affordable food for domestic consumers
- in farmer welfare, by enhancing the economic welfare of farmers, who dominate the populations of developing countries and are poorer than other groups.

It must be emphasised that development in these three areas must occur without destroying the ecological conditions that allow sustainable agricultural production.

Agriculture's contribution to the macroeconomy

Up until the mid 1970s, agriculture made the most significant contribution to Thailand's GDP, though from 1950 onwards its share steadily declined. In some years during this period, the sector experienced higher growth than total GDP. Thus, up until the mid 1970s, agriculture

supported the Thai economy. From the mid 1970s onwards, however, the manufacturing sector grew rapidly, overtaking agriculture in 1978. The gap between these two sectors' growth rates became obvious in the late 1980s.

Agriculture earned significant amounts of foreign currency for Thailand (Table 8.2). When the manufacturing sector stagnated somewhat in the early 1980s, agricultural products, especially those with high value added, proved valuable as exports. It was at this point that certain economic policy planners came up with the NAIC strategy for the country's economic development. The agro-industry sector was expected to not only earn foreign currency but also to expand the domestic market for non-farm goods, since success in the sector would increase the income of farmers, who comprised about 70 per cent of the workforce at the time

Agriculture's contribution to domestic food supply

Provision of staple foods is agriculture's first and most important function. In the early 1960s, even though Thailand was already one of the world's top rice exporters, planners were pessimistic about the future of its rice production (Chuchat 1960; World Bank 1959). Their pessimism stemmed from the fact that the population was growing faster than rice production, and from continuing low productivity. As it turned out, the pessimism was unwarranted.

From the 1960s onwards, rice production grew steadily (Figure 8.4), and, although rice was the most important export, the government was still committed to providing an adequate supply for the domestic market. Production increases were channelled to the domestic market, and per capita rice consumption increased up until the mid 1970s, then it began to decline. The domestic price of rice in Thailand was low compared to that in other countries, but it was still linked to the world market. When the world market tightened, the domestic price could soar. This external impact, however, was absorbed by the rice premium, a kind of export tax.

Thus, Thailand succeeded in diversifying its agricultural sector. Sugar became less expensive than in other sugar-producing countries, meat and other animal products came to be produced in line with the increasing income of urban consumers, and, more recently, the food consumption gap between rural and urban dwellers narrowed (Table 8.3).

Table 8.2 Export trends and share of exports by commodity groups, Thailand, 1962–95

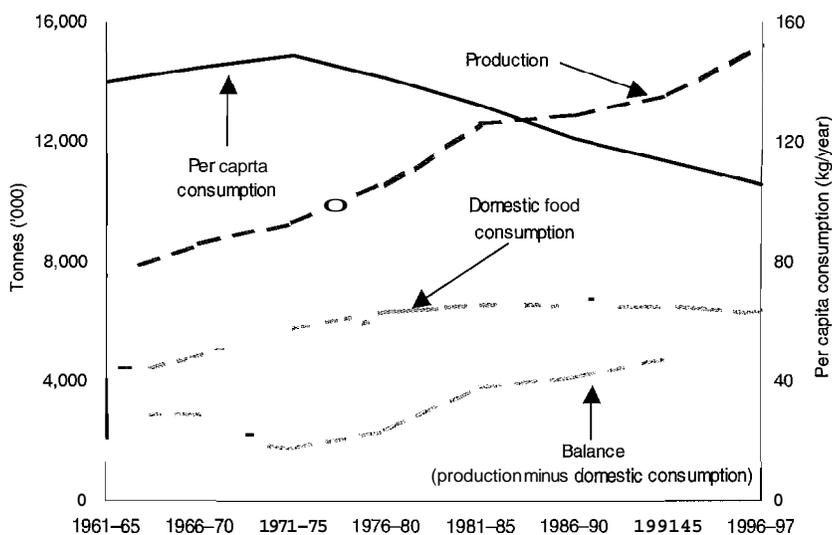
	1962	1965	1970	1975	1980	1985	1990	1995
Value (million baht)								
Agro-based commodities	8,277	10,757	11,318	32,869	77,404	115,974	224,168	407,037
Processed foods ^a	3	109	279	1,898	6,622	16,567	59,754	106,198
Non agro-based commodities	1,252	2,184	3,454	15,568	55,793	77,392	365,645	999,273
Garments	3	13	15	1,039	4,913	14,732	65,804	102,019
IC and electronic parts	-	-	-	-	6,156	8,248	61,528	203,311
Plastic products	-	-	-	113	610	1,262	9,078	63,580
Others	1,249	2,171	3,439	14,416	44,114	53,150	229,235	630,363
Total exports ^b	9,529	12,941	14,772	48,437	133,197	193,366	589,813	1,406,310
Percentage share								
Agro-based commodities	86.9	83.1	76.6	67.9	58.1	60.0	38.0	28.9
Processed foods ^a	0.0	0.8	1.9	3.9	5.0	8.6	10.1	7.6
Non agro-based commodities	13.1	16.9	23.4	32.1	41.9	40.0	62.0	71.1
Garments	0.0	0.1	0.1	2.1	3.7	7.6	11.2	7.3
IC and electronic parts	-	-	-	-	4.6	4.3	10.4	14.5
Plastic products	-	-	-	0.2	0.5	0.7	1.5	4.5
Others	13.1	16.8	23.3	29.8	33.1	27.5	38.9	44.8

^a Sum of canned seafood, frozen shrimp, frozen squid, canned fruit, and frozen chicken.

^b Total is sum of agro-based commodities and non agro-based commodities.

Source: Bank of Thailand, various dates [a]. *Monthly Report*, Bank of Thailand, Bangkok; Office of Agricultural Economics, various dates [a]. *Agricultural Statistics of Thailand*, Office of Agricultural Economics, Bangkok; Ministry of Commerce, various dates. *Trade Statistics and Economic Indicators of Thailand*, Ministry of Commerce, Bangkok.

Figure 8.4 Rice production and consumption (milled rice equivalent)



Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/defact.htm>.

Table 8.3 Per capita monthly food expenditures of rural and urban dwellers, 1962 and 1992 (Urban = 100)

	1962	1992
Rice and cereals	115	157
Meats and poultry	n.a.	88
Meats	38	n.a.
Poultry	74	n.a.
Fish and sea food	60	108
Vegetables	45	103
Fruits	37	49
Oils and fats	38	81

Source: National Statistical Office, 1966. *Household Expenditure Survey 1963*, National Statistical Office, Bangkok; National Statistical Office, 1994. *Report of the 1992 Household Socio-Economic Survey*, National Statistical Office, Bangkok.

Agriculture's contribution to farmer welfare

The rapid development of the non-farm sector made it possible for farmers to increase their income. In 1995, the average household income of farmers was nearly four times as large as the average household income of farmers in 1970 in real terms. Meanwhile, however, the income gap between rural and urban residents continued to widen right up until the mid 1990s, even though poverty reduction had been at the top of the political agenda since the 1970s.

Environmental conservation

As agricultural production in Thailand expanded, the country's forestland shrank, and upland crops for export crept into idle paddy fields. In 1961, nearly 60 per cent of Thailand was covered in forests; by 1991 only 27 per cent of Thailand was covered in forests. When frozen shrimp exports boomed in the 1980s, Thailand's mangrove swamps were rapidly developed into shrimp farms, leading to the disappearance of 37 per cent of all mangrove swamps between 1979 and 1989 (Royal Forestry Department 1993). Thailand has achieved success in agricultural exports by expanding arable land rather than increasing land productivity, thus at the same time as it has succeeded economically it has failed environmentally.

TRADE OPPORTUNITIES IN WORLD MARKETS

Thai agricultural development has depended heavily on overseas demand. In the 1950s, Thailand was still behind other countries in rice and rubber export, and only much later did it catch up to other exporters. Other major exporting countries after the 1960s had no significant export record in the 1950s, suggesting that the increase in Thai agricultural exports was due not solely to market expansion, but also to its higher agricultural productivity relative to other exporters (Honma and Hagino, this volume).

Thai agriculture developed as well as it did because it relied on export markets and Thai farmers responded smoothly to overseas demand. The role of government was limited. Most studies indicate that Thailand performed better than competing exporters for three main reasons

- Thailand had a land surplus relative to its population, making it possible for it to respond productively to overseas demand (Siamwalla 1999; Dixon 1999; Siarnwalla et al. 1992; World Bank 1987)

- a good feedback system, consisting of middlemen at several levels, delivered the necessary information on overseas demand to Thai farmers (World Bank 1987)
- Thai farmers were rational enough to respond to market prices (Siamwalla 1999).

During the period 1961–85, increases in farmland per farm labourer and positive developments in education—though not irrigation, research or extension—were significant factors contributing to the enhancement of Thai agricultural labour productivity. Policymakers' expectations notwithstanding, irrigation did nothing to enhance rice productivity, though it clearly had positive effects on other crops. Research and extension focused on import substitutes, rather than export commodities. (Siamwalla et al. 1993; Siamwalla et al. 1990; TDRI 1995)

Because chemical fertiliser did not play a crucial role in agricultural development, a government policy promoting it was not important (World Bank 1987). Thailand had a natural abundance of land, which the rural population reclaimed individually. The government did work to improve education in rural areas, but its efforts in this respect were not aimed at hastening agricultural development. Other government actions, such as the overvaluation of the baht, damaged the trade competitiveness of exports (Siamwalla and Setboonsarng 1991); rice and rubber, the country's major exports, were subject to government levies up until the 1980s.

As a result, scholarly views of government agricultural development policies tend to be negative, and most scholars agree that Thai agriculture developed not because of government action, but rather through its inaction—that is, because government did not actively or efficiently intervene in production and trade (World Bank 1987). Siamwalla (1999) in fact states that the government should not intervene in the decision making of producers.

Despite these generally negative perceptions, the role of government cannot be completely ignored, since, as a more detailed examination of each commodity shows, certain government practices did promote exports. For example, while irrigation may not have affected labour productivity, it did contribute to increased production for export. A rapid increase in maize exports was made possible by a contract between Japanese importers and the Thai government. The success of Thai sugar exports can be attributed to the government policy of protecting farmers

and stabilising consumer prices. Agro-industrial commodities such as frozen chicken and canned pineapple received government assistance in the form of investment promotions.

It is worthwhile identifying the policies that were in fact effective in promoting exports. Since market conditions differ from commodity to commodity, we examine each commodity separately, looking at rice and rubber as traditional commodities, maize, tapioca, kenaf and sugar as commodities from the first wave of diversification, and frozen chicken and canned pineapple as agro-industrial commodities. From the 1960s to the present, these eight commodities together accounted for 50–80 per cent of Thai agricultural exports.

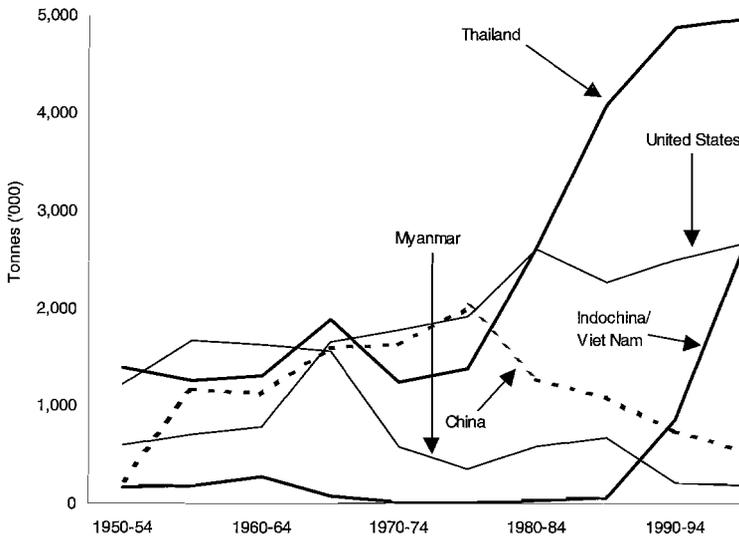
Rice

Thailand exported rice even before the Second World War. For a time, because rice production in Burma—previously the world's largest rice exporter—was seriously damaged by the war, Thailand became the world's largest rice exporter. After the Second World War, Burmese rice exports again exceeded those of Thailand, continuing to do so up until the early 1960s (Figure 8.5). In the late 1960s, however, price policies unfavourable to farmers caused Burma to abandon the world market. From the time of Burma's withdrawal to the late 1970s, the world's largest rice exporters were the United States and China. Even though it could not satisfy its own domestic demand for rice, China exported rice in order to obtain foreign currency. When the world rice market expanded in the late 1970s, China could not increase its exports, thus from the early 1980s onwards the United States and Thailand were the only major rice exporters.

In 1980, the United States and Thailand each exported about 3 million tonnes of rice; by 1985, however, Thailand had become the leader. The United States introduced export subsidies in an attempt to regain the lead, but this attempt failed. In the late 1980s, Vietnam entered the export market and became a new competitor, but Thailand has maintained its dominant market position to the present.

In the late 1970s, several Middle Eastern and African countries became rice importers, and the world rice market expanded. Though the Asian market had already matured, Thailand managed to increase its share in the region as well as enter new markets in other regions (Figure 8.6). The United States, on the other hand, could neither expand its exports in Africa nor maintain its market share in Asia.

Figure 8.5 Rice exports from major exporting countries (yearly average in each period)

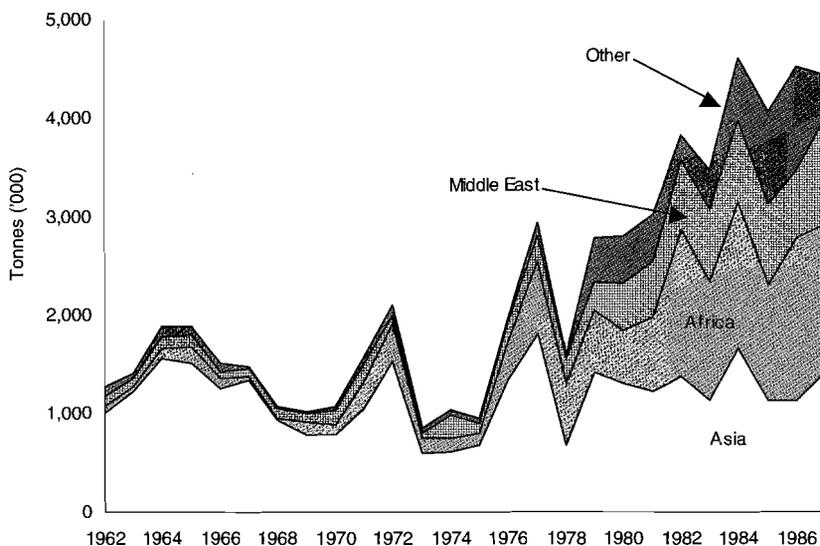


Source: Until 1989, International Rice Research Institute, various issues. *World Rice Statistics*, International Rice Research Institute, Los Banos; after 1990, Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

A major role in Thailand's penetration of new markets was played by the private sector, with private enterprises exporting most of the country's rice and even shipping the market segment established by inter-governmental agreements. As the structure of the world rice market changed, new players emerged among Thai exporters. In the days when most Thai rice was exported to Asia, the market was dominated by Sino-Thai traders with connections to importers in Hong Kong and Singapore. From the mid 1970s onwards, however, new exporters broke this monopoly. Six of the ten largest rice-exporting companies in 1980 had entered the business in the 1960s and 1970s.

Thailand was able to supply new markets because its abundant supplies of rice. Between the early 1970s and the late 1980s, Thai rice exports increased in volume by about 4 million tonnes. Production had continuously increased from the 1960s, but most of this was rice for

Figure 8.6 Expansion of Thai rice markets



Source: Institute of Developing Economies, n.d. World Trade Database (AIDXT),
Institute of Developing Economies, Japan External Trade Organization, Chiba.

domestic consumption. When per capita rice consumption fell in the mid 1970s, Thailand had more rice available for export. In the 1980s, partly because of the United States' introduction of rice export subsidies, world rice prices fell. In 1986, however, Thailand responded to this situation by reducing its rice export tax to zero, thus reducing the negative impact of the fall in world rice prices on domestic farm prices.

Thus, Thailand captured the world rice market in the 1980s with the aid of US policies of the time. During the commodity boom of the 1970s, the United States relaxed its restrictions on rice planting, causing a stockpile to appear by the late 1970s (Dethloff 1988). Under a new farm bill, rice farmers who restricted their planting area were allowed to sell their rice at a government-supported price, then repurchase it at a lower price. Because only farmers who restricted their planting area were allowed to participate in this program, however, US rice production actually decreased at a time when the export market was expanding.

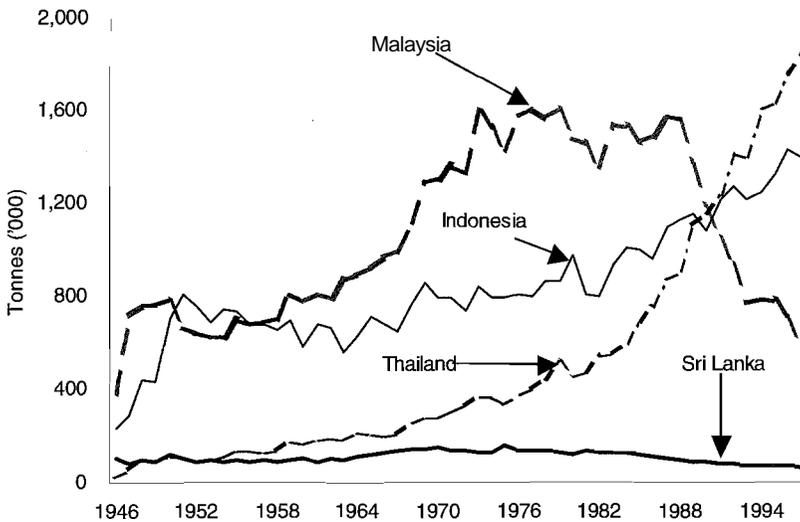
Thus, the United States not only failed to capture new markets, but also had to retreat from traditional markets.

In summary, four factors made it possible for Thailand to become the world's leading rice exporter: active marketing by Thai rice traders in emerging markets; increased export capacity (due to a combination of increased production and decreased domestic consumption); bad US rice policy; and the elimination of rice export tax.

Rubber

Before 1960, rubber was Thailand's second-most important export commodity, and Thailand was the world's third-largest rubber exporter, after Malaysia and Indonesia (Figure 8.7). After the Second World War, the world rubber market expanded continuously, and Thailand showed

Figure 8.7 Rubber exports from major producing countries



Source: 1946–59 data: International Rubber Study Group, 1974. *World Rubber Statistics Handbook 1946–59*, vol. 1, International Rubber Study Group, London:16; 1960–83 data: International Rubber Study Group, 1986. *World Rubber Statistics Handbook 1960–85*, vol. 3, International Rubber Study Group, London:17; 1984–85 data: International Rubber Study Group, 1990. *Rubber Statistical Bulletin*, 45(3):8; 1986–91 data: International Rubber Study Group, 1992. *Rubber Statistical Bulletin*, 47(3):11; 1992–97 data: International Rubber Study Group, 1998. *Rubber Statistical Bulletin*, 52(12):11.

remarkable growth, especially during 1977–81 and 1984–97. Production growth after 1984 made Thailand the largest exporter of natural rubber in the world.

Thailand's success in rubber production and trade was made possible by a complex interplay of production methods, traditional import partners, tire manufacturing methods and economic conditions in both rubber producing and rubber consuming nations. Most natural rubber is used to manufacture automobile tires. Thus, from the 1960s onwards, the three largest rubber consumers were the United States, Europe, and Japan, also the world's largest users of automobiles. Among rubber producers, Malaysia and Indonesia concentrated on producing Technically Specified Rubber or block-type rubber, which was sold mainly to the United States and Europe, while Thailand produced mostly RSS (ribbed smoked sheet) rubber for the Japanese market (Yamazaki 1988).

Compared to their European and US counterparts, Japanese tire makers were latecomers. In the 1960s, Japanese tire makers bought cheap, lower-quality rubber from Thailand and used a labour-intensive manufacturing process to remove foreign matter from the rubber sheet. In the 1970s, rubber demand in Europe and the United States stagnated. The Japanese tire industry, however, recovered quickly after the oil crisis and increased its imports, mostly from Thailand. From the mid 1980s onwards, this situation changed, with Thailand continuing to increase its rubber exports while at the same time diversifying its markets. Diversification was possible because the quality of Thai rubber had improved enough—through the efforts of a Japanese tire maker, Japanese traders and Thai smoke houses—to attract Western tire makers (Shigetomi 1995a).

In about 1980, Japanese tire makers automated their previously labour-intensive manufacturing process and could no longer use low-quality rubber. Bridgestone (the largest Japanese tire maker) assigned an engineer to Hatyai, the market centre for Thai rubber, and through the engineer's work production methods were standardised, rubber quality improved, and Thailand became the leading rubber exporter of the 1980s. All of this was achieved without government intervention.

At the same time, however, Thai rubber yields were increasing thanks to a government program of replanting that had begun in the early

1960s and accelerated in the late 1970s. From 1988 onwards, Malaysian rubber exports decreased by about 1 million tonnes, while world demand increased by 500,000 tonnes. The Thai rubber industry was able to exploit this market opportunity, partly because planted area expanded but also because yields increased as a result of the government program.

Kenaf

During the 1960s and 1970s, Thailand was a significant exporter of kenaf (Table 8.4). Cheaper but of lower quality than jute, kenaf was used as a substitute for jute in order to save money on gunnysacks; thus, demand for kenaf depended on the price gap between jute and kenaf. At the time, Bangladesh held a near monopoly on jute export, with direct implications for Thailand's kenaf market. When natural disasters or political turmoil led to shortages of jute from Bangladesh, demand for kenaf surged (Samakhom 1975; Charoenloet 1971). When Bangladesh devalued its currency against the dollar in 1974/75, however, kenaf exports from Thailand were affected negatively (Samakhom 1975).

World exports of jute-like fibres have long been dominated by Bangladesh and Thailand. When demand for kenaf arose, Thailand was the only country in a position to meet it, and it could supply the market because it already had to the capacity to make gunnysacks. Before the Second World War, Thailand was a major rice exporter but had to import

Table 8.4 Exports of jute and jute-like fibres from Bangladesh and Thailand in comparison to world totals, 1961–97

	Jute (tonnes)			Jute-like fibres (tonnes)		
	World	Bangladesh	Thailand	World	Bangladesh	Thailand
1961	581,173	535,741	1,037	145,347	-	142,439
1965	814,686	707,576	227	335,742	14,010	316,759
1970	734,250	633,160	3,187	260,107	2,887	253,905
1975	429,995	312,943	1,379	157,053	797	156,221
1980	481,804	339,479	3,297	37,009	2,820	27,095
1985	380,759	265,287	624	3,215	750	2,463
1990	440,387	325,557	6,423	2,416	-	2,406
1995	288,083	248,944	3,831			
1997	288,464	263,000	2,062			

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

gunnysacks from Pakistan in order to transport the rice (Department of Factory 1959:43). After the war, in order to avoid having to import gunnysacks, the Thai government supported the production of kenaf, a fibre crop traditionally used within Thailand as a substitute for jute imports.

The first Thai gunnysack factory began operations in 1952, and two more factories opened the following year. Since both productivity and quality were low, the government protected the industry by forcing jute importers to purchase a certain amount of domestic product (Samakhom 1975). This protection stimulated cultivation of kenaf and thus prepared the industry for sudden demands from abroad. When demand from abroad rose, the price of kenaf rose too, and the early 1960s saw kenaf cultivation expand drastically.

In the late 1960s, however, plastic bags began to replace gunnysacks and bulk transportation of agricultural commodities became more common, thus demand for jute and jute-like fibres began to fall (Chintayarangsan 1983). From the mid 1970s onwards, kenaf exports decreased rapidly, and Thai farmers turned to cassava, whose price was more attractive than kenaf's.

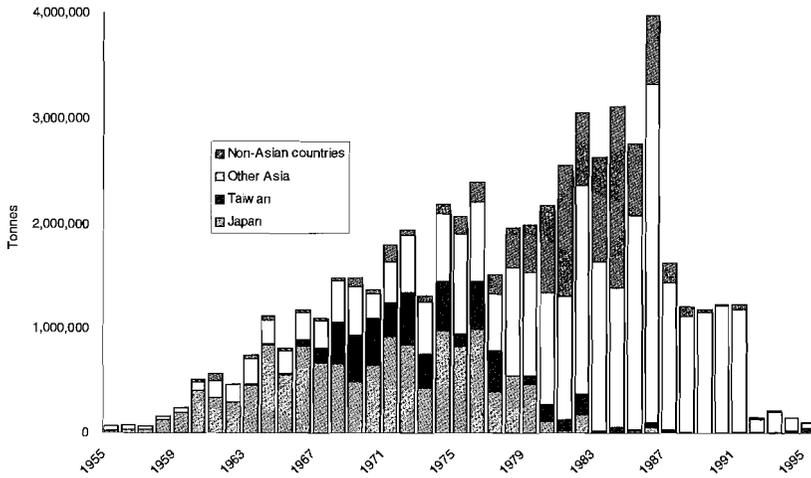
Maize

Thailand's maize exports have never exceeded 7 per cent of world trade volume in a market dominated by the United States. Despite its poor standing in the world market, Thai maize used to be the country's third-largest export commodity, in certain years accounting for nearly 13 per cent of total export value. Its importance as an export commodity stemmed only from its capacity to capture nearby markets; it had no comparative advantage outside Asia.

Commercial production of Thai maize began in 1953, when the United States introduced the Guatemala variety as part of a technical assistance program (Muscat 1990). In 1958, when Japan increased its maize imports from Thailand by more than 300 per cent, planted areas began to expand rapidly (Figure 8.8) and 80 per cent of Thai maize went to Japan.

From the late 1950s onwards, the number of swine and chickens in Japan increased rapidly, and Japanese farmers relied increasingly on imported feed grain (Hayakawa 1986). Most of the imported feed grain came from the United States, but Thai maize interested Japanese importers for several reasons—

Figure 8.8 Destinations of Thai maize exports



Source: 1955–87 for all areas and 1955–95 for Japan and Taiwan: Ministry of Finance, various dates. *Foreign Trade Statistics of Thailand*, Ministry of Finance, Bangkok; 1988–95 except Japan and Taiwan: Institute of Developing Economies, n.d. World Trade Database (AIDXT), Institute of Developing Economies, Japan External Trade Organization, Chiba.

- diversification of exporting countries would stabilise feed quantities.
- Thai maize was exported during the off season for US maize.
- chicken farmers preferred the more yellow colour of Thai maize.
- in the 1950s, Japan had drastically scaled down rice imports, thus the Japanese government needed more imports from Thailand to decrease the trade surplus, a serious diplomatic issue between the two countries at the time.
- Japanese traders were eager to reach import thresholds in order to be allowed to join a government-supported feed program (JETRO 1979; Asami 1976).

Between 1957 and 1959, Japan greatly increased its total maize imports, including those from Thailand. Because most Thai maize exporters were petty traders who had no access to modern storage and transport facilities, there arose quality and delivery problems associated with moisture, foreign matter and weight loss (Gaimusho 1960; Mizoguchi 1962).

In order to control competition among importers and pressure Thai exporters to solve quality and delivery problems, Japanese importers formed the Thai Maize Importers' Council (TMIC), with strong assistance from the Japanese government. Many Thai traders had already formed the Thai Produce Exporters Association (TPEA) in 1956 (Nititham 1978), and the two associations made their first agreement for the 1959/160 growing season.

This agreement focused on quality control. It defined maize quality standards for each shipping month, and designated inspection companies to check cargoes. In order to support this private contract, the Thai Ministry of Commerce declared maize a 'standardised commodity', meaning its quality would be legally defined. These measures helped to eliminate existing quality problems and persuaded Japanese importers to buy more maize from Thailand.

Over the next few years, a series of quality, delivery and price problems plagued maize trade between the two countries, and a contract between them ended in 1981. By this time, maize exports to Japan had already declined considerably because of Thai exporters' dissatisfaction with the contract price and inability to compete with US exporters, who used large bulk loading facilities.

After export contracts to large markets disappeared, Thai maize exporters turned to Asian markets that did not have bulk loading facilities and/or were very close to Thailand. When Thai maize production decreased because of a crop failure in 1987, exports dropped to about half the previous year's level. When production increased in the following year, export volume failed to return to its previous level because importers had shifted to other exporters, and demand for maize in Thailand increased. Because the domestic feed market was protected by high import duties, Thai maize could be sold domestically at a higher price than in export markets. Now, Thailand is a net maize importer.

Tapioca

Up until the mid 1980s, Thailand shipped most of its tapioca products to Europe (Table 8.5). Even before the Second World War, European countries had used tapioca as animal feed; in the 1960s, however, demand increased tenfold, for the following reasons

- new intensive feeding systems needed more non-fibre feeds
- the European supply of such feeds was limited

Table 8.5 Global tapioca exports, exports from Thailand and selected areas, Thai market share, and per cent of volume imported by Western Europe

	World		Thailand		Exports from other areas (tonnes)			
	Exports (tonnes)	Per cent imported by W. Europe ^a	Exports (tonnes)	Per cent of world exports	Indonesia	Africa	Latin America, Caribbean	Other
1961	121,372	86.0	8,777	7.2	8,900	80,226	19,887	3,591
1965	645,466	95.1	400,708	62.1	84,210	106,613	35,736	18,199
1970	1,638,062	94.9	1,172,282	71.6	334,227	76,003	5,900	49,650
1975	2,728,405	90.3	2,239,535	82.1	303,369	19,799	12,228	153,474
1980	6,318,703	97.0	4,974,111	78.7	386,055	6,779	10,364	941,394
1985	9,404,707	84.4	6,662,365	70.8	543,303	429	17,688	2,180,922
1990	9,792,198	69.4	7,829,596	80.0	1,280,576	44,356	26,094	611,576
1995	4,739,478	66.1	3,684,129	77.7	513,863	11,116	71,980	458,390
1996	5,094,583	69.7	4,193,321	82.3	416,325	14,139	72,621	398,177
1997	5,716,607	62.0	4,974,899	87.0	273,202	10,136	75,264	383,106

^a Imports to Western Europe as a percentage of total world imports

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htrn>.

- after 1962, while the European Community imposed high duties on imported feed grains, it did not on certain tapioca products (UNCTADJGATT 1977; Siriprachai 1987).

In 1962, the volume of tapioca exported by Thailand was only one-ninth the volume exported by the continent of Africa, the world's leading tapioca exporter. In 1963, European livestock producers increased their imports. At the same time, however, African exports decreased, because tapioca was an important staple in the diet and a large part of production had to be reserved for domestic consumption. Thailand, on the other hand, could swiftly respond to the increased demand because Thai people do not eat tapioca as a staple. Thus, in 1964, Thailand became the leading tapioca exporter, shipping nearly 75 per cent of the world total; it remains the leading exporter today. Many scholars regard 1968's Kennedy Round of trade talks as responsible for Thailand's leading position; in fact, however, because tapioca is not a staple food in Thailand, the country was able to take the lead even before 1968

In 1965, the European Common Agricultural Policy finally imposed import duties on tapioca; in 1968, however, the Kennedy Round of trade talks capped these import duties at 6 per cent of import value, making tapioca more competitive than feed grains. Thailand could exploit this advantage because its private exporters were able to respond quickly to changes in market demand, and in 1969 Thai tapioca exports increased greatly. Tapioca pellets became the preferred form of animal feed in Europe, and Thailand responded quickly by building pellet production plants, something African countries were unable to do (Ithijarakul n.d.; UNCTADJGATT 1977).

Shipping facilities are another area where Thailand gained market share in tapioca. As a low-priced commodity, tapioca is shipped in bulk. In the 1960s, tapioca shipping ports were limited to ships smaller than 15,000 tonnes; in the 1970s, however, a private company set up a loading facility at Si Chang Island in Chon Buri Province to load pellets directly from silos to cargo ships (TDRI 1987). Indonesia had no such facility, so shipping from it was more expensive.²

Compared to private companies, the government did little to promote tapioca exports except apply the factory code to tapioca facilities and set quality standards (Siriprachai 1987). Quality inspections were performed by private companies. The government's passivity in

supporting tapioca production can be attributed to the belief then current that cassava, the raw material of tapioca products, negatively affected soil fertility.

The boom in tapioca exports ended when France set import controls in 1977 (Ruam *Prachachat*, 8 April 1987). Tapioca prices fell considerably, and the Thai government took control of the construction and expansion of tapioca product factories. In 1979, the Ministry of Commerce issued a decree to control the volume of tapioca exports. In 1980, it made an agreement with the European Community (EC) to limit Thai tapioca exports to the EC to 5 million tonnes per year during the 1981 and 1982 seasons,³ and 4.5 million tonnes per year during the following two seasons. Trade volumes for the 1985 and 1986 seasons were reduced still further. By this agreement, Thailand could no longer expand its tapioca exports. When trade controls were needed, the government appeared as an important player. Since the EC still taxed imported feed grains, the tapioca price in the EC was more favourable than in any other market.

This situation led the government in 1981 to adopt a quota system for exporters, including a 'bonus' quota as a reward for exports to countries outside the EC. In 1987, the bonus quota increased, and exporters became ever more eager to ship to non-EC countries (Tasaka 1991). As a result, during the 1980s, Thai tapioca exports increased: even after the EC had imposed import limits (Table 8.6). The bonus quota system thus contributed to expansion of both the volume of Thai tapioca exports and their market.

The reason Thailand became the major tapioca exporter was that no other country could supply the market when demand in the EC increased rapidly in the 1960s. The large and stable market of the EC stimulated Thai firms to invest in production and transportation facilities, and Thai exporters to form a carrier company to compete with the big European carriers (TDRI 1987). The government's role in the expansion was limited to the establishment of quality standards. When export volumes needed to be controlled, the government took on a major role, introducing a quota system to cover exports to the EC and at the same time promoting exports to countries outside the EC. Though many scholars condemned the system because it enabled government officials to engage in rent seeking and corruption, the bonus quota positively affected Thai tapioca exports.

Table 8.6 Tapioca exports, 1981–97 ('000 tonnes)

Year	Stock quota	Bonus quota	Exported to EC	Total exports
1981			5,500	
1982			7,331	
1983			4,964	5,917
1984	5,350	155	5,506	6,570
1985	3,521	1,400	4,920	7,088
1986	3,673	1,161	4,833	6,319
1987	5,295	205	5,500	6,211
1988	4,000	1,500	5,500	8,122
1989	2,754	2,738	5,492	9,826
1990	1,871	2,712	4,583	8,069
1991	1,968	2,969	5,252	6,942
1992	2,100	2,625	5,250	8,925
1993	2,860	2,888	5,747	7,147
1994	2,651	1,746	4,397	5,492
1995	1,749	231	3,107	3,867

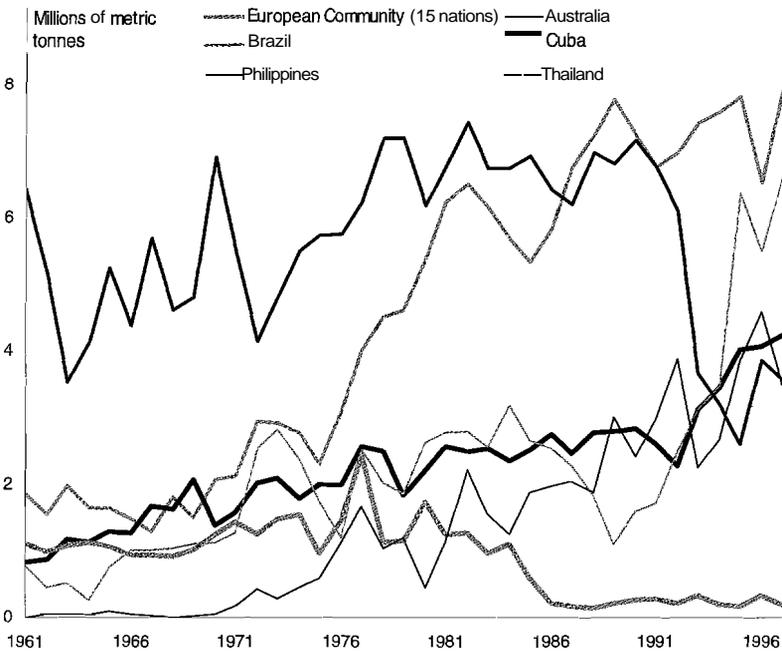
Source: Total exports: Office of Agricultural Economics, various dates. *Agricultural Statistics of Thailand*, Office of Agricultural Economics, Bangkok; all others: Siriprachai, Somboon, 1998. *Control and Rent-Seeking: the role of the state in the Thai cassava industry*, Lund University Press, Lund: 164.

Sugar

In the past, Thailand was a net importer of sugar, though sometimes it exported sugar when the government offered export subsidies. Today, Thailand is a major sugar exporter (after the European Union and Brazil), in competition with Australia and Cuba (Figure 8.9). In 1976, exports increased dramatically to more than 1 million tonnes; in 1982, they passed 2 million tonnes.⁴ Between 1976 and 1981, the world market for raw sugar expanded by nearly 2 million tonnes; from 1982 to 1994, however, it changed very little. Thailand was able both to capture a large share of the world market during the period of expansion and enlarge its share during the period of stagnation that followed.

Up until the 1960s, the Thai sugar industry was an import substitution industry, the government's policy being to control production so as to satisfy domestic demand, not create a surplus. In reality, however, sugar prices fluctuated widely, depending on domestic harvests and world market movements, and a rising price in one season led to production increases in the following season, thus creating a surplus.⁵

Figure 8.9 Sugar exports from major exporting countries



Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

During the 1960s, the Thai government implemented three strategies to stabilise the domestic sugar price.

- In 1967, the government established the Sugar Price Stabilization Bureau (SPSB) to manipulate buffer stock. Because the fund the Bureau had to draw on was small, however, when world prices were extremely high or low the buffer stock system did not work well.
- In 1961, the government's Sugar Code set an upper production limit. The 1968 Sugar Code allocated quotas for domestic supply (white sugar) and export (raw sugar) to each factory. Under this policy, the government determined which type of sugar each factory should produce first each season (Wannitikul 1981). In 1969, it prohibited the construction and expansion of sugar processing plants (Manarungsan and Kaeothep 1989); once prices rose, however, such controls stopped working, moving the government to relax them in order to lower prices.

- The limited success of these first two strategies led to a third: in the 1960s, the government recognised exports as a way to stabilise the local sugar price.

With the government's allocation of export quotas in 1969 and quotas for both domestic and export markets in 1970, sugar millers could recoup their losses from the export market with returns from the domestic market, where the price was set higher than in the world market (Yamamoto 1998). Recognising the difficulty in balancing domestic sugar supply and demand, the government began to consider conversion of the sugar industry into an export industry.

Between 1972, when a world sugar boom began, and 1977, the volume of world sugar trade expanded by nearly 7 million tonnes. In June 1972, the Thai government declared an official retail price for sugar. When this proved to have no effect, the government allowed the production capacity of sugar mills to increase, and the number of sugar mills rose from 30 in 1972 to 41 in 1974 (Jessadachatr 1977). Meanwhile, total production capacity rose to nearly 2.5 billion tonnes (Yamamoto 1998), and in June 1974 the government began to levy an export premium on sugar (Manarungsan and Kaeothen 1987).

During this boom, the structure of Thai sugar exports changed significantly. Before the boom, the government had allowed only the Thailand Sugar Corporation (TSC) to export sugar; during the boom, however, the TSC made an unfavourable long contract with an international broker. The contract was subjected to severe public criticism, and in December 1974 the government was forced to admit new exporters, thus introducing competition into the sugar export business (Ando 1979; Jessadachatr 1977).

In 1976, the sugar boom passed its peak, and world sugar prices fell. Thailand, however, already had in place a system to cover export losses with profits from the domestic market. Beginning in 1974, government officials monitored sugar mills to ensure the fair and accurate allocation of quotas (Yamamoto 1998). Since 1982, the subsidisation of sugar exports using profits from domestic sales has been formally institutionalised as the 'sharing system'. Under this system, total output from sugar mills is channelled into three quotas: Quota A, for domestic supply, its price set by the government; Quota B, for export by a government-appointed exporter; and Quota C, for export by private exporters. The sugarcane price is automatically set at 70 per cent of the sugar price, as calculated from the prices in these three market channels.

Thailand's involuntary consumer subsidy for sugar exports does not completely explain the country's success in sugar exports, however, since other countries also subsidise sugar exports. When Thailand entered the export market, it faced high costs; by the late 1980s, the cost of Thai raw sugar was the second lowest in the world after that of South African raw sugar (Lichit 1994). Thailand's domestic sugar price dropped below the sugar prices of most other major exporting countries, and its subsidy was also relatively low. In the world sugar market, the price had been set at an extremely low level that did not cover production costs for most exporters; in such a situation, only reduced production costs would help alleviate a deficit.⁶

Production costs could be reduced through increasing mill size. The sugar boom of the 1970s stimulated such expansion, and between 1965/66 and 1985/86 the production capacity of Thai mills increased ninefold (Yamamoto 1998). Because of the high salvage cost of reduced production capacity and the significant political influence of cane growers, which made reductions in production unacceptable, the government chose to dump the country's surplus sugar on the export market with a subsidy.

Thus, Thai sugar exports were able to expand because of government intervention in the market, even though the government's intention was not to promote exports but to balance domestic supply and demand and stabilise the domestic price. Thai sugar's export success was an unexpected result of this government policy of attempting to satisfy both farmers and consumers.

Frozen chicken

Thailand's share of the world market for frozen chicken has never exceeded the 7 per cent share it achieved 1991. In that year, the United States led frozen chicken exports with three times the volume of Thai exports, and Brazil was second with about twice the volume of Thai exports. Although Thailand has never been a major exporter of frozen chicken, Thai policymakers have focused their attention on it in the hope that, together with other high value-added commodities, it will lead the country into a new agricultural era.

Frozen chicken accounts for 7 per cent of Thailand's total agricultural exports. Though its export value remains small, the rapid growth it has made since the 1970s is noteworthy. Thailand began commercial exports

of frozen chicken in 1976. Within two years, the volume of Thai frozen chicken exports had increased fivefold; by 1986 the volume was 33 times larger than in 1976. The rapid increase continued until 1992, a crucial driving factor being the growth of Thai frozen chicken's share of the Japanese market (Table 8.7), from just 2 per cent in 1976 to 36 per cent in 1992.

Thailand's first exporter of frozen chicken was a feed producer, Charoen Pokphand Co., Ltd. Charoen Pokphand began producing chicks for farmers in a joint venture with Arbor Acres in 1970. The emphasis at the time was on the domestic market, made up mostly of US armed forces based in Thailand during the Vietnam War. Realising that it could not rely solely on the domestic market, in 1973 Charoen Pokphand signed its first export contract with Asahi Broiler. In the beginning, Charoen Pokphand's processing technology was very primitive. When its first shipment of chicken did not meet Japanese standards, it suspended exports and sought technical advice from Asahi Broiler.

Another Japanese company, Kanshoku Co., Ltd., began to import chicken from Thailand to satisfy the Japanese people's changing dietary needs at a time when the country's major companies refused to change their product (Yamada 1986). Though Thai chicken was more expensive than US and Chinese chicken, Thai chicken exports to Japan increased (Chikusan shinko jigiyodan 1980). Crucial to this increase were changes in the forms in which chicken was consumed in Japan. Increasingly,

Table 8.7 Volume of chicken exported from Thailand (tonnes)

Year	Total volume	Exports to Japan	Percent of total
1973	135	135	100.0
1974	337	337	100.0
1975	373	367	98.4
1980	18,503	17,430	94.2
1985	37,840	33,147	87.6
1990	138,859	108,121	77.9
1995	149,799	115,233	76.9
1996	137,167	101,678	74.1
1997	150,596	95,626	63.5

Source: Office of Agricultural Economics, various dates [c]. *Thailand Foreign Agricultural Trade Statistics*, Office of Agricultural Economics, Bangkok; Ministry of Finance, various dates. *Foreign Trade Statistics of Thailand*, Ministry of Finance, Bangkok.

Japanese were eating processed foods and buying food in take-out markets. By the end of the 1980s, around 60 per cent of chicken was consumed in such forms (Nihon shokucho kyokai 1989).

Because of Thailand's low labour costs, its processed food production was very competitive, and because of their location Thai processors were able to respond quickly to changing Japanese demand. Thailand only realised its competitiveness in production costs, however, when it learned to control quality to meet Japan's strict standards for imported foods. To this end, Kanshoku offered technical assistance to its then counterpart, Saha Farms, while Centaco, a joint Thai–Japanese venture, also introduced Japanese technology into processing lines. Such efforts on the part of both Japanese and Thai companies helped Thai frozen chicken earn a good reputation for quality in terms of freshness, shape and freezing temperature (Chikusan shinko jigiyodan 1980).

This swift response to processing changes was aided by competition among processing companies, whose total capacity grew fourfold from 1975 to 1978 (Suehiro 1987). Before the broiler industry boom, in order to control volumes, seven companies had built facilities that integrated the entire chicken production process, from chick hatching to product sales. Though three of these companies were joint Thai–Japanese ventures, they made these daring investments in broiler production even without any long-term forecast of Japanese demand (Yamada 1986).

In all of this development, the government played a secondary role. Though chicken processing was included among the projects eligible for the government's investment promotion scheme in 1967, it was only ten years later that it took any action in this respect. In an amendment to the 1977 Investment Promotion Act, the Board of Investment (BOI)'s authority to make promotion decisions was strengthened, and import duties on facilities and raw materials were waived at 100 per cent and 90 per cent respectively. The Act also gave the same preferential treatment it gave to factories located around Bangkok to factories in the provinces (Chantharanimi 1988:42), thus allowing all broiler processors to receive investment promotions (Christensen 1993).

Another role played by the government lay in negotiating with Japan to reduce import duties. Previously, Japan had levied high duties on imported chicken meat. In 1980, however, following the GATT Tokyo Round of trade talks, Japan divided chicken into two tax categories—bone-in and boneless. The former category, made up mostly of chicken

from the United States, enjoyed a tax reduction from 20 per cent to 17.5 per cent, then to 13.8 per cent in December 1981 (Saito 1985). At Thailand's urging, Japan reduced the duty on boneless chicken from 20 per cent to 18 per cent in April 1984, to 14 per cent in January 1986, and to 12 per cent in 1989 (Miyazaki 1986; Nikkei *Sangyo Shinbun*, 13 June 1986; *Prachachat Thurakit*, 1 February 1989). As a result, boneless chicken imports from Thailand to Japan increased.

It should be noted that the government did not control the slaughter of chicken as it did the slaughter of cattle and swine (World Bank 1987). Even before the emergence of the modern broiler industry in Thailand, many merchants had already been engaged in chicken slaughtering, and the government continued to allow private enterprises to play the major role in the business (Puaphonsakon 1980; JETRO 1984).

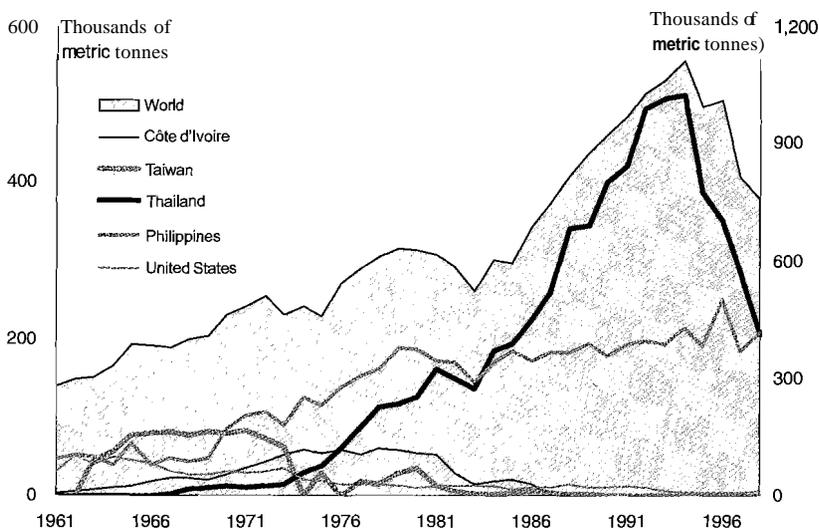
Canned pineapple

World trade in canned pineapple has increased constantly for many years (Figure 8.10). Thailand entered this export market in the late 1960s and became a major exporter in the late 1970s. Even though it was a latecomer compared to other exporters, in less than a decade from the time of its entrance it became the second largest exporter after the Philippines, and it overtook the Philippines in 1985.

Thailand increased its exports and for a time controlled half the world market. When the United States, the largest importer of canned pineapple, imposed anti-dumping duties on the Thai product in July 1995, the volume of Thai canned pineapple exports decreased drastically (Chulalongkorn University 1997). In 1998, however, Thailand was still the second largest canned pineapple exporter, after the Philippines.

The major markets for Thai pineapple are the United States, Europe and Japan. In the United States, up until the 1950s, Hawaii was the major pineapple-producing area. In the early 1960s, rising land and labour costs in Hawaii caused the major producers to move overseas (Business in Thailand 1976). As US pineapple production decreased, US imports of canned pineapple increased. The Philippines and Thailand both seized this opportunity, though each in its own way. The major US producers and distributors, such as Dole and Del Monte, moved out of Hawaii and established their plantations and processing factories in the Philippines, which became the top exporter in about 1970. Canned pineapple production in Thailand, on the other hand, began in

Figure 8.10 Exports of canned pineapple from major producing countries



Source: 1963–72: Taiwan Canners Association, 1972. *Taiwan Exports of Canned Food, 1972*, Taiwan Canners Association, Taipei; 1973–78: Department of Farmers Service, Taiwan, 1982. *Agricultural Trade Statistics of Taiwan, R.O.C.*, Department of Farmers Service, Taiwan, Taipei; 1979–85: Taiwan Statistics Office, 1986. *Agricultural Trade Statistics of Republic of China 1985*, Council of Agriculture, Executive Yuan, Taipei; 1986–93: Taiwan Statistics Office, 1994. *Agricultural Trade Statistics of Republic of China 1993*, Council of Agriculture, Executive Yuan, Taipei; others: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

a government factory and was aimed only at the domestic market (Kiatpanapikul 1978). The first factory to produce for the export market—the Thai Pineapple Canning Industry—was established in 1967 as a joint Thai–Japanese venture (ESCAP 1979), and was supplied by already existing domestically oriented pineapple producers. Another Thai firm built a processing plant in 1970, and a year later Dole entered Thailand. Up until the mid 1970s, Thailand had eight large factories producing for export. These factories purchased 70–80 per cent of their pineapples from small farmers and the balance from their own plantations (ESCAP 1979; *Bangkok Post*, 12 January 1987).

Though foreign investment gave the Thai canned pineapple industry its start, Thai firms were quick to respond, and domestic capital has always dominated production in the country. In 1978, Dole's share of production was only 18 per cent. Pineapple canneries continued to be built until 1996, when their number passed 30, and this expansion made Dole's share of the market even smaller (Chulalongkorn University 1997).

In the US market, Thailand's largest competitor was the Philippines. Del Monte had had a plantation in the Philippines since the 1920s; Dole entered the country in 1963 (Hayami et al. 1988). This foreign investment enabled the Philippines to increase exports rapidly in the 1970s, with Dole and Del Monte dominating the industry (IADP, CRC c. 1996). In the 1980s, however, as investment from new countries enabled Thailand to increase production, plantation expansion in the Philippines became nearly impossible and wages soared, leading to the stagnation of the country's exports (Ministry of Industry c. 1985; Business Review 1984). Philippines pineapple exports also suffered from political instability and natural disasters (Rakthammakit 1990; Kiatikamchai 1992; Chakatpanyawai 1992). In Thailand, on the other hand, because of the large domestic and fresh market, a large area had been planted in pineapple from the beginning, and enough pineapple was produced to increase the country's exports. Reorienting production from domestic to export markets, however, was only possible with the cultivation of a new variety of pineapple. From the late 1970s onwards, though harvested area remained stable, exports increased rapidly (Figure 8.11).

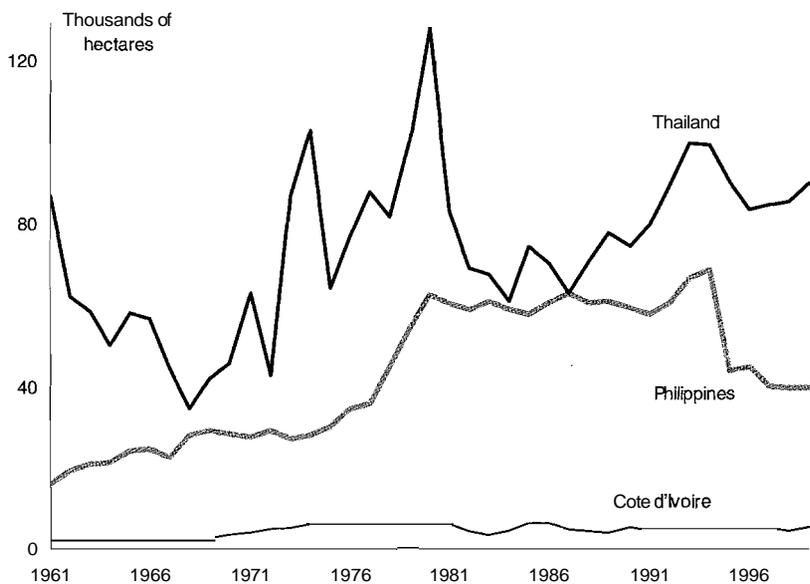
Another important market for Thai pineapple exports was Europe, where CBte d'Ivoire was the major competitor. This African country had a transportation advantage over Thailand; also, as a former French colony, it was exempted from import taxes (The Investor, 9–11 July 1976). CBte d'Ivoire's pineapple-planted area, however, was only about 10 per cent of Thailand's. This disparity enabled Thailand to increase vastly its pineapple exports to Europe during the period 1975–90.

In addition to the Philippines and CBte d'Ivoire, Taiwan and Malaysia were also competitors in canned pineapple exports. Taiwan, however, faced the same problem of high land prices and wages as Hawaii, and it withdrew from the export market in the early 1980s. Meanwhile, Malaysia soon turned to oil palm, which was more profitable than pineapple (Kiatpanapikul 1978).

Even before it entered the export market, Thailand's capacity to produce pineapple was large. The only resource lacking was capital. Thus, while foreign firms invested first in Thai pineapple canneries, Thai firms were quick to follow. Though unable to sell their products in the United States under their own brand names, they could sell raw material to well-known distributors.

Government investment promotion policies supported this industry. All factories established in the 1970s benefited from the Board of Investment (*The Investor*, 13–18 July 1976; Kiatpanapikul 1978); later, factories located in provincial areas received special privileges, such as tax exemptions on imported equipment. In addition, foreign investors were granted the right to own land, received guarantees that their land would not be nationalised, and were allowed to transfer money to other countries.

Figure 8.11 Pineapple-harvested area in the Philippines, Thailand and Côte d'Ivoire



Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.htm>.

PRODUCTION RESPONSES TO MARKET OPPORTUNITIES

As noted above, Thailand has successfully responded to demand from overseas for certain agricultural commodities by quickly adapting production to market changes. In this section, we analyse the resources and institutions that enable robust agricultural production.

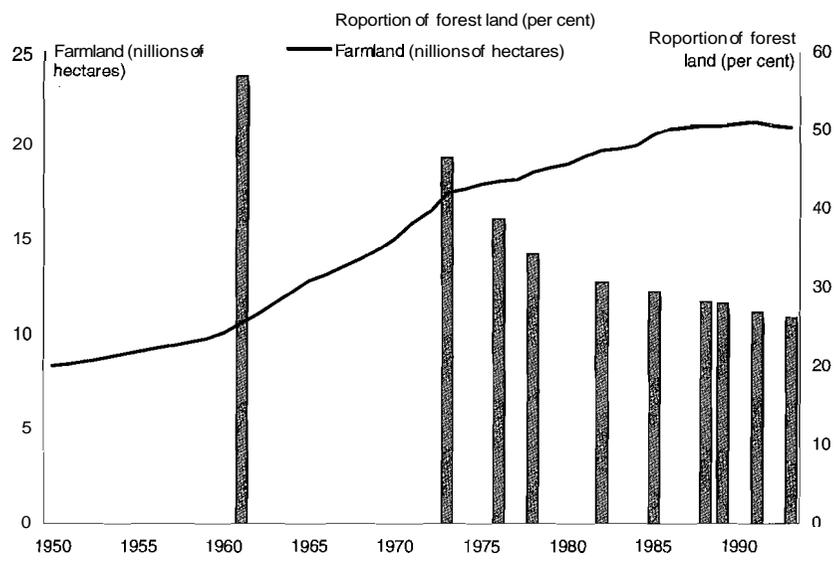
Land *resources* and *the* land *system*

During the export boom period, all of the export commodities discussed in the previous section except chickens rapidly expanded their planted area. Thailand could expand its farmland because large areas of land had not yet been occupied or cultivated in the 1950s. When overseas demand reached Thai farmers, this unused land was converted to farming. Farmland expansion was conspicuous in the 1960s but slowed in the mid 1970s (Figure 8.12). Production increases in maize, cassava and kenaf occurred at the same time as this rapid farmland expansion; other commodities enjoyed production increases at different times. The considerable increase in rice exports occurred in the late 1970s, rubber exports increased rapidly from the early 1980s onwards, and sugar became a major export commodity after the late 1970s. Meanwhile, canned pineapple exports soared without adding new production areas.

Farmland could only expand if forest was sacrificed (Figure 8.12). As late as 1961, Thailand's ample flats and gentle slopes were covered with forests, especially in the Northeastern region. By 1988, forest area in the Northeastern region had declined to one-third the 1968 area. In the mountainous, upper Northern region, it declined by only 20 per cent.

Moreover, the land system allowed and even promoted occupation of forest areas, which the government defined as public land but also allowed farmers to clear for productive use, since it could not provide any revenue to the government as forest. If people occupied a certain plot of land (*chap chong*), the government issued them a certificate called *bai chong*. If they turned this plot into farmland within a certain period, they received a land title or a certificate equivalent to land ownership. Land titles, however, could only be drawn up on the basis of cadastral maps, and the government's progress in cadastral surveying, begun at the beginning of the twentieth century, was very slow, which meant that most land titles were issued in the 1990s. Certificates equivalent to land ownership, on the other hand, were given out increasingly rapidly from the late 1970s onwards (Department of Land 1976, 1992).

Figure 8.12 Trend of farmland expansion and proportion of forest land



Source: Office of Agricultural Economics, 1979. *Land Utilization of Thailand 1950/51–1977/78*, Office of Agricultural Economics, Bangkok; Office of Agricultural Economics, 1991c. *Kan chai thidin phuea Kan kaset khong prathet thai pi 2534* [Land utilisation for agriculture in Thailand, 1991], Office of Agricultural Economics, Bangkok; Royal Forestry Department, 1988. *Forestry Statistics of Thailand 1988*, Royal Forestry Department, Bangkok; Royal Forestry Department, 1996. *Forestry Statistics of Thailand 1996*, Royal Forestry Department, Bangkok.

Delays in government certification did not prevent people from occupying forests, however, since local people could take possession of unoccupied land through common recognition among neighbours. Certain wealthy people also laid claim to large areas of forest, seeking capital returns. In 1988, uncontrolled deforestation caused a landslide in Southern Thailand, moving the government to consider forest protection and to ban occupation of forestland.

Infrastructure affecting farmland expansion

Road construction also affected farmland expansion (Mundlak 1997). One of its positive effects was to give regional farmers access to world markets, as for example when the major cassava and kenaf production

area in the Northeastern region was connected to Bangkok by a national highway in the 1960s (Phongpaichit and Baker 1995; Siriprachai 1987). Other effects of road construction on farmland expansion, however, are the subject of considerable disagreement. A study on the dynamics of Thai agriculture during the period 1961–85 carried out by the Thailand Development Research Institute (TDRI) found that the coefficient between farmland expansion and road length was low (TDRI 1988) and that road construction in fact tended to intensify land use. When Tongpan (1970) summarised the factors related to maize area expansion, he attributed greater importance to malaria eradication than road construction. Cropper, Griffiths and Mani (1997) also found the coefficient between road construction and farmland expansion to be low, but concluded that more than 30 per cent of deforestation was caused by the increased road density. There is clearly no agreement about the specific effects of road construction on farmland expansion, though all observers agree that road construction in one way or another positively affects agricultural development.

Irrigation is also important for arable land expansion, but quantitative data on farmland increases caused by irrigation construction have yet to be collected. For dry-season planting, only data for paddy are currently available. The area of the land planted in dry-season paddy has been about 7 per cent of total paddy land for many years, indicating that land planted in the dry-season crop has expanded less rapidly than land planted in the rainy-season crop.

Agricultural research **and** extension

Improving productivity is another way to increase overall production. The crops considered to have most increased productivity as a result of agricultural research and/or extension are rice, rubber and maize, with the increase for rubber the most dramatic (Table 8.8). Sugarcane also experienced a notable yield increase in the 1960s, because it was planted on newly cleared—and very fertile—land. After it began to be exported in the 1970s, however, yields stagnated until very recently.

Rice yields also increased. The yield hike that occurred during the 1960s was brought on by the expansion of irrigation systems in Central Thailand, which stabilised water procurement in rain-fed paddy fields, and by new cultivation of rich forest land in the Northern region. From the late 1970s onwards, dissemination of new varieties and irrigation

expansion were major factors contributing to increased yields (Dixon 1999). This was the period when Thailand responded to increased export demand, and dissemination of new varieties and dry-season paddy cultivation enabled it to compete with its rivals, especially the United States.

Even before the Second World War, the Thai government had established a research institute to run a seed improvement program. After the war, the FAO and the World Bank strongly recommended seed improvement, with the World Bank providing considerable funding in support of Thailand's program (World Bank 1959).

Following the establishment of the International Rice Research Institute (IRRI) in the Philippines, the Thai government embarked upon a joint research program with IRRI in 1966 (Ministry of Agriculture and Cooperatives 1992). This research program produced RD1 (in Thai, *Ko.Kho.I*), which it released in 1969 (NESDB 1978). RD1 inherited the characteristics of IR8: non-photoperiod sensitivity, short growth period, short stalk, and yields three times greater than those of indigenous varieties (NESDB 1978; Welsch and Tongpan 1973). Research and extension activities were not limited to introducing new varieties; indigenous varieties were also improved. The improved indigenous varieties were broadly disseminated for a rainy-season crop, while RD varieties were dominant for the dry-season crop.

The improved varieties soon became popular. In 1971, Sriswasdilek (1973) surveyed three villages in the Don Chedi District of Suphan Buri province, one of the most progressive rice-growing areas in Thailand, and found that 41 per cent of the rainy-season crop area was planted in high-yielding varieties (HYV). At the time, modern varieties (including improved indigenous varieties) prevailed only in the irrigated area; later, however, they became dominant in other areas as well (Setboonsarng et al. 1991). In 1986, 95 per cent of rain-fed paddy in Northeastern Thailand and 66 per cent of rain-fed paddy in Northern Thailand were covered by the modern varieties, while in the irrigated areas of the Central, Northern and Northeastern regions, the dissemination rate reached 89 per cent, 77 per cent and 95 per cent respectively.

During the years when Thailand was becoming the top rice exporter, seed improvement and dissemination were already well underway. Research was almost always carried out by the government, which distributed successfully improved varieties to selected farmers for

Table 8.8 Yield trends for seven crops, 5-year averages with base year of 100

	Rice	Rubber	Maize	Sugarcane	Cassava	Kenaf ^a	Pineapple ^b
1961–64	100	100	100	69	100	100	n.a.
1965–69	102	98	105	87	94	96	n.a.
1970–74	108	94	110	100	84	76	n.a.
1975–79	102	99	106	98	91	86	100
1980–84	111	106	116	90	98	84	91
1985–89	117	199	122	104	88	89	94
1990–94	123	304	137	103	84	107	95
1995–99	132	363	172	123	88	107	91

^a 'Jute-like' fibres in the original database.

^b Yield data from before and after 1975 are inconsistent.

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT, FAO online database, <http://apps.fao.org/default.hm>.

multiplication. These farmers then disseminated the improved varieties. Of the total production increase from 1974/75 to 1984/85, 26 per cent came from the dry-season crop. While Siamwalla et al. (1990) argue that irrigation did not contribute to improved labour productivity in Thai agriculture, it clearly played a significant role in increasing total production during the period when world rice demand surged.

Improved varieties of maize have also been successful in Thailand. When the area planted to maize began to expand rapidly, a cooperative program between the Thai and US governments introduced the Guatemala variety (Muscat 1990; Setboonsarng 1990), which produced much higher yields than traditional varieties. In 1956, Thai breeders started research to develop Phra Bhutthabat (PB) varieties from Guatemala (CPCDT c. 1962; NESDB 1979). In the mid 1960s, a group of Thai breeders returned from studying in the United States and joined a maize improvement program supported by the Rockefeller Foundation (Setboonsarng 1990).

The first Phra Bhutthabat variety was released in 1965, and by 1974 the share of Phra Bhutthabat varieties had climbed to 80–90 per cent of the total area planted to maize (Setboonsarng 1990). A year after release, Phra Bhutthabat varieties were affected by downy mildew,¹ despite having performed better than Guatemala during research trials. The government then developed a resistant variety, *Suwan I*, and released it in 1974. By

1981, this variety had been adopted by about 75 per cent of farmers (Setboonsarng 1990), and in later years was used as the basis for developing hybrid maize. The government improvement program that developed these maize varieties is considered a success (TDRI 1995).

Rubber also contributed to the successful growth of agricultural exports, with new varieties being replanted from the late 1970s onwards. A rubber tree will start to yield latex at an age of seven years, thus areas replanted in the late 1970s provided the mid 1980s yield increases that allowed Thailand to expand its exports.

Up until 1976, money from the government budget and a levy on rubber exporters supplied the funds for replanting, but this was not enough to expand the planted area. A 1977 loan from the World Bank made possible more, and more rapid, land expansion. Most of the replanted trees were of the PRIM600 variety developed in Malaysia (Picciotto and Kopp 1994). While the loan and the variety on which the increased production of the 1980s was based came from outside the country, nonetheless the government's replanting program was also crucial to the success of rubber exports.

Supply and demand for capital and capital goods

Fertiliser and machinery have been important factors in the development of Thai agriculture since the Second World War. Four-wheel tractors, useful for clearing forests (TDRI 1988), tended to be owned by rich farmers and merchants, and hired by small farmers to clear and cultivate their land (Moerman 1968). The two-wheel tractor (power tiller) has been the most popular machine among small farmers, but there is disagreement about whether this machine helped farmers to increase output or decrease production costs.

Fertiliser was an important factor in the increase of production volume. Siamwalla et al. (1987) argue that fertiliser's contribution to improved productivity has not been statistically proven. While it is true that up until the 1980s, the volume of fertiliser input per acre in Thailand was much lower than in neighbouring countries, this does not necessarily mean that higher rates of fertiliser did not contribute to increased production.

The largest portion of fertiliser (30–50 per cent) has been used for paddy cultivation. Fertiliser input per unit of area increased considerably from the mid 1970s, because dry-season paddy, which requires 7–8

times more fertiliser than a rainy-season crop, was expanding at the time. Beginning in the 1980s, inputs for rainy-season paddy also increased, to the point where the volume of fertiliser used in 1985 was twice that used in 1975. These increases were also made necessary by the introduction of new varieties, since most upland crops need much more fertiliser than does rice.

The government began promoting fertiliser very early in the process of development. In 1963, though fertiliser had already been produced domestically, the government established the Thai Fertilizer Co. and allowed it to monopolise fertiliser imports so as to keep the domestic price high (Manarungsan 1976; Prichametta 1996). Government control ended in 1973, however, and ever since, except for a short period in 1978, fertiliser imports have been carried out without government intervention (Siamwalla and Setboonsarng 1989).

During this period of duty-free fertiliser imports, Thailand was affected by two world oil crises, one of the effects of which was to cause world fertiliser prices to soar. In 1973, a natural gas field was found in the Gulf of Thailand, and the government began a new project of domestic fertiliser production. Because it failed to persuade private companies to invest in this project, the government was forced to become the main investor (Prichametta 1996).

To distribute cheap fertiliser to farmers, the Marketing Organization for Farmers, a government agency, sold fertiliser below the market price and allowed farmers to pay for it after the harvest (Tongpan 1993). Bungling by the government and its agent, however, often caused fertiliser to be distributed too late. Government-promoted farmer groups distributed fertiliser to individual farmers, but problems occurred in money collection (Phasuk 1985). Since then, most farmers have purchased fertiliser from merchants in markets.

The situations of sugarcane and rubber are different. Sugar factories extended loans, partly subsidised by the government, to their contract growers. Meanwhile, at the time of the replanting of rubber, fertiliser for rubber was distributed for free.

The government has also implemented a program for farmers to acquire production capital. In the 1970s, informal sources of funding came to be partly replaced by formal loans (Table 8.9). The most important institution in this respect is the BAAC, which provides loans to farmers and farmer organisations at a lower interest rate than commercial lenders.

The expansion of the BAAC's service, however, remained limited up until the late 1980s, when the majority of Thai farmers became clients. Siamwalla et al. (1993) argue that in the 1980s, the BAAC's clients were mainly better-off farmers, and that most farmers could not access its or the co-operatives' loans because more than 40 per cent of these loans were collateralised by land. Because the collateral was indispensable for a long-term loan but land titles took so long to be issued, most farmers found it impossible to acquire low-cost capital.

Table 8.9 Origin and share (per cent) of loan amounts during farm year per farm household"

	1953 ^b	1962	1978/79	1980/81	1986/87	1988/89
Non-institutional	83.4	93.0	36.1	42.1	29.6	28.1
Relatives	43.8	32.0	12.7	10.9	7.5	4.8
Neighbours	n.a.	15.0	9.0	9.0	4.6	5.3
Private businesses	39.8	46.0	14.3	22.2	17.4	17.9
Institutional	15.2	5.0	63.9	57.9	70.5	71.9
BAAC		-	35.4	26.7	45.5	46.0
Commercial banks	0.0	n.a.	9.4	11.5	10.5	14.3
Cooperatives	15.2	n.a.	17.0	16.3	12.8	10.1
Farmers Groups	-		2.0	3.1	0.9	0.3
Others	n.a.	n.a.	n.a.	0.4	0.7	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

^a Figures represent average farm household loans calculated on the basis of total households, including those that did not borrow.

^b Figures for 1953 are adjusted from original data that show average farm household loans calculated on the basis of households that actually borrowed.

Source: 1953: Office of the Under-Secretary of State, Ministry of Agriculture, 1955. *Thailand Economic Farm Survey, 1953*, Office of the Under-Secretary of State, Ministry of Agriculture, Bangkok; 1962: Thisyamongdol, Arromdee and Long, 1965. *Agricultural Credit in Thailand: theory, data, policy*, Kasetsart University, Bangkok; 1978/79: Office of Agricultural Economics, 1980. *Phawa nishin khong kasetrakon pi kan pho pluk 2521/2522* [Situation of farmers' debt, 1978/79], Office of Agricultural Economics, Bangkok; 1980/81: Office of Agricultural Economics, 1983. *Phawa nishin khong kasetrakon pi kanpho pluk 2523/2524* [Situation of farmers' debt, 1980/81], Office of Agricultural Economics, Bangkok; 1986/87: Office of Agricultural Economics, 1988. *Nisin kasetrakonpiphopbk 2529/30* [Farmers' debt, 1986/87], Office of Agricultural Economics, Bangkok; 1988/89: Office of Agricultural Economics, 1991a. *Nisin kasetrakonpiphopbk 2531/32* [Farmers' debt, 1988/89], Office of Agricultural Economics, Bangkok.

Agribusiness and investment promotion policy

An important role in the change of production systems to enable farmers to meet overseas demand for Thai exports was played by agribusiness. Agribusinesses were especially helpful in the maize, rubber, sugar, canned pineapple, and frozen chicken sectors.

In the years preceding the release of the maize variety *Suwan I*, the government played a significant role in seed improvement; in 1980, private companies entered the business and developed hybrids from *Suwan I*, the first of which was Charoen Pokphand's DK 888, released in 1982. From 1985 onwards, subsidiaries of major international agribusinesses dominated the sector (Setboonsarng 1990). Even for *Suwan I*, an open-pollinated variety, the private sector plays a significant role in multiplying and distributing seed, since the production capacity of the government is limited. In 1987, 20 per cent of *Suwan I* was produced by the private sector (Setboonsarng 1990). It has become common for the government to cooperate with the private sector in research and development, with government research institutes providing manpower and the use of facilities to the private sector, and amicable relations among the researchers facilitating data sharing (Setboonsarng 1990).

For Thai exporters to compete with other countries in rubber and sugar, factory-level quality and productivity had to be improved. Quality improvement of rubber sheets was realised through the efforts of Thai smokehouses and their Japanese counterparts. Sugar refineries have expanded their capacity to the highest level in the world and reached high levels of productivity. Canned pineapple and frozen chicken were introduced by agribusinesses, which expanded exports by competing with each other and received investment promotions from the government.

The Thai government's investment promotion policy began with the establishment of the Industrial Promotion Committee in 1954. In 1960, the first Investment Promotion Act (IPA) was enacted and the Board of Investment (BOI) set up to make decisions on promotion. The 1954 law had already defined tax exemptions and reductions on imported equipment, imported raw materials, business income and export duties. Until the third version of the IPA was enforced in 1962, however, promotions tended to be given to investors who had connections with powerful politicians (Chantharanimi 1988).

The situation began to change in 1966, with the establishment of the secretariat of the BOI, whose chief was elected from among technocrats. The BOI became increasingly independent from political influence. In 1977, when a new regulation declared that the chair of the BOI would automatically be occupied by the Prime Minister, the institute acquired much greater authority than before (Chantharanimi 1988; BOI 1978). While it has never given special treatment to the agro-industry sector, the IPA's policy of promoting industries located in provincial areas has effectively meant agribusinesses receive more privileges than other industrial sectors. This was the institutional background that stimulated investment in canned pineapple and frozen chickens in the mid 1970s. During the second half of the 1980s, when the government emphasised NAIC-type development, the share of net direct foreign investment in agriculture and food processing increased.

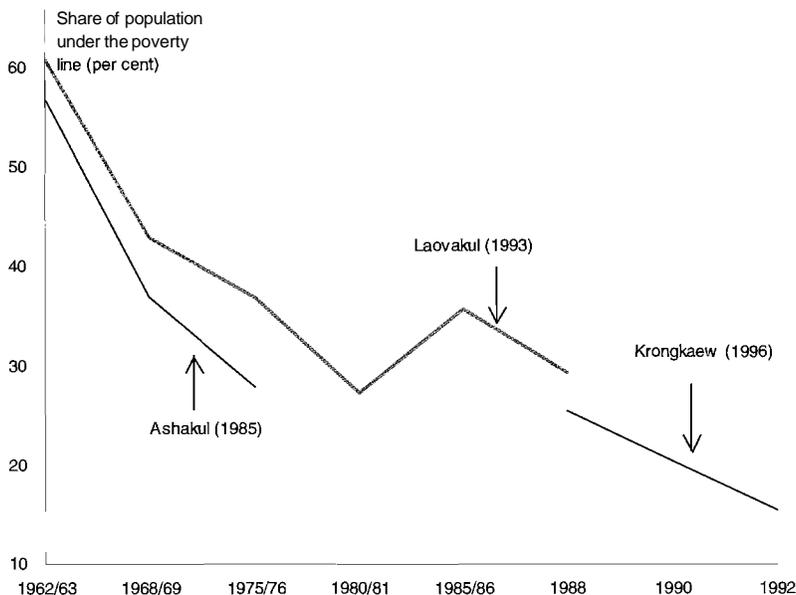
ALLEVIATING POVERTY: SUCCESSES AND FAILURES

Reduction of absolute poverty

Thailand is often cited as an example of a country that has successfully reduced rural poverty in absolute terms (World Bank 1996; UNDP 1999). While researchers have used different methods to calculate the incidence of poverty in Thailand (Krongkaew c. 1981), the results of such research generally show similar trends for rural poverty (Figure 8.13). At the beginning of the 1960s, 60 per cent of the rural population lived below the poverty line; within two decades, however, the figure had dropped to less than 30 per cent. During the first half of the 1980s, because of falls in the world prices of agricultural commodities, especially rice, the incidence of poverty increased, returning to the level of the mid 1970s. Soon, however, it went down again; in 1992, the rural poor made up less than 20 per cent of the population.

Several social indicators of rural non-income poverty have also improved. In the mid 1970s, most of the rural population relied on public wells and rivers for water; in 1998, nearly one-half had water piped into their houses. In the mid 1970s, nearly 70 per cent of rural people had no toilet facilities; in 1998, the figure was negligible. In 1975, only 7 per cent of rural households had electricity; the census of 1990 showed that households without electricity were very scarce. Since the early 1970s, life expectancy at birth has increased by ten years;

Figure 8.13 Incidence of rural poverty in Thailand



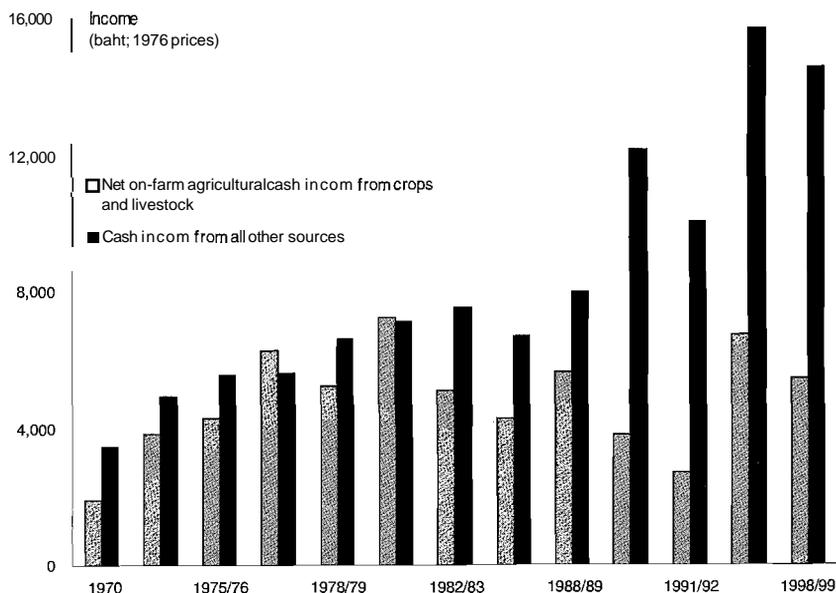
Source: Laovakul, Duangmanee, 1993. *Decomposition of Income Inequality and Poverty in Thailand*, Thammasat University, Bangkok; Ashakul, Charuma, 1985. *Income Distribution in Thailand: an analysis with policy implications*, University Microfilms International, Ann Arbor; Krongkaew, M., 1996. *Thailand: poverty assessment update*, Thammasat University, Bangkok.

meanwhile, the infant mortality rate has declined to about one-half the rate of the 1970s. From the mid 1970s to 1994, the number of physicians and nurses per head of population roughly doubled.

The lower incidence of rural poverty can be partly attributed to increased farm household income. Between 1970 and 1995, the average cash income of a farm household increased from about 5,400 baht to about 21,000 baht (deflated by CPI). Up until about 1980, net on-farm income and other income increased; from the 1980s onwards, however, farm cash income deflated by CPI declined, while other income increased very rapidly (Figure 8.14). This suggests that Thai farmers enjoyed a considerable rise in income during the commodity boom of the 1970s, but had to rely more on off-farm and non-farm income after it.

Despite significant exports, farm income did not increase in real terms. From the late 1970s onwards, world commodity prices stagnated and even dropped. Because Thai agricultural commodities are delivered from farms to ports for shipment through free market channels, farm prices reflect world market prices. In the mid 1970s, because farmland in Thailand was reaching the limits of its expansion, average farm size began to decrease. Farmers responded to this situation by seeking income sources off the farm rather than intensifying productivity. Among the sources of off-farm income, 'non-farm custom work' and 'salaries' have become increasingly important, while income from 'hired farm work' has decreased in importance. Few opportunities remain for farmers to increase their incomes in rural areas, thus urban areas have become more important to the farm household economy.

Figure 8.14 On-farm and off-farm income trends, 1976 prices



Source: Bank of Thailand, various dates [a]. *Monthly Report*, Bank of Thailand, Bangkok; Office of Agricultural Economics, various dates [b]. *Raidai raichai khong kasetrakon* [Farmers' Income and Expenses], Office of Agricultural Economics, Bangkok.

Rural development policies and non-income poverty alleviation

Government rural development policies have played an important role in the alleviation of non-income poverty. In this context, 'rural development' refers to deliberate activities to deliver resources to rural people in order to enhance their welfare. In the late 1950s, the Thai government formed a specialised agency for rural development and began to create a system for resource distribution (Yingvorapunt 1966). In 1962, the agency became the Community Development Department (CDD) of the Ministry of Interior.

Up until the 1970s, Thailand's rural development policy was directed against anti-government and communist movements in rural areas. The first program for rural development involved the creation of a Mobile Development Unit (MDU), to be operated by the army with assistance from the United States, which feared another communist country in Asia. The MDU was deployed to remote areas, where it constructed roads and bridges and provided medical services (Huff 1967; Judd n.d.; Mingmaninakhin 1988).

In the 1970s, the threat of communism became more realistic. In 1975, the Kukrit government embarked upon the Tambon Project, injecting 500,000 baht per *tambon* (sub-district) to enable people to carry out infrastructure projects (Phiphatseritham 1975). About 55 per cent of the total budget was used for road construction, while 26 per cent was spent for water resource development (Nonaka 1983).

Just one year before the implementation of the Tambon Project, the CDD began to promote savings groups (Woradilok 1984), or micro-finance organisations formed by local people to pool money for borrowing and lending among themselves. This was the first time rural Thais had taken the initiative to organise themselves and manage their own resources for economic development.

After 1976, when the student and peasant movement was brutally crushed by the government, many activists joined the Communist Party of Thailand (CPT). The anti-government movement became stronger and more determined than ever, despite military operations led by the Thanin government. In late 1977, the hardline Thanin government was ousted by the army, led by General Kriangsak, who took a more lenient attitude towards anti-government activists. Kriangsak declared 1979 the Year of the Farmer and planned a rural development program

for less developed areas. Because Kriangsak resigned soon after the start of the program in 1980, however, this program bore no fruit. The office of head of state was then occupied by General Prem Thinsulanonda, who had formerly been the army commander in the Northeastern region, where he had tried to weaken communist influence through rural development projects. Under the Prem government, the fifth five-year development plan (1982–86) set rural development as its main target, and a new policy framework for rural development called the National Rural Development Program (NRDP) was formed.

Coordinated by a national committee headed by the Prime Minister, the NRDP included various government agencies' projects aimed at making activities more effective, and also persuaded rural people to participate in project conception and creation, and the formation of development-oriented organisations. During the period 1982–86, this framework was typically applied to the Poverty Area Program (PAP), in which the ministries of the Interior, Agriculture, Public Health and Education joined to create 34 projects for villages identified as 'poor' in Northeastern, Northern and Southern Thailand. These projects could be placed in three categories: projects that promoted communal activities at a village level; projects to enhance production under poor agricultural conditions; and projects for basic human needs (BHN), mostly for public health care and non-formal education (Shigetomi 2000).

Among the positive effects of these projects, according to the Village Database Survey implemented every two years, was to cause the indicators of BHN and infrastructure related to livelihood to rise from 1982 to 1986. Projects designed to improve agricultural production and farm income, however, were not satisfactory (NESDB n.d., 1985, 1991).

Infrastructure development has formed the core of all government rural development programs, which include construction of rural feeder roads, creation of rural off-farm employment opportunities, meeting basic human needs, and provision of medical services and primary healthcare. Since the 1980s, participation and organisation by rural people have also become key elements. In the late 1970s and early 1980s, following the success of the savings groups, many other projects to organise local people were formed (Shigetomi 1998). A fund to support local organisational activities was established under the NRDP, and upgraded to an independent institution for community activities in 2000.

Most of these projects could be implemented by transferring resources, including information, through organisational channels from resource providers (such as government and non-government agencies) to local people. Thus, infrastructure construction and the BHN approach have helped raise living standards for the rural population for more than three decades.

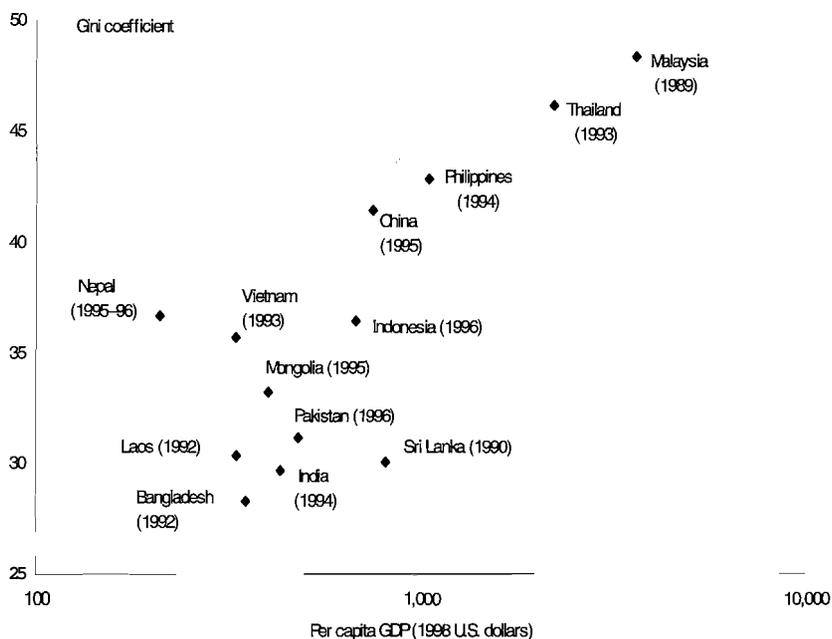
Disparity between rural and urban areas

Despite the reduction of absolute poverty in rural areas, poverty in relative terms persisted and in some cases even increased. Gini coefficients calculated by various scholars show a similar trend in income disparity. Most figures indicate that the income gap in Thailand increased up until the early 1990s, then began to narrow. After the economic crisis, however, the gap seemed to widen again, to the point where the income gap in Thailand is serious compared to that in neighbouring countries. Among developing countries in Asia, Thailand scores second highest in Gini coefficients (Figure 8.15). Moreover, among Asian countries, Thailand alone increased its income gap from 1972 to 1992 (World Bank 1996:15; Ikemoto 1991:24–5).

The income disparity between urban and rural dwellers is reflected in the Gini coefficient. From 1975 to 1986, the gap between average monthly expenditures in rural and urban areas in Thailand widened (Table 8.10). After 1994, however, the width of the gap clearly trended downward. The widening rural–urban gap can be partly explained by the income structure of farm households. After the 1980s, non-farm income was becoming a major part of the farm household's income, with farmers increasingly relying on non-farm work for income.

Job opportunities in urban areas, however, have not necessarily been stable for immigrants from rural areas. In the 1960s, most jobs were found in the service sector, which absorbed many female migrants as domestic service workers. In manufacturing, most women labourers were hired in the textile mills, which at the time were taking the lead in the sector. Male immigrants, on the other hand, could not easily find jobs in the formal manufacturing sector, and many were hired as construction workers and taxi drivers. From 1960 onwards, the manufacturing sector continued to grow, hiring more people than other sectors. Meanwhile, the metal and machinery sector also showed conspicuous growth.

Figure 8.15 Distribution of per capita GDP and Gini coefficients among selected Asian countries



Note: Per capita GDP is from 1998. The Gini coefficients are based on data from various years, indicated in parenthesis for each country.

Source: World Bank, various dates. *World Development Indicators*, World Bank, Washington DC. Available online at <http://www.worldbank.org/data/onlinebases/onlinebases.html>.

Table 8.10 Average monthly expenditure per household by area (baht per month)

	1975	1986	1990	1992	1994	1996	1998
Rural	1,619	3,011	4,129	4,751	5,817	6,919	7,889
Urban	3,151	6,020	7,726	9,447	10,702	12,739	13,446
Urbanrural	1.95	2.00	1.87	1.99	1.84	1.84	1.70

Source: National Statistical Office, various dates. *Report of the Household and Socio-Economic Survey, Whole Kingdom*, National Statistical Office, Bangkok.

Though increasing numbers of rural workers were absorbed into the urban sector, nonetheless job opportunities remained unstable, and about one-half of rural-to-urban migrants returned to rural areas (Table 8.11). This pattern of urban-to-rural return migration was apparent for people above 30 and below ten years old, suggesting that migrants to urban areas tended to return home with children when they became old enough to have them. Their movements can be explained by the characteristics of employment opportunities in large cities, especially Bangkok and the surrounding area. Comparatively stable and high-paying jobs in large factories (producing garments and electrical appliances, for example) were offered to young and mostly female labourers. This employment structure for rural people, which formed in the 1960s and continued to operate until very recently (Shigetomi 1995b), may have prevented a drastic decrease in the rural population of Thailand.'

The uncertainty of urban jobs for migrants from rural areas is related to their level of education. According to the World Bank (1996) in 1988 and 1992, education level determined 34 and 44 per cent of income inequality respectively. There is a clear gap, especially for secondary and higher educational levels, between the urban and rural employed population (Table 8.12), but the gap is declining rapidly because most rural parents provided a secondary education to their children after the 1990s.

Since rural people are employed in unstable jobs compared to those who grew up in urban areas, the income gap cannot be reduced without enhancing farm income. The government started an agricultural price intervention program in the 1970s and even tried to control agricultural production after the late 1980s. Today, most agricultural policies, implicitly or explicitly, aim to increase farmer income rather than productivity.

Agricultural price policies

In its first attempt at price intervention for rice in 1975, the government forced rice mills to buy paddy at a higher-than-market price. Severe criticism of the scheme from consumers, however, forced the government to abolish it (Christensen 1993). Since this failed attempt, the government has taken repeated measures to support the paddy price. These measures fit into four categories (Tongpan 1993)

Table 8.11 Migration patterns between rural and urban areas by age group ('000 people)

Age group	1965–70			1975–80			1985–90		
	Rural to urban (a)	Urban to rural (b)	(a)–(b)	Rural to urban (a)	Urban to rural (b)	(a)–(b)	Rural to urban (a)	Urban to rural (b)	(a)–(b)
5–9	27.7	30.2	–2.5	23.7	34.7	–11.0	28.5	38.3	–9.8
10–14	39.7	23.6	16.1	35.2	25.5	9.7	47.2	32.2	15.0
15–19	81.2	19.0	62.2	108.0	29.9	78.1	179.8	48.2	131.6
20–24	85.7	24.3	61.4	110.3	54.5	55.8	207.4	141.3	66.1
25–29	40.5	21.5	19.0	60.4	46.0	14.4	112.5	86.6	25.9
30–34	25.3	16.6	8.7	32.7	24.4	8.3	64.4	56.6	7.8
35–39	15.8	14.2	1.6	17.7	21.8	4.1	33.6	31.9	1.7
40–44	10.2	11.0	–0.8	11.2	15.4	4.2	21.1	24.4	–3.3
45–49	6.3	5.8	0.5	6.8	8.0	–1.2	14.7	16.9	–2.2
50–54	4.4	5.0	–0.6	4.9	6.2	–1.3	10.9	10.7	0.2
55–59	3.3	3.2	0.1	3.0	5.5	–2.5	6.8	8.2	–1.4
60–64	2.7	2.4	0.3	1.0	2.6	–1.6	4.7	5.6	–0.9
65–	4.3	3.3	1.0	3.7	3.8	–0.1	6.8	8.0	–1.2
Unknown	0.9	0.3	0.6	–	–	–	–	–	–
Total	348.0	180.4	167.6	420.6	278.3	142.3	738.4	508.9	229.5

Note: The total figures for rural to urban migration in the original dataset do not match the sum of the rows.

Source: National Statistical Office, various years. *Population Census Subject Report No. 2: migration*, National Statistical Office, Bangkok.

- the government or its agents purchase rice from farmers, traders and millers at a supported price
- the government forces traders and millers to stock a certain amount of rice
- the government or its agents provide loans with preferential conditions to traders and millers with the condition that the latter purchase paddy at a supported price
- the government or its agents accept a pledge of paddy from farmers at a supported price.

These schemes have also been applied to many other commodities.

These schemes were integrated and managed not by just one agent, but by several, including the Marketing Organization for Farmers, the Public Warehouse Organization (PWO), the BAAC, and the Bank of Thailand (BOT). The Marketing Organization for Farmers lies under the Ministry of Agriculture and Cooperatives, the PWO is an agent of the Ministry of Commerce and the BAAC is supervised by the Ministry of Finance. Besides these major agents, the Ministry of the Interior and the National Army also had small schemes to support prices. The various agents did not coordinate with one another; instead, each agent and the

Table 8.12 Share of employed persons by educational level

	1975	1980	1985	1990	1995	1998
Agriculture						
Elementary and kindergarten	87.1	88.8	87.8	88.2	87.3	83.4
Secondary or equivalent	0.6	1.5	3.1	4.7	6.4	10.9
University	–	–	0.1	0.3	0.3	0.5
Others	0.3	0.1	0.4	0.2	0.1	0.1
None	12.0	9.6	8.6	6.5	5.9	5.0
Non-agriculture						
Elementary and kindergarten	69.5	67.1	63.2	60.6	59.1	51.2
Secondary or equivalent	14.6	16.4	19.3	21.8	24.2	28.2
University	2.0	3.7	6.1	9.3	10.3	14.0
Others	5.4	5.5	6.6	4.9	4.0	4.3
None	8.4	7.3	4.8	3.5	2.4	2.2

Source: National Statistical Office, various years. *The Labor Force Survey*, Bangkok, Round 2 (July–September) of 1975, 1980, National Statistical Office, Bangkok; National Statistical Office, various years. *The Labor Force Survey*, Bangkok, Round 3 (August) of 1985, 1990, 1995, 1998, National Statistical Office, Bangkok.

politicians who supervised it made the decisions on what market intervention it should make. Because there were no set criteria for intervention, decisions were generally based on political considerations.

During the 1970s and 1980s, urban income increased, and resistance to price supports for farmers among urban dwellers disappeared. At the same time, partly because of a farmers' movement that took place during the 1970s, rural poverty came to be recognised as a problem urgently needing to be tackled. As a result, since the 1980s, the government has paid much more attention to supporting farm-gate prices than to controlling consumer prices, and price intervention to support farmer income continues today.

One major policy development that occurred was the establishment of the Integrated Farmers' Aid Fund (IFAF) in 1991. Compared to former policies, the IFAF has certain features that make it unique.

- It integrates the funding sources that were previously drawn on by various governmental agencies without any coordination.
- It sets criteria for intervention. Thus, intervention can only be considered when the relevant commodity's market price falls lower than the average of the past three years (excluding exceptional years), while the final decision on whether intervention is to be undertaken must be made by the National Farmers' Aid Committee (NFAC), chaired by a Deputy Prime Minister.
- It covers all commodities.

Since its establishment, the IFAF has come to fund almost all price supports (DOBE 1996).

Because the actual decision for intervention is made by the NFAC, political pressure is still an important element (Tongpan 1993). The trigger price for intervention is the average of the past three years, meaning that the rationale behind intervention is to keep the price above that average. This is not a measure to ensure production costs for producers, but a measure to show the government's response to a fall in price. Although the implementation agencies are not yet integrated (Manarungsan 1997), they can now obtain money for intervention more easily than before because they do not have to ask permission from the Bureau of the Budget, the government agency that scrutinises spending, thus they can respond more quickly to price falls and political pressure for price intervention.

Production control policies

The government began its attempts to diversify agricultural production in the early 1990s. In 1991, it implemented the Agricultural Rehabilitation Plan (ARP), by which farmers chose from a list of recommended commodities and proposed their own production plan to a governmental committee at the local level. When the committee had approved the plan, the government would supply technical support and a loan (at 5 per cent interest) through the BAAC (Khampha 1993). The ARP remained in force for five years in 44 provinces demarcated as poor areas, benefiting over 220,000 farm households, or about 22 per cent of all farmers in the target area (DOAE c. 1997).

In 1992 and 1993, following the implementation of the ARP, agricultural commodity prices fell considerably, and there was a severe drought in the area along the Chao Phraya River. In 1994, recognising that Thailand could no longer rely on foreign markets and natural resources as it had in past decades (Chulalongkorn University n.d.), the government implemented the Project for Restructuring Agricultural Production Systems (RAPS). This project's implementation was similar to the ARP's, with the following differences.

- The RAPS covered the entire country.
- A large budget was established (33.8 billion baht for loans compared with 646 million baht for the ARP) (DOAE 1994, c. 1997).
- Loan conditions were 5 per cent interest and a 15-year repayment period.
- In addition to crops and trees, livestock, inland fisheries and mixed farming were also recommended.
- Certain crops and acreage had to be reduced. This was the first time the government had clearly indicated which crops to discourage. (TDRI 1995)

The diversification that occurred in the 1990s was different to earlier waves of diversification in several respects. First, it was the government that prepared the list of recommended commodities; and even though farmers had the right to choose a commodity and make their own production plan, they received very limited information about the listed commodities. Often all the information they received was an oral description of the commodities recommended in their village, the requirements for farmers who chose a certain commodity, and the costs

and benefits that could be expected for each recommended commodity. The farmers were given only a very short time in which to consider, and no intensive consultations between field officers and farmers were carried out. As a result, the diversification programs were seen to be government led. While the government scheme to provide loans was effective, extension support was not as well organised; because of the attractive loan conditions, however, the number of participants exceeded the target.

The government's goal in beginning these projects was to raise farmer income rather than promote export of agricultural commodities, and the RAPS was aimed at appeasing the farmers' unions demonstrating at the Prime Minister's office to demand price supports in 1993.

Meanwhile, reduced crop production presented a dilemma: when the acreage of a crop was successfully reduced, its price naturally tended to rise, which meant that the government had no reason to enforce an area reduction. Moreover, since most Thai commodity markets are linked to world markets, their prices can change irrespective of the government program. These factors brought the feasibility of RAPS into question, and in 1997, the BAAC, reluctant to continue providing long-term and low-interest loans, changed the loan conditions. This led to a drastic decrease in the number of participants, an indication that the main incentive for farmers to participate was to secure a loan.

Another method used to control production was zoning. Zoning appeared in a 1991 Agricultural Assembly bill that created a special committee for the planning of production, marketing and zone demarcation (Chulalongkorn University 1994). Farmer organisations opposed the bill and proposed that it be replaced by a Farmers' Assembly bill, referring to an assembly made up only of farmer representatives, as opposed to the Agricultural Assembly, which would include representatives from private businesses. Because the assembly was to have the authority to formulate agricultural development plans, opposition to it led to serious political conflict. Even the bill proposed by farmer groups, however, tried to regulate production and marketing in order to prevent falling farm prices (Chulalongkorn University 1994).

Changing the **policy target** from **production** to **income**

When rural poverty became a political issue, many programs initially aimed at raising agricultural production were transformed into income

enhancement policies. For example, beginning in the 1980s, irrigation construction schemes shifted their focus from large-scale to small and mid-sized systems, with the small projects designed to raise farmer income rather than intensify agricultural productivity (Tongpan 1993; Siamwalla et al. 1993). Later, the primary goal of the agricultural extension policy of 1987–91 was to raise farmer income, with no mention made of intensifying agricultural production (DOAE 1986).

In a review of 100 years of the Ministry of Agriculture and Cooperatives (MOAC), research and extension are recognised as contributors to the economic welfare of farmers (MOAC 1992). Na Chiangmai (1989) describes how agricultural extension policy changed at the end of the 1980s, moving away from its late 1970s emphasis on income distribution. Siamwalla et al. (1990) also argue that the government only increased the budget for research on agricultural commodities came only after farmers had already widely accepted the relevant commodities. According to the history of the MOA, the government placed more importance on raising farmer income than on the market competitiveness of certain commodities, and even regarded projects promoting the use of fertiliser as income subsidies for farmers (Tongpan 1993).

According to Siamwalla et al. (1993), a policy more supportive of agriculture was enacted in about 1982. It is doubtful, however, whether this policy or pricing and production restructuring contributed to reductions in rural poverty, especially in relative terms. Because major Thai agricultural commodities depended on world markets, the government's attempts to control domestic prices through intervention in markets and production were largely in vain.

New crop diversification and rural differentiation

Though the effectiveness of the government's diversification policy is doubtful, diversification is nonetheless occurring, although no new commodity has become a major export. Diversification is important for the farm economy; for example, for the last ten years, cash income from livestock has steadily increased, with large-scale increases in the incidence of livestock production, such as integrated farming of chicken and swine, responsible for much of the additional income. In the crop sector, vegetables, fruits and flowers have increased their production over the past ten years and are gaining a larger share of income, though they are yet to match the income from rice (Table 8.13).

Table 8.13 Share of crop income by commodity, 1988–99
(total crop income = 100)

Crop	1988/89	1990/91	1991/92	1995/96	1998/99
Rice	37.0	25.8	33.3	30.2	40.1
Rubber	13.6	12.6	10.8	20.2	12.5
Maize	7.5	7.6	6.8	5.1	6.1
Cassava	10.3	11.1	9.0	0.9	4.1
Sugar cane	6.4	12.3	10.7	0.0	9.2
Pineapple	1.1	2.3	1.8	9.0	1.9
Oil crops	4.5	5.1	2.8	2.0	1.4
Fibre crops	0.7	1.3	1.3	0.8	1.8
Tobacco	1.6	2.2	2.2	1.4	1.0
Vegetables	7.3	8.0	9.2	12.4	9.0
Fruits/tree crops (except rubber)	7.1	9.2	10.3	11.4	12.2
Flowers	0.5	0.2	0.6	0.5	0.7

Source: Office of Agricultural Economics, 1991. *Raidai-raichai khong kasetrakon pi pho pluk 2531/32* [Farmers' income and expenditure in crop year 1988/89], Office of Agricultural Economics, Bangkok; Office of Agricultural Economics, various dates. *Agricultural Statistics of Thailand*, Office of Agricultural Economics, Bangkok.

These new crops are different to more traditional crops in several ways.

- They require more capital, especially livestock, which requires facilities and inputs.
- They are labour and technology-intensive. The modern system of raising livestock requires farmers to use time and technology to maintain and improve the wellbeing of their animals. Crops such as vegetables, fruits and flowers, if intended for sale in a market, require much more careful cultivation.
- Their producers must be able to market them, especially those producers who do not have a purchase contract.

Not every farmer can meet these expectations. In 1989 and 2000, the author conducted intensive farm household surveys in Ban Thon, a small village in Northeastern Thailand. The changes undergone by this village's farm economy during these 11 years show who has been able to adapt to the new agricultural economy.

Thon is located in Khon Kaen province, about 20 kilometres from Khon Kaen city (Shigetomi 1998). When the author surveyed Thon in 1989, its only marketable commodities were rice, cassava and soya. All

farmers had livestock, but they raised it in a traditional way. Non-farm income was also important, with most farmers finding farm and non-farm employment, and many young people leaving the village to work in Bangkok and even overseas. Several farmers had begun to raise chickens under contract to big agribusiness, and non-traditional livestock such as dairy cattle.

When the author visited Thon again in 2000, many changes had occurred, the most conspicuous relating to agricultural diversification. Among the village's 347 households, 42 had large-scale livestock enterprises, including 34 chicken farms, four pig farms and four dairy cattle farms. The household that had started a dairy farm about ten years ago had expanded its size considerably. One villager now cultivates flowers, others grow mushrooms. Among the 145 sample households surveyed in 2000, four were engaged in mixed farming (*rai na suan phasom*), including production such as rice, fruits, fish and fowl.

In terms of land ownership, because a mortgage is needed to secure a loan from a financial institution, most livestock producers belong to the village's upper class. In some cases, landowners have mortgaged their own land for their children's farms. While the government claims that mixed farming is suitable for small-scale farmers, in fact it requires a rather large irrigated area. One of the smallest farms is 1.44 ha, while the average area of irrigated land in Thon is 0.88 ha.

Most of these farm households have at least one male family member who is a full-time farmer; many, however, no longer have enough labour even for rice cultivation. In 1989, the author often found that if one of a group of related households lacked family labour, the related households jointly cultivated land. When the author visited Thon again in 2000, such cooperation seemed to be diminishing, since most households could not find relatives with enough labour for farming, and many households had taken to lending out their paddy fields to non-related households that had enough family labour. This suggests a polarisation among the village's farm households, with the majority group reducing farm productivity and the minority still struggling to survive by farming.

CONCLUSION

The success of Thai agricultural exports over the past four decades may be attributed to the swift and adequate responses to world market opportunities of not only agribusinesses but also small-scale farmers.

The Thai government did not act as a trader or producer in isolation, and though it did sometimes intervene in markets to support farm prices, its impact was very limited. This does not mean, however, that it did nothing to foster agricultural development in the country. Table 8.14 summarises the Thai government's role in relation to the major export commodities, as discussed above.

The government's positive contributions include

- provision of services that cannot be procured through market transactions (seed improvement, irrigation)
- supportive actions lying within the jurisdiction of government (investment promotion, tax exemption/reduction, negotiation with foreign governments to reduce import duties)
- provision of subsidies to improve productivity (program to replant rubber)
- authorisation of quality standards and inspection (maize, tapioca)
- protection of infant industries (promoting industrial use of kenaf as a raw material)
- subsidisation of exports through compulsory redistribution of economic surplus (sugar, tapioca).

From certain perspectives, the last two government actions in this list may be assessed negatively. The positive result produced by the second-last was unexpected, since the government did not intend to promote exports of kenaf products, while the last may have had a negative impact on other sectors.

We should not forget, however, the fortunate conditions that have allowed Thailand to achieve such successes. These include

- the availability of significant amounts of land for the expansion of maize, tapioca, and kenaf cultivation in response to market expansion
- Thailand's relative proximity to Japan, the world's largest importer of agricultural commodities
- Thai food habits, which have made it possible for tapioca products to dominate the European market.

On the other hand, Thailand has failed to reduce the rural–urban income gap. Even though their economic welfare did improve with the expansion of agricultural production and increases in employment opportunities in the non-farm sector, Thai farmers still regard themselves as the country's poor. Urban dwellers have tended to share this perception

Table 8.14 Factors that promoted agricultural exports of major commodities

	Government policies	Other factors
Rice	Seed improvement and dissemination Irrigation to increase total production Reduction of rice premium in early 1980s	Entrepreneurship of exporters Policy mistake by United States
Rubber	Rubber replanting program (subsidy)	Private sectors' efforts to improve quality Japanese tire makers' preference for Thai rubber
Kenaf	Establishing gunnysack factories and protecting the domestic industry using kenaf	No other producers of jute-like products before the market opportunity appeared Land availability for expanding plantation
Maize	Negotiating with Japanese traders and monitoring performance of Thai traders during the contract Seed improvement and dissemination Defining quality standards	Land availability for expanding plantation Close to Japanese market
Tapioca	Setting up and managing bonus quota system Defining quality standard	No other country that can steadily provide the export market (Thai people do not eat tapioca as their staple food) Preferable tax conditions by GATT agreement
Sugar	Setting up and managing cross-subsidy system	Active investment to expand facilities by private sector Close to Japanese market
Frozen chicken	Investment promotion Negotiating with Japan to reduce import duty	Active investment by private sector Close to Japanese market
Canned pineapple	Investment promotion	Active investment by private sector Sufficient land available to provide enough raw material to processors

Source: Prepared by the author.

of farmers, making rural poverty a key political issue in Thailand since the mid 1970s.

Several factors have contributed to the continuing existence of the urban–rural income gap.

- Because the major Thai agricultural commodities are linked to world markets, slumps in the latter have directly affected Thai farm income.
- Thai agriculture's reliance on market mechanisms has made it difficult for the government to control farm prices.
- Budget constraints have made it impossible for the government to guarantee farmer income, and the government's inability to control markets has made production control ineffective in the long term.
- Low education levels have made it difficult for rural migrants to find stable, well-paying jobs.

Under these circumstances, what kinds of policies would narrow the urban–rural income gap?

To raise their income, farmers could introduce new commodities. While it is unreasonable to expect that new boom crops such as maize and cassava will appear again, farmers may still find products for which demand is not huge but which yield a good profit. In this context, farmers should not just follow their neighbours; they should take an entrepreneurial approach, introducing commodities new to their areas, and develop the general intelligence needed to find and exploit market opportunities. They also need to be shown how to master new technologies and management practices, and should be given access to capital for new investments.

In these respects, the government can help by providing education, research on new technologies and loans, but not in picking new products for dissemination, since this might disturb markets for existing producers and lead potential new growers to regard the products as unsuitable. Thailand's agribusinesses and farmers are capable of finding and adapting to new market opportunities themselves, thus the government should limit its function to the provision of such services as irrigation, roads, research and education.

Only a minority of farmers, however, may be in a position to use such strategies. Most farm households rely on non-farm income for their economic well-being, thus it is important to increase educational opportunities in rural areas so as to reduce rural residents' disadvantage

in non-farm labour markets, even though this may move some rural residents to leave the farming sector permanently. Such a polarisation seems inevitable; in fact in some areas it is already occurring.

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NOTES

- ¹ National Economic and Social Development Board (NESDB) database on national income.
- ² Interview with a tapioca exporter in Bangkok, September 1988.
- ³ This agreement allowed coverage of 10 per cent, so Thailand could sell at most 5.5 million tonnes to the EC.
- ⁴ Since raw sugar is the most common Thai sugar export, this analysis concentrates on its market.
- ⁵ For example, in 1963 the sugar price soared because of decreased production in Thailand, Cuba and Europe, and the Thai government allowed sugar factories to increase production. In 1965, however, the price fell sharply, and the government was forced to pay export subsidies in order to dispose of the surplus in the external market (Jessadachatr 1977).
- ⁶ For example, while the average New York spot market price in 1986/87 was about 6.0–6.7 cents per pound, no country could actually produce sugar at a cost below this price (Lichit 1994).
- ⁷ Interview at the Department of Agriculture, Ministry of Agriculture and Cooperatives, September 1999.
- ⁸ Siamwalla et al. (1990) argue that Thailand is unique because of its high share of agricultural labour relative to countries with similar per capita GDP, but also that this may be largely a result of statistical bias in the population census.

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9

EFFECTS OF DIRECT PROTECTION FOR AGRICULTURE IN THREE SOUTHEAST ASIAN COUNTRIES

Takamasa Akiyama and Kei Kajisa

Until the recent financial crisis, the economic performance of East Asian developing countries over the past few decades had been outstanding (World Bank 1993).¹ This performance is usually attributed to successful industrialisation, but there has been little recognition of the similarly excellent performance of the region's agricultural sector. Agriculture in these countries has contributed to stable food supplies and prices, foreign exchange earnings, and poverty reduction, and hence to general economic growth. Several key factors affect the performance of the agricultural sector, including technology, rural infrastructure and protection rates. In this chapter we focus on direct protection rates.

Schultz (1964) made one of the first comprehensive analyses to link price distortions and high taxation in agricultural markets to stagnation of agriculture in developing countries. Until recently, governments in many developing countries taxed the agricultural sector heavily for various reasons, including the need for tax revenue, promotion of industrialisation, and the relatively weak political power of farmers. Mundlak et al. (1989) conducted a comprehensive, long-term analysis of the agricultural sector in Argentina, emphasising the important impact of taxation on its performance. Schiff and Valdes (1992) argue that the agricultural sector in many developing countries has suffered from negative protection (taxation). Bates (1981) argues that the main cause of the poor agricultural performance of the Sub-

Saharan African countries up until the mid 1980s was primarily large distortions in agricultural markets often controlled by marketing boards, a control deeply rooted in political and social structures.

The agricultural sector in many Southeast Asian countries has performed considerably better than those of countries in other developing regions. The World Bank's (1993) study of the so-called East Asian miracle suggests that while there have been a number of market interventions in these countries, their effects have not necessarily been harmful. Hayami claims that, although East Asian countries 'exploited agriculture, they did not neglect to make necessary investments in irrigation and agricultural research to increase land productivity' (Hayami 1998:28). Timmer (1989) argues that policies related to direct protection in the region were pragmatic and designed to stabilise domestic prices in the short run while reflecting international price trends in the long run.

In spite of the importance of the effects of protection policies on the performance of the agricultural sector, there has been relatively limited detailed quantitative study of their nature and evolution over time. Most past work has used a cross-country, multi-country approach with a large number of countries as samples (Krueger et al. 1992, Honma and Hayami 1986). An exception is the work by David and Huang (1993) on several Asian countries, but their study is restricted to rice.

This chapter m i n e s the characteristics of agricultural protection policies for key agricultural commodities in Indonesia, the Philippines and Thailand, and their evolution over the past few decades. It attempts to answer the following six questions.

- Are there differences in protection rates among the three countries?
- Have these policies changed over time?
- Have the policies for food been different from those for other crops?
- Have the policies had the effect of stabilising domestic prices?
- What other variables have affected the policies?
- What has been the importance of direct protection in total protection rates (sum of direct and indirect protection rates)?

First, we review agricultural protection policies in the three countries over the past few decades and discuss the analytical framework we use here. Then we discuss the econometric method used in the analysis, and present the results of the quantitative analysis of the protection rates in view of policies actually implemented.

AGRICULTURAL PROTECTION POLICIES

To examine the levels and the trends of direct protection rates and their importance in total protection rates, we calculated period averages of the direct rates for several key commodities over the past four decades, following the method suggested by Schiff and Valdes (1992). Commodities examined for the three countries were selected on the basis of their importance in the respective agricultural sector (Table 9.1)

Indonesia—rice, maize, rubber, sugar, and palm oil

The Philippines—rice, maize, sugar, and coconuts

Thailand—rice, maize, rubber, and sugar.

For all three countries, the weighted averages of direct protection rates (the geometric averages of four–five commodities weighted by production value evaluated by border price) have increased substantially from negative to positive (that is, from taxation to protection). However, because indirect taxation (negative protection) rates (taxation on the agricultural sector through exchange rate and other policies favourable to non-agricultural sectors) have been high and without discernible trends, the total protection rates for the commodities examined were negative until the early 1990s in Indonesia and Thailand and for the entire period in the Philippines.

There are notable differences in the weighted averages of the protection rates among the three countries. Indonesia had the highest direct protection rates over the period, reflecting its policies toward agriculture as discussed below. In addition, petroleum has been an important source of government revenue, hence there has been less need for the government to tax exported agricultural products. Protection rates in the Philippines increased significantly over time but the weighted average for the second half of the 1990s is still the lowest among the three countries. This and the high indirect protection rates reflect the pro-industrial sector policies that have been implemented in the Philippines in the past (Intal and Power 1989). Thailand's protection rates changed drastically, from heavy taxation to significant protection, essentially following the pattern of protection in relation to income observed by Timmer (1988).

Indonesia

Protection rates in Indonesia have increased substantially over time, with large reductions in taxation for exported commodities and increased protection for imports. Although palm oil and rubber (exported commodities) were taxed in the 1970s when world prices were high, the

Table 9.1 Period average of direct, indirect and total rates of nominal protection for selected commodities in Indonesia, the Philippines and Thailand

	Direct protection rate						Weighted average	Average of total protection rate	Indirect protection rate
	Rice	Sugar	Maize	Rubber	Oil palm	Copra			
Indonesia									
Trade position	IM	IM	EX/IM	EX	EX				
1967-70	-8.3	n.a.	8.3	-7.3	na		-8.0	-33.3	-27.5
1971-80	4.5	-21.1	22.60	-8.2	-24.7		-8.4	-22.8	-15.7
1981-90	19.8	23.8	29.80	0.0	-1.7		14.0	-7.2	-18.6
1991-95	19.4	89.8	33.12	0.0	-3.5		32.1	3.5	-21.6
1967-95	10.1	23.1	24.70	-3.7	-8.5		5.3	-15.2	-19.5
Philippines									
Trade position	EX/IM	EX/IM	IM			EX			
1961-70	15.6	-13.3	40.2			-3.8	-8.2	-28.7	-20.9
1971-80	-10.4	-23.2	18.1			-17.3	-22.8	-41.0	-23.8
1981-90	15.6	-4.6	35.7			-21.5	-6.4	42.8	-24.5
1991-95	43.3	29.6	35.0			-10.4	18.0	-19.8	-25.6
1961-95	10.9	-8.9	31.6			-13.9	-8.9	-35.5	-23.4
Thailand									
Trade position	EX	EX	EX/IM	EX					
1962-70	-30.4	43.5	-3.7	-13.2			-29.4	-38.6	-13.0
1971-80	-29.6	-18.3	-3.2	-19.1			-29.0	-39.9	-15.3
1981-90	-8.7	32.3	-0.9	-12.0			10.3	4.9	-15.6
1991-95	-6.6	40.3	0.0	-0.1			22.0	3.9	-14.8
1962-95	-21.0	18.3	-1.9	-12.9			-12.6	-25.5	-14.7

Note: EX: exported commodity; IM: imported commodity. The average of the total protection rate is the sum of the weighted average of direct protection rates and the indirect protection rates. The indirect protection rate is the average of the number presented in Schiff and Valdes (1992:15, Table 2-1) and the number we calculated. It is computed using the free trade equilibrium exchange rate, defined as the exchange rate expected to prevail if the exchange rate is used to balance the current account under a completely free trade regime (Schiff and Valdes 1992).

Source: See Appendix for details.

level of taxation was not high. Since the 1980s, protection rates have turned positive for all commodities,² making the rates very high for imported commodities. This reflects Indonesia's policies for rice and other crops. Indonesia's rice policy has had two goals: (i) achieving food self-sufficiency by providing incentives for farmers to undertake production using new varieties and adequate fertiliser (Gonzales et al 1993, GATT 1995), and (ii) providing rice to urban consumers at 'reasonable' and relatively stable prices. To these ends, the parastatal BULOG implemented various policies, including floor prices at the farm gate, ceiling prices for consumers, and control of the international rice trade. Similarly, policies for sugar, maize and palm oil promoted price stabilisation and alleviation of the impact of high prices on consumers.

The Indonesian government's policy objective of stabilising palm oil prices was pursued through direct government intervention in the market. Because palm oil was produced mainly by the state parastatal PTP in the 1960s and 1970s, marketing was conducted by a government agency until 1992. This agency controlled the market and maintained stable domestic prices. Even after 1992, the government intervened in the market, mainly through imposition of an export tax, but in a less aggressive way than before (Larson 1996). When world prices increased sharply, the government imposed heavy taxes on palm oil exports, thereby diverting the flow from export to domestic supply and reducing domestic prices so that they were considerably lower than world prices.

The Indonesian government had encouraged sugar production on the Outer Islands because it was a strategic commodity for rural development on these islands. One of the objectives of sugar protection policies in Indonesia has been to close the gap between incomes on the Outer Islands and incomes on Java (Gonzales et al. 1993).

Philippines

In the Philippines, the agricultural protection policy also focused on achieving self-sufficiency in rice and protecting agricultural products from imports. The National Food Authority (NFA) intervened in the rice market with the declared objective of stabilising prices. Rice was taxed when it was exported during the late 1970s and early 1980s, and protected during other periods (Intal and Power 1989). Because of declining world rice prices, the protection rate has increased substantially in recent years. The government recognised maize to be an important commodity for the pork and poultry industries and pursued price stabilisation through NFA intervention.

Sugar in the Philippines was a heavily taxed commodity subject to considerable government intervention. The stated objective of the intervention was to regulate US sugar quotas before 1974 and to stabilise domestic prices after 1974 (Intal and Power 1989). Price stabilisation was achieved by imposing heavy taxes on those occasions when world sugar prices increased sharply and restricting imports when world prices were low, such as in the first half of the 1990s.

The marketing of copra has been under the control of a monopolistic trade association with heavy intervention (Intal and Power 1989). Taxation on copra became high when the Coconut Industry Stabilization Fund put levies on this product from 1981 to 1986.

Thailand

Thailand is a major exporter of agricultural products. Up until the early 1990s, it heavily taxed most exported agricultural commodities, but especially rice. The effective tax on rice was high until the early 1980s. The objectives of high rice taxation were domestic price stabilisation and rent acquisition from importers because of Thailand's high market share in the world rice trade and the low price elasticity of import demand for rice.³ In addition to the premium, quantitative restrictions on exports were used to keep domestic prices low and stable. The Thai government's stance on rice changed in the mid 1970s, when pressure was put on governments 'to pay at least lip service to the idea of "supporting" rice prices to the farmers' (Siamwalla 1975:45). With the softening of world rice prices after 1982, the government gradually reduced and then abolished all export taxes, the premium, and reserve requirements.

Thailand's main policy goal for sugar has been to provide an adequate income to cane producers while keeping domestic prices stable (Yamamoto 1998; Siamwalla and Setboonsarng 1989). One reason is political pressure put on the government by sugar producers, considered the best organised among Thai farmers. The government's objectives have essentially been achieved by keeping domestic prices higher than export prices through import restrictions. In 1974 and 1975, the government used an export ban to keep domestic prices lower than world prices, and in 1980, when domestic prices increased sharply because drought caused a significant decline in production, a governmental agency imported sugar.

Thai maize was exported and taxed until the 1990s. There has been little intervention in this market, probably because of the relatively small size of the sub-sector and the fact that maize producers were not very strong politically.

Traditionally, rubber, Thailand's second most important agricultural export commodity after rice, was taxed heavily. However, taxation of rubber has been reduced substantially and effective subsidies have increased as world rubber prices declined from the early 1990s on (Thainugul et al. 1996).⁴ Political pressure from rubber producers probably influenced this policy change.

Price instability

This discussion suggests that price stabilisation for the main products, especially imported food, was a key policy objective, a suggestion also made by past studies (Timmer 1989; Lindert 1991; Anderson and Hayami 1986). To examine the effect of policies on price stabilisation, we calculated short and long-term instability indicators. The short-term instability indicator is the average over the period of the absolute percentage year-to-year changes. It measures the extent of price instability on the basis of price changes from one year to another. The standard instability index, the coefficient of variation, is used to evaluate long-term instability. It would indicate whether real domestic prices were more stable than real border prices around the mean for the entire period of about three decades. Table 9.2 shows the short and long-term price variability indices, respectively, for the real border and real wholesale prices, and the ratios of these two variables. If the ratio is greater than 1, it indicates that instability in real wholesale prices is smaller than real border prices. The ratios in Table 9.2 (columns 3 and 6) show considerably smaller variability for the real wholesale prices than for the real border prices, with the exception of Philippine copra, suggesting that the objective of domestic price stabilisation was achieved in both the short and the long run for most commodities.

The extent of financial gains for producers from price stabilisation can be evaluated using the method developed by Newberry and Stiglitz (1981).⁵ Although this measure does not take into account the long-term effects of price stabilisation (see, for example, Kanbur 1984), it is accepted, thus we have calculated it for the commodities examined. The results are given in the last column of Table 9.2.

For most of the commodities in Thailand and the Philippines (especially rice and sugar), producers gained from long-run price stabilisation. Rather surprisingly, except for maize, the price stabilisation effect on producer income was negative for Indonesia. This was probably due to the fact that Indonesia is a large producer of agricultural commodities, hence prices and

Table 9.2 Short-run and long-run price instability of real border price and real wholesale price and estimates of the benefits of price stabilisation

		Short-run			Long-run			(7)
		(1)	(2)	(3)=	(4)	(5)	(6)=	Producer
		Real	Real	(1)/(2)	Real	Real	(4)/(5)	benefits
		border	wholesale		border	wholesale		from price
		price	price		price	price		stabilisation
								(%)
Indonesia								
Rice	1967-96	21.2	11.4	1.9	0.30	0.14	2.1	-0.6
Maize	1967-96	17.7	11.5	1.5	0.25	0.12	2.1	8.8
Rubber	1967-80	19.3	18.6	1.0	0.22	0.22	1.0	-3.1
Oil palm	1976-95	19.4	8.9	2.2	0.73	0.11	6.6	-26.0
Sugar	1979-97	25.0	8.8	2.8	0.29	0.18	1.6	-1.9
Philippines								
Rice	1960-93	26.4	8.6	3.0	0.52	0.15	3.4	6.9
Maize	1960-95	20.1	10.9	1.8	0.29	0.19	1.5	3.0
Copra	1960-95	28.5	33.0	0.9	0.32	0.46	0.7	-4.6
Sugar	1960-95	20.3	13.2	1.5	0.48	0.23	2.1	19.7
Thailand								
Rice	1960-97	14.8	10.8	1.3	0.43	0.19	2.2	3.5
Maize	1967-81	13.4	12.2	1.1	0.16	0.15	1.1	0.6
Rubber	1960-91	17.5	14.8	1.2	0.32	0.29	1.1	-1.2
Sugar	1962-95	26.7	9.2	2.9	0.57	0.24	2.3	3.6

^a producer benefits from price stabilisation are expressed in terms of percentage of production value.

Source: See Appendix for details.

production of several commodities are correlated, implying the non-applicability of 'small-country assumptions'. This is evident for palm oil, of which Indonesia is a very, large producer, and, to a lesser extent, rubber. (Philippine copra is another case.)

It is clear that rice and sugar producers in the Philippines and Thailand benefited significantly from price stabilisation policies.

ANALYTICAL FRAMEWORK

In this section we describe the approach we took to test empirically whether protection policies stabilised domestic prices and whether any variables affected such policies. Then we discuss the econometric technique we used.

To begin with, we specified the relationship between domestic and border prices of agricultural commodities as

$$DP_{it} = \alpha BP_{it}^{\beta} \quad (9.1)$$

where DP_{it} is the domestic price of the agricultural commodity i in the year t , and BP_{it} is the border price of the commodity i in the year t converted into local currency at the official exchange rate and adjusted for transport, storage and other costs.

The magnitude of the domestic price elasticity with regard to the border price, β , would indicate the extent of intervention in price. Special cases are when β is nil or unity. When β is nil, the domestic price DP_{it} is a and the border price, BP_{it} , has no effect on the domestic price. Conversely, when β is unity, the full percentage change of the border price is transmitted to the domestic price.⁶ When the government implements policies to stabilise the domestic price and if the policies have the intended objective, then β will be between zero and unity.

Equation 9.1 is slightly modified so it can be estimated using econometric methods as

$$\log(DP_{it}/BP_{it}) = \alpha' + (\beta-1)\log(BP_{it}) \quad (9.2)$$

Both coefficients, α and β , may change over time with some variables. Hence, assuming linearity of the functions, each coefficient is replaced with α_{it} and β_{it} , respectively, that is

$$\alpha_{it} = \alpha_0 + \sum \alpha_j \log(X_{itj}) \quad (9.3)$$

$$\beta_{it} = \beta_0 + \sum \beta_j \log(Z_{itj}) \quad (9.4)$$

where α_0 reflects an intervention rate constant over time, and α_j reflects an intervention that changes over time with the variable (X_j). Similarly, β could change over time with some variables. Hence, in Equation 9.4 X_j and Z_j are variables that reflect changes in the economy or political reality that would cause the government to change protection policies.

Combining Equations 9.2, 9.3 and 9.4 and adding an error term for econometric analysis, this equation is used to estimate

$$\log DPC_{it} = \alpha_0 + \sum \alpha_j \log(X_{itj}) + (\beta_0 - 1)\log(BP_{it}) + \sum \beta_j [\log(Z_{itj})^* \log(BP_{it})] + e_{it} \quad (9.5)$$

where e_{it} is an error term assumed to be independent and identically distributed. This equation allows us to evaluate how α'_{it} and β_{it} have changed over time as the structure of the economy and/or commodity characteristics have changed. If only α_0 is statistically significant, it suggests that the protection rate was constant over time. If both α_j s and β_j s are statistically significant, it suggests that the protection rate and the extent of stabilisation changed with the variable BP_{it} , X_j and/or with Z_j over time.

An empirical problem with this regression form is that the coefficients α s and β s may capture several other effects stemming from policies other than protection policies influencing the domestic price. Marketing, transport and storage costs within a country may systematically influence the domestic price, and thereby affect either or both coefficients. The coefficients should therefore be interpreted cautiously, with careful reference to a review of the policies actually implemented.

To explain these rates, we reviewed past studies of protection rates and the variables used in them.⁷ These variables can be classified into two groups—commodity-specific variables and variables related to economic, political and sectoral structural changes. The first group refers to characteristics of individual commodities, for example whether or not they are food crops, their trade position, productivity, and price volatility. The second group includes such variables as income, importance of agriculture to the economy and competitiveness of a country's agriculture in the world market.

We examined six variables in our analysis and their correspondence to the variables X_j and Z_j in Equation 9.5.

Income level

Ti e r (1988), in a discussion of four phases of the economic environment in relation to agriculture, argues that protection for agriculture increases with income after income reaches a certain level. At a high level of income, the share of agricultural commodity expenditure in total income is small for consumers, and relatively high-income urban dwellers do not mind subsidising the agricultural sector. Lindert (1991) shows a positive correlation between income and the agricultural protection rate using a global cross-section and historical US data. In our analysis, GDP per capita (PGDP) is used to capture this factor.⁸

Relative agricultural wage

Governments tend to subsidise the agricultural sector when agricultural wages lag behind those of industry. Although past studies used a labour

productivity ratio or factor endowment ratio to measure this, because of limited available data we used the ratio of agricultural GDP per total agricultural population to non-agricultural GDP per total non-agricultural population (GDP/PTO) (Van Bastelaer 1998; Beghin and Kherallah 1994; Zietz and Valdes 1993; Honma and Hayami 1986).

Importance of **agriculture** to the economy

A fall in the relative importance of the farm sector would reduce the relative cost of protection, making subsidy programs less costly and easier to implement. Following the literature, the share of agriculture in either the labour force (AGPOPSHR) or GDP (AGGDPSHR) is employed as a proxy to represent the agricultural sector's importance (Beghin and Kherallah 1994; Lopez 1994; David and Huang 1993; Lindert 1991; Miller 1991; Honma and Hayami 1986).

Competitiveness of agriculture in the international market

An increase in productivity through technological change may nullify the need for protection and may even make the agricultural sector tolerant to taxation, encouraging government imposition of taxes. David and Huang (1993) used adoption of modern varieties, the land–man ratio and the fertiliser protection rate to capture competitiveness. We assumed the effects of these factors to be summarised by productivity increases and instead used yield per hectare (YLD) in our regression analysis.

Existence of strong **agricultural** interest groups

This argument originated from the work of Olson (1965) in *The Logic of Collective Action*. It holds that the smaller the interest group, the less costly is coordination among its members in lobbying for agricultural protection. The proxy used in empirical studies is the share of the agricultural labour force in the total labour force (Van Bastelaer 1998; Beghin and Kherallah 1994; Lindert 1991; Miller 1991). Schiff and Valdes (1992) use the share of agricultural GDP to capture the relative size of the agricultural sector, while we used the share of agriculture in the labour force or in GDE. These variables can be interpreted in two ways, since the importance of the agricultural sector is also represented by their relative size.

Trade position

David and Huang (1993), Schiff and Valdes (1992), and Lindert (1991) argue that the pattern of protection changes depending on whether the

commodity is exportable or importable. If a commodity is exportable, an export tax achieves the double objective of generating revenue for governments and reducing domestic prices.⁹ In contrast, an importable commodity tends to be protected in order to generate revenue and also to boost domestic supply, especially if the commodity is a food product. We used the self-sufficiency ratio (SSR) to capture this effect. The SSR is defined as the ratio of production to consumption, with the latter defined as the sum of production and imports less exports. This variable becomes more than unity when self-sufficiency is achieved and the commodity is exported.

ECONOMETRIC ISSUES

The objective of this section is to estimate both long-run and short-run relationships between protection and its determinants in a regression framework. The analysis is complicated by the non-stationary or integrated-of-order-one (I[1]) time series behaviour of the variables of interest. An important consideration is the choice of a specific framework because a co-integration analysis of a set of variables is required. There are several choices, including the two-step Engle–Granger method (TSEG), Johansson's maximum likelihood approach, the fully modified Hansen–Phillips least squares approach (FM-OLS), and the autoregressive distributed lag (ARDL) approach. Of these, three were used—TSEG, FM-OLS and ARDL. The results are based on the ARDL (or dynamic OLS) approach. In addition to its relative computational simplicity, this approach requires fewer assumptions and is more robust than FM-OLS, has attractive large sample properties (Pesaran and Shin 1997), and permits valid inferences on the long-run parameters standard normal asymptotic theory. It can be applied regardless of whether the variables are trend-stationary or difference-stationary, making it unnecessary to apply unit-root tests that have low power in small samples.

We considered a simple illustration of the approach based on an ARDL(1,1) model for two I(1) variables, y and x

$$y_t = \phi_1 y_{t-1} + \gamma_0 x_t + \gamma_1 x_{t-1} + \varepsilon_t \quad |\phi_1| < 1 \quad (9.6)$$

which has the dynamic representation

$$y_t = \frac{\gamma_0 + \gamma_1 L}{1 - \phi_1 L} x_t + \frac{\varepsilon_t}{1 - \phi_1 L} = \theta(L)x_t + u_t \quad (9.7)$$

The long run implied by this model is

$$y = \theta(1)x = \frac{\gamma_0 + \gamma_1}{1 - \phi_1} x \quad (9.8)$$

where the long-run coefficient is $\theta(1)$.

The dynamic model can be written in the well-known error-correction form by rewriting the original model in terms of levels and first differences of the dependent and explanatory variables. Thus, we get

$$\Delta y_t = -(1 - \phi_1) [y_{t-1} - \theta(1)x_{t-1}] + \gamma_0 \Delta x_t - \phi_1 \Delta y_{t-1} - \gamma_1 \Delta x_{t-1} \quad (9.9)$$

where the first term in the square brackets on the right side of the equation is the error-correction term. This is the dynamic regression model, which *can* be estimated by least squares. The standard errors of long-term coefficients can be obtained by a variety of methods, including the delta method.

The dynamic model given above *can* be generalised to allow for additional lags in both y and x , additional variables in the equilibrium long-term relationship, and additional stationary variables such as dummy variables, seasonal factors, and other variables that affect only the short-term relationship.

In practice, the order of lags in the model is an unknown to be specified by the investigator. Model selection criteria can be used to select the appropriate order. In this chapter we use the Schwarz criterion, which tends to favour a relatively parsimonious parameterisation. We also apply specification tests for serial correlation and heteroskedasticity to confirm that the model is free from mis-specification. For most of the reported results mis-specification is not indicated. In two cases, Indonesian rubber and Thai rice, there appear to be serial correlated residuals, but this may be due in part to the low power of the tests in our small sample.

RESULTS OF QUANTITATIVE ANALYSIS

This section presents the econometrically estimated results of Equation 9.5 using ARDL or dynamic OLS (Tables 9.3–9.5). For reasons of availability, in most cases the data we used for commodity prices are wholesale prices for domestic prices (DP) and unit export/import values for border prices (BP). The data we used are described in the Appendix. Because there are

Table 9.3 Dynamic OLS estimation of rice and sugar by country

	Rice			Sugar		
	Indonesia	Philippines	Thailand	Indonesia	Philippines	Thailand
LDPC(-1)	0.21369* (0.082487)	0.63768** (0.12094)	0.16224 (0.13787)	0.18459* (0.076957)		0.46433** (0.14697)
LDPC(-2)	(0.11021)		-0.31694**			
Constant	2.0311** (0.19243)	-0.60497** (0.16548)	-1.0188** (0.13254)	1.7269** (3.2106)	-1.4012** (0.099119)	-0.74918** (0.25231)
Dummy 1981-86						
<i>Alphas</i>						
log(SSR)		-1.5179** (0.47457)				-1.0755 (0.87565)
log(PGDP)			1.5139** (0.48613)			
log(PGDP-1)			-0.75020? (0.40125)			
log(GDPRT0)						
log(GDPRT0-1)				-1.3303** (0.25951)		
log(YLD)				-0.11026 (0.22250)		
<i>Betas</i>						
log(RBP)	-0.97907** (0.096207)	-0.94487** (0.065743)	-0.28133** (0.043719)	-0.85040** (0.089568)	-0.65027** (0.048355)	-0.89650** (0.064100)
log(RBP-1)		-0.70219** (0.11231)				0.52484** (0.11128)
log(RBP)*log(PGDP)		0.17658* (0.075495)	0.22788** (0.079854)			
log(RBP)*log(PGDP-1)						
log(RBP)* log(PGDP-2)						

EFFECTS

PROTECTION

AGRICULTURE

Long-run response						
Constant	2.5831** (0.33456)	-1.6697** (0.29723)	-0.88229** (0.08921)	2.1178 (3.8858)	-1.4012** (0.099119)	-1.3986** (0.17924)
Dummy 1981–86						
<i>Alphas</i>						
log(SSR)		-4.1892* (1.7865)				-2.0078 (1.3595)
log(PGDP)			0.66141** -0.19255			
log(GDPRTO)				-1.6315** (0.30966)		
log(YLD)				-0.13522 (0.26915)		
<i>Betas</i>						
log(RBP)	-1.2452** (0.16836)	-0.66980** (0.11123)	-0.24364** (0.035121)	-1.0429** (0.12793)	-0.65027** (0.048355)	-0.69381** (0.086786)
log(RBP)*log(SSR)						
log(RBP)*log(PGDP)		0.48735* (0.18128)	0.19735** (0.067439)			
Adj-R ²	0.81681	0.92498	0.89421	0.94189	0.84894	0.93776
Serial correlation	CHSQ(1)	CHSQ(1)	CHSQ(1)	CHSQ(1)	CHSQ(1)	CHSQ(1)
Value	0.52509	0.98865	3.7751	0.11798	0.90762	0.6047
p-value	0.469	0.32	0.052	0.731	0.341	0.437
Time trend	NS at 5%	NS at 5%	NS at 5%	NS at 5%	NS at 5%	NS at 5%
Observations	27 1970–96	34 1964–97		19 1978–96	33 1963–95	31 1965–95

Note: Standard errors in brackets. ** Significant at 1% * Significant at 5%. We have used Schwarz's Bayesian Criterion, which yields a parsimonious lag specification. In most cases time trend is not significant, as shown below, hence it is excluded. It is possible to include log (GDPRTO), but this has been excluded for the present.

Source: Authors' calculations.

Table 9.4 Dynamic OLS estimation of maize and rubber by country

	Maize			Rubber	
	Indonesia	Philippines	Thailand	Indonesia	Thailand
LDPC(-1)				0.42365*	0.67761**
				(0.17665)	(0.097550)
LDPC(-2)				0.35629	
				(0.18793)	
Constant	0.37471'	-0.98558'	-0.30723**	0.059375	-0.49434**
	(0.14635)	(0.42123)	(0.083833)	(0.052026)	(0.12937)
<i>T i e</i>					
Dummy 1981-86					
<i>Alphas</i>					
log(SSR)		11.2110		-0.0018737	
		(10.7207)		(0.013056)	
log(SSR-1)				-0.0068319**	
				(0.0020713)	
log(SSR-2)				0.0061523*	
				(0.0020573)	
log(SSR-3)				0.0032992*	
				(0.0014310)	
log(PGDP)			0.30142*	-0.0070918	
			(0.11716)	(0.023432)	
log(PGDP-1)					
log(GDPRTO)					-0.19890**
					(0.053166)
log(GDPRTO-1)					
log(YLD)					
<i>Betas</i>					
log(RBP)	-0.11280	-0.42574**	-0.10048**	-0.023967	-0.076244**
	(0.10544)	(0.13799)	(-0.10048)	(0.030491)	(0.026187)
log(RBP-1)				0.014548	0.082067**
				(0.017083)	(0.024686)
log(RBP-2)				0.022635	
				(0.018679)	
log(RBP-3)				-0.036864*	
				(0.014148)	
log(RBP)*log(SSR)		4.1012		-0.000583	
		(3.646)		(0.0085114)	
log(RBP)*log(PGDP)	0.284245	0.14022*	0.10151*		
	(0.15910)	(0.062507)	(0.042109)		
log(RBP)*log(PGDP-1)	0.22067				
	(0.22373)				
log(RBP)*log(PGDP-2)	-0.44896*				
	(0.16938)				

Table 9.4 Dynamic OLS estimation of maize and rubber by country
(continued)

	Maize			Rubber	
	Indonesia	Philippines	Thailand	Indonesia	Thailand
Long-run response					
Constant	0.37471* (0.14635)	-0.98558* (0.42123)	-0.30723** (0.083833)	0.26982 (0.21645)	-1.5333** (0.25498)
Time					
Dummy 1981-86					
<i>Alphas</i>					
log(SSR)		11.2110 (10.7207)		-0.052526 (0.083252)	
log(PGDP)		0.30142* (0.11716)		-0.032227 (0.12768)	
log(GDPRTO)					-0.61694** (0.13791)
log(YLD)					
<i>Betas</i>					
log(RBP)	-0.11280 -0.10544	-0.42574** (0.13799)	-0.10048** (-0.10048)	-0.10747 (0.13074)	0.018063 (0.087251)
log(RBP)*log(SSR)		4.1012 (3.646)		-0.0026507 (0.038688)	
log(RBP)*log(PGDP)	0.055973 (0.045537)	0.14022* (0.062507)	0.10151* (0.042109)		
Adj-R ²	0.34756	0.60214	0.35747	0.96351	0.93057
Serial correlation	CHSQ(1)	CHSQ(1)	CHSQ(1)	CHSQ(1)	CHSQ(1)
Value	0.24124	0.001543	0.38304	4.8346	0.76376
p-value	0.623	0.969	0.536	0.028	0.382
Time trend	NS at 5%	NS at 5%	NS at 5%	NS at 5%	Significant but not much difference
Observations	27 1970-96		28 1970-97		34 1964-97

Note: Standard errors in brackets. ** Significant at 1%. * Significant at 5%. We have used Schwarz's Bayesian Criterion, which yields a parsimonious lag specification. In most cases time trend is not significant, as shown below, hence it is excluded. It is possible to include log (PGDPRTO), but this has been excluded for the present.

Source: Authors' calculations.

Table 9.5 Dynamic OLS estimation of oil palm and copra by country

	Oil palm		Copra
	Indonesia (time)	Indonesia	Philippines
LDPC(-1)			
LDPC(-2)			
Constant	-1.7816** (0.20726)	-1.6392** (0.18913)	-0.62530** (0.20670)
Time	-0.020725* (0.0085947)		
Dummy 1981-86			-0.16485* (0.063249)
<i>Alphas</i>			
log(SSR)			
log(SSR-1)			
log(SSR-2)			
log(SSR-3)			
log(PGDP)			
log(PGDP-1)			
log(GDPRT0)			
log(GDPRT0-1)			
log(YLD)			
<i>Betas</i>			
log(RBP)	-0.75563** (0.093812)	-0.81655** (0.10607)	0.022689 (0.082056)
log(RBP-1)	0.29905** (0.095465)	0.37135* (0.12782)	-0.26741** (0.086255)
log(RBP-2)		-0.044214 (0.13105)	
log(RBP-3)		0.18958 (0.098131)	
log(RBP)*log(SSR)			
log(RBP)*log(PGDP)			
log(RBP)*log(PGDP-1)			
log(RBP)*log(PGDP-2)			

Table 9.5 Dynamic OLS estimation of oil palm and copra by country
(continued)

	Oil palm		Copra
	Indonesia (time)	Indonesia	Philippines
Long-run response			
Constant	-1.7816** (0.20726)	-1.6392** (0.18913)	-0.62530** (0.20670)
Time	-0.020725* (0.0085947)		
Dummy 1981-86			-0.16485* (0.063249)
<i>Alphas</i>			
log(SSR)			
log(PGDP)			
log(GDPRT0)			
log(YLD)			
<i>Betas</i>			
log(RBP)	-0.45658** (0.077205)	-0.29984** (0.037452)	-0.24473* (0.10237)
log(RBP)*log(SSR)			
log(RBP)*log(PGDP)			
Adj-R ²	0.82683	0.83947	0.30152
Serial correlation	CHSQ(1)	CHSQ(1)	CHSQ(1)
Value	1.1701	0.15315	0.29158
p-value	0.279	0.696	0.589
Time trend	Significant but not much difference		
Observations	18		33
	1979		1963
	1996		1995

Note: Standard errors in brackets. ** Significant at 1%. * Significant at 5%. We have used Schwarz's Bayesian Criterion, which yields a parsimonious lag specification. In most cases time trend is not significant, as shown below, hence it is excluded. It is possible to include log (PGDPRTO), but this has been excluded for the present. For palm oil in Indonesia, the time trend is significant and gives rise to a much more parsimonious specification, thus both cases are mentioned above.

Source: Authors' calculations.

marketing costs associated with transportation and handling of commodities between a border, a wholesale market, and a farm gate, the direct protection rates are underestimated for exported commodities. The direction of estimation bias for imported commodities depends on the differences in marketing costs at different points. While some of the earlier studies adjusted these costs, our study, which covers more than three decades, faces data limitations for them. Even when the data exist for a short period only, we did not adjust prices unless consistent estimation was possible for the entire period. Using this criterion, we adjusted the marketing costs where possible, but bias may still exist. The results of the analysis are not expected to be materially affected by omission of marketing cost adjustments.

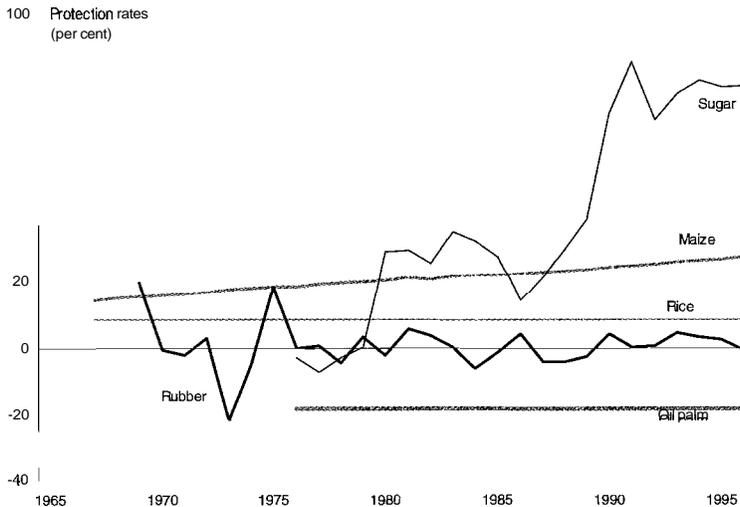
As noted above, for most cases the results are satisfactory—adjusted R^2 values are high and the estimated coefficients are of the expected signs. The most prominent result is the statistical significance of the real border prices (RBP), suggesting that for most commodities there was considerable intervention on domestic prices. Table 9.6 shows the range of the values of β computed by Equation 9.4. Though the β s changed over time because of the interaction terms included in some commodities, their values fell between 0 and 1 over time, except for Indonesian rice and sugar. Even for these two commodities, however, the coefficients are not statistically different from 0 at any satisfying level of significance. These results and the fact that the real domestic prices were more stable than the real border prices (Table 9.2) strongly suggest that government interventions were undertaken to stabilise domestic prices and that they had the intended effect. This is especially true for rice, the main staple, and sugar, the world prices of which fluctuated very widely, and for which a large part of world trade was carried out under special arrangements.

We tested the significance of the variables mentioned earlier—the second and fourth terms in Equation 9.5. One problem was multi-collinearity among these variables. They are mostly correlated strongly with time. We report mainly those found to be statistically significant. As can be seen from Tables 9.3–9.5, these variables are not significant for most cases, casting some doubt on whether the argument of past studies—that these variables are significant—applies at the country and commodity levels. The present study suggests that government intervention in prices differed considerably from one commodity to another and from one country to another.

To examine how the direct protection rates might develop over time without the price stabilisation factor, new sets of the direct protection rates were calculated by removing the price effects (Figures 9.1–9.3).¹⁰ These figures show that there is a tendency for the protection rates to converge to zero over time when the price effects are removed for many commodities, including all commodities in Thailand, and imported commodities (rice and maize) in the Philippines. This indicates that increasing protection rates in these countries were due mainly to declining real world prices over time for these commodities. Conversely, there are no discernible common trends among Indonesia's protection rates, suggesting very strong commodity-specific governmental policies toward self-sufficiency of agricultural commodities and protection of farmer interests.

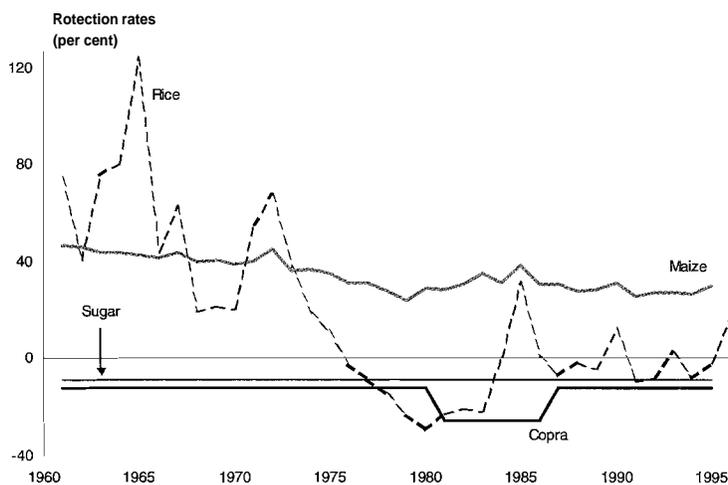
We now turn to a comparison of the protection rates across commodities. The value of the estimated β s varies significantly from one commodity to another (Table 9.6). The closer this value is to 0, the larger the intervention in domestic prices. The β for rice is statistically not different from 0 in

Figure 9.1 Predicted direct protection rates at mean value of real border prices in Indonesia



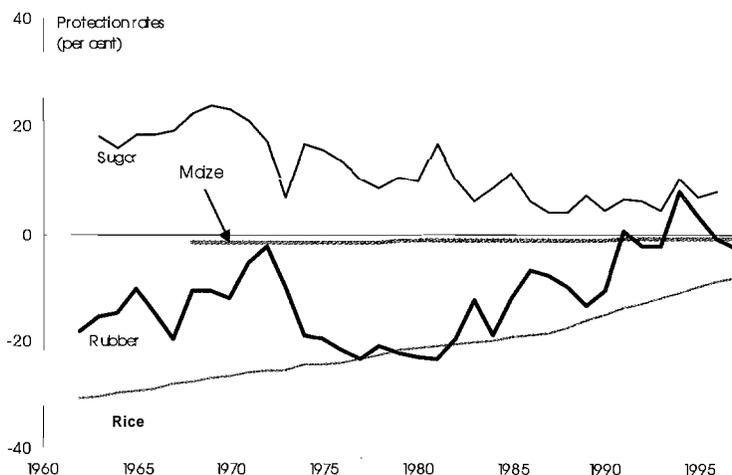
Source: Authors' calculations based on Food and Agriculture Organization of the United Nations (FAO) data.

Figure 9.2 Predicted direct protection rates at mean value of real border prices in the Philippines



Source: Authors' calculations based on Food and Agriculture Organization of the United Nations (FAO) data.

Figure 9.3 Predicted direct protection rates at mean value of real border prices in Thailand



Source: Authors' calculations based on Food and Agriculture Organization of the United Nations (FAO) data.

Indonesia. In the Philippines, the value of β ranges from 0.18 to 0.4, which is still close to zero. The value of β for Thai rice ranges from 0.61 to 0.97, indicating strong intervention at the initial period. Actually, compared to other commodities in the same countries, the value of β for rice is still closer to zero. The relative size of β for rice among the three countries is in the following order of strength of intervention — Indonesia, the Philippines, Thailand. This reflects heavy intervention carried out to stabilise the prices of this important commodity in all three countries and corroborates the findings of David and Huang (1993). As Table 9.2 shows, domestic wholesale prices of rice are considerably more stable than border prices. The interaction term with PGDP is significant for the Philippines and Thailand, indicating

Table 9.6 Range of value of β over time for different commodities in Indonesia, the Philippines, and Thailand

Commodities and countries	Value of β
Rice	
Indonesia	-0.25
Philippines	0.10–0.40
Thailand	0.61–0.97
Sugar	
Indonesia	-0.04
Philippines	0.35
Thailand	0.31
Maize	
Indonesia	0.81–0.89
Philippines	0.00–0.60
Thailand	0.95–1.20
Rubber	
Indonesia	0.87–0.89
Thailand	1.01
Oil palm	
Indonesia	0.54
Copra	
Philippines	0.76

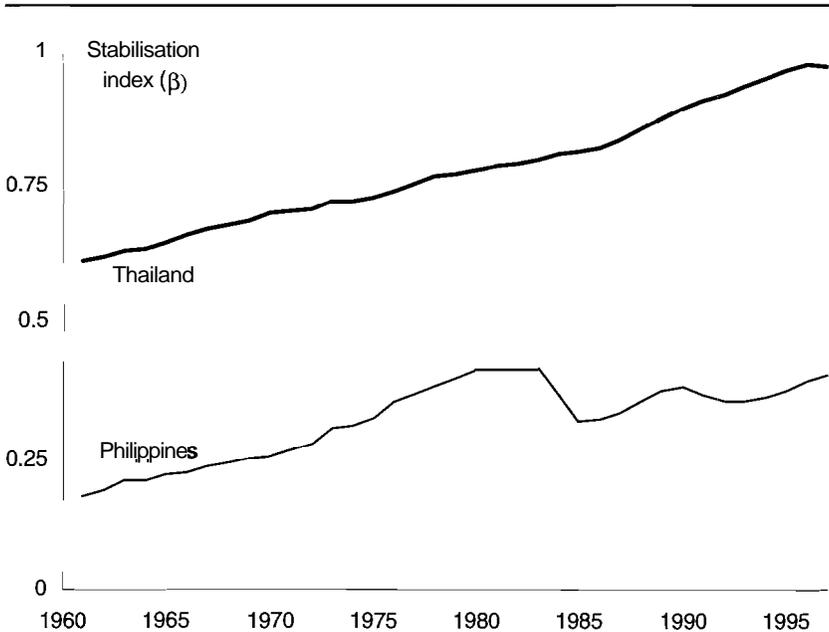
Note: Equation 9.4 gives us the value of β . β_0 in Equation 9.4 is the coefficient on $\log(\text{RBP})$ in Tables 9.3–9.5 plus 1 (see Equation 9.5). When the value of β changes over time (that is, the interaction terms in Tables 9.3–9.5 are significant), the range of the value is reported in this table. The closer the value of β to zero, the greater the price stabilisation effect.

Source: Authors' calculations.

declining intervention with PGDP in the two countries (Figure 9.4). Especially in Thailand, the value of β is closer to unity, indicating that the Thai domestic market for rice has become more closely correlated with the world price. The interaction term for Indonesia is not significant, suggesting that the extent of intervention did not decline with income as in the other two countries. The term for SSR on α is significant for the Philippines, indicating that the protection rate varied with the extent of self-sufficiency in this commodity—the greater the self-sufficiency, the lower the protection." The significance of the PGDP term on α indicates that protection for rice in Thailand increases with income.

The β s for sugar are significant and close to 0, indicating strong price intervention in the three countries (Table 9.6). As a result, a large portion of price fluctuations in the world market was absorbed by protection policies, so that domestic sugar prices were relatively stable in real terms (Table 9.2).

Figure 9.4 Price stabilisation for rice in Thailand and the Philippines, 1961–95 (estimated β)



Note: A β of zero indicates perfect stabilisation.

Source: Authors' calculations based on Food and Agriculture Organization of the United Nations (FAO) data.

Econometric results show that Indonesia's protection of sugar declined with the ratio of agricultural to non-agricultural GDP per capita (GDP_{RT0}). This is probably a reflection of the Indonesian government's policy of encouraging sugar production in the Outer Islands, as discussed above. GDP_{RT0} is not a perfect proxy for the income gap between the Outer Islands and Java, but it can partially capture it. Declining sugar yield is another government concern in Indonesia. Although its statistical power is not significant, the negative coefficient on yield per hectare (YLD) implies that a decrease in yield induces government use of protection policies to stimulate domestic production.¹²

Maize has been imported and highly protected in both Indonesia and the Philippines (Table 9.2). This is a reflection of government policies to provide production incentives to domestic producers. Tables 9.3–9.5 show that the two governments followed different intervention policies. In the Philippines, β is significant, while in Indonesia it is not, suggesting that Philippine policies had a greater price-stabilising effect than Indonesian policies. This probably reflects NFA intervention aimed at stabilising the price of maize. In Thailand, maize was exported and taxed until the 1990s. That the value of β is close to 1 (Table 9.6) reflects the government's limited intervention in this sub-sector, possibly due to its relatively small size or the fact that maize producers were not very strong politically. The significance of the interaction term between RBP and PGDP in the Philippines and Thailand indicates that price-stabilising intervention has declined with income in the two countries. The significance of PGDP for α for Thailand is consistent with the fact that the Thai government continued to reduce the tax on maize over time and finally abolished it in 1982.

Rubber is an important agricultural export commodity for Indonesia and Thailand. Unlike other commodities, the β s are not significant, suggesting that the governments did not change export tax rates in response to world market prices. Table 9.2 confirms that the instability of domestic prices is little different from that of the real border price. In the case of Thailand, however, the ratio of agricultural to non-agricultural GDP per capita is significant. This suggests that Thailand's tax on rubber was reduced substantially when falling world rubber prices caused rural income (the income of rural producers in southern Thailand) to decline significantly compared with industrial sector income.

The β for copra in the Philippines is significant not because the protection rate was affected by the current RBP, but because it was affected by the

RBP with a one-year lag (Table 9.5). The result for copra in the Philippines shows that the protection rate was affected not by the current RBP but by the RBP with a one-year lag, suggesting that effective tax was adjusted according to the prices of the preceding year. This caused domestic prices to fluctuate more than border prices (Table 9.2). The dummy variable for the years 1981–86 was used to test the significance of high taxes imposed during this period (where they were statistically significant).

CONCLUDING REMARKS

In this chapter we have analysed agricultural protection policies and rates for three Southeast Asian countries. We used econometric methods on time-series data over three to four decades to examine the characteristics of policies and rates, especially their price stabilisation effects. The results of the time-series analysis reveal aspects of agricultural commodity protection policies which cross-country analysis cannot. Direct protection rates for many commodities have been increasing since the early 1980s, and total average protection rates for Indonesia and Thailand had turned positive by the mid 1990s. In the Philippines, however, the indirect protection rate is negative, making the total average protection rate also negative in the late 1990s.

We also found that the extent of government intervention varied significantly depending on the nature of the commodity. Thus, exported commodities were found to be more heavily taxed than imported ones (a finding consistent with earlier studies), intervention was strong for rice because of its importance to both producers and consumers, and, similarly, intervention was heavy for sugar, most probably because prices fluctuated widely in the world market.

Comparison of agricultural protection rates among the three countries suggests that one of the reasons the Philippines lagged behind the other two countries in agricultural production and export growth was the effective heavy taxes the government imposed over time on agricultural products except sugar. Conversely, the high agricultural export growth of Indonesia and Thailand was probably partly due to relatively low and declining taxation in Thailand and increasing protection in Indonesia.

Our analyses support the hypothesis that the main objective of agricultural protection policies in the three countries was price stabilisation, especially for food crops. This was achieved through an effective progressive tax toward border prices over time. Both consumers and producers seem to have been shielded in the short run from abrupt price changes in world commodity

markets by these price stabilisation policies. However, we found that the degree of intervention for many commodities declined with income over time. Consequently, domestic prices have become more closely linked to world prices in recent years, but they have also become less stable.

Benefits to producers from price stabilisation policies appear to be mixed. Rice and sugar producers in the Philippines and Thailand benefited significantly. However, this was not the case for many commodities in Indonesia, whose position as a large producer of many commodities meant that the 'small country assumption' did not apply. It is not clear whether the Indonesian government was aware of the negative effects of its policies; what is clear is that careful economic policy analysis is always crucial.

Our review and analysis of implemented policies cast doubt on the validity of some of the variables treated in past studies as determinants of pricing policies. The present study indicates that variables such as income, relative agricultural wage, and existence of strong agricultural interest groups¹³ may explain protection policies for some commodities, but their effect varies critically depending on the country and the commodity. A main problem with past studies is that the variables mentioned above face serious multicollinearity problems and are also correlated strongly with declining world commodity prices. Our analysis indicates that the main factor causing protection rates to increase over time in many countries is probably declining world commodity prices.

The pricing policies of agricultural products in the three Southeast Asian countries differ from those of agricultural products in Sub-Saharan African countries in several respects. The differences are probably sufficiently significant to account for differences between the performances of the two regions' agricultural sectors. Heavy taxation on agricultural products accompanied by inflexible macroeconomic and commodity pricing policies in most African countries have caused agricultural production and exports to stagnate or even decline for many years. Because of controlled and inflexible pricing and marketing systems, many African countries continue to have problems establishing appropriate institutions to support agricultural sector growth (see, for example, Akiyama et al. 2001).

NOTES

¹ In this chapter Southeast Asia is treated a region of East Asia.

² The small negative number for palm oil is probably due to measurement errors.

³ This is based on the optimal tax theory (Siamwalla and Setboonsarng 1989).

- ⁴ This pattern is also noted in a World Bank internal evaluation report of 1994 on the rubber replanting project.
- ⁵ The equation is $\frac{B}{\bar{Y}} = -\frac{1}{2}RA\sigma_y'$, where B is the benefit, \bar{Y} is mean income, σ_y' is the coefficient of variation, and R is the coefficient of relative risk aversion. We assumed unity for R.
- ⁶ The β coefficient is often referred to as the transmission elasticity because it indicates by what percentage DP changes when BP changes by 1 per cent. This can easily be seen by converting Equation 9.1 into log form (Mundlak and Larson 1992).
- ⁷ Most of the studies explain the rationale of protection descriptively. Swinnen (1994) and de Gorder and Tsur (1991) identify the factors using their mathematical economic models.
- ⁸ The GDP per capita used in our analysis is GDP at constant price of 1995 US dollars divided by total population.
- David and Huang (1993) stress that this may not be applicable to developed countries where 'the relative size of major agricultural exports to the whole economy is small and per capita income is high and thus the country can afford to subsidize exports along with efforts to subsidize its agricultural sector'.
- ¹⁰ This was done by inserting the period averages of RBP in the equations in Table 9.3.
- ¹¹ The self-sufficiency ratio may increase as protection is strengthened. If this is the case, however, we would have positive coefficient on SSR. The Granger causality test between SSR and DPC for rice in the Philippines implies causality direction from SSR to DPC.
- ¹² Like the SSR, the YLD may suffer a causality problem. Again, the Granger causality test is performed between YLD and DPC, implying causality from YLD to DPC.
- ¹³ The interest group argument (for example, van Bastelaer 1998, Schiff and Valdes 1992) has other weaknesses. We believe political pressure played an important role in reducing direct taxation on some commodities, including sugar and rubber in Thailand. To represent such political pressure by pointing to the decline in the economic importance of agriculture in general or agricultural labour as some earlier studies have done is probably inappropriate. In the countries we studied, political pressure groups were usually formed by commodities, not by farmers in general. This is in accordance with the interest group argument, since communication is easier among growers of a particular crop and the number of farmers who grow it is usually much smaller than the total number of farmers. What seems to be important for successful formation of pressure groups is geographic concentration with sufficient economic, and hence political power, to influence policy decisionmakers. This is in accordance with the argument of Hayami and Ruttan (1985) on the behaviour of political entrepreneurs, which suggests that political pressure is not a monotonically decreasing function of the number of people in a particular group or its economic importance. Gardner (1987) finds from analysing US agricultural protection policies that it is a non-linear function. It is difficult to imagine a very small group of farmers having significant political power when their economic power is insignificant.

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APPENDIX DESCRIPTION AND SOURCES OF DATA USED

Thailand

The direct, indirect and total protection rates and equilibrium exchange rates in Thailand from 1960 to 1985 are from Siamwalla and Setboonsarng (1989). From 1986 to 1995, we use Siamwalla and Setboonsarng (1989) to estimate all rates. The sources of the data are as follows.

Rice border price: FAOSTAT—FAO (Food and Agriculture Organization of the United Nations), n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

Rice domestic price: We use an estimated value based on the OLS regression of rice domestic price from Siamwalla and Setboonsarng (1989) on rice wholesale prices from *World Rice Statistics* (International Rice Research Institute, Los Banos). The estimated equation is

Domestic price = 0.6082137*(Wholesale price)

adjusted R² =0.999

the coefficients are significant at 1% level.

Maize border price: FAOSTAT

Maize domestic price: We do not need maize domestic price after 1982 because all interventions stopped.

Rubber border price: FAOSTAT

Rubber domestic price: Calculated as the border price per ton minus duties and cess (surcharge) per ton. Duty and cess from 1980–91 are from National Statistical Office (Thailand), 1997. *Thailand Rubber Statistics*, vol. 26, no. 2, National Statistical Office, Bangkok.

Sugar border price: FAOSTAT

Sugar *domestic price* at grower level: We use an estimated value based on the OLS regression of raw equivalent sugar price from Siamwalla and Setboonsarng (1989) on sugarcane producer price from FAOSTAT. The estimated equation is

$$\text{Grower price} = -257053 + 131.2675 * (\text{year}) \\ + 8.716521 * (\text{Sugar cane price})$$

adjusted $R^2 = 0.96$, and all the coefficients are significant at 1% level.

Nominal exchange rate (E_{ϕ}): IMF, various dates. International Financial Statistics, International Monetary Fund, Washington, DC.

Supply of foreign exchange (Q_s): ESCAP (Economic and Social Commission for Asia and the Pacific), various dates. *Statistical Yearbook for Asia and the Pacific*, Economic and Social Commission for Asia and the Pacific, Bangkok.

Demand for foreign exchange (Q_D): *Statistical Yearbook for Asia and the Pacific*.

Elasticity of supply (e_s): Values presented in Siamwalla and Setboonsarng (1989), Table 4.4.

Elasticity of demand (e_D): Calculated using the formula given in Siamwalla and Setboonsarng (1989), pp. 123–7.

Import tax (t_M): General Agreement on Tariffs and Trade, 1991. *Trade Policy Review: Thailand 1991*, vol. 1, General Agreement on Tariffs and Trade, Geneva:82 (Average import tariff rates, assuming no change after 1991).

Export tax (t_x): Direct protection rate for each commodity.

Tax on nonagricultural tradables (t_{NA}): Represented by tax on fuel and tax on clothes from *Trade Policy Review: Thailand 1991*.

Philippines

The direct, indirect and total protection rates and equilibrium exchange rates in the Philippines from 1960 to 1985 are from Intal and Power (1989). From 1986 to 1995, we use Intal and Power (1989) to estimate all rates. The sources of the data are as follows.

Rice border price: FAOSTAT

Rice wholesale price: IRRI (International Rice Research Institute), various years. *World Rice Statistics*, International Rice Research Institute, Los Banos. We use the wholesale prices for domestic prices, and adjust the border prices to the wholesale level as in Intal and Power (1989).

Maize border price: FAOSTAT

Maize wholesale price: Bureau of Agricultural Statistics, various years. *Statistical Annexes of the Food and Agriculture Centennial Book*, Bureau of Agricultural Statistics, Quezon City. We use the wholesale prices for domestic prices, and adjust the border prices to wholesale level as in Intal and Power (1989).

Copra border price: FAOSTAT

Copra domestic price: Estimated value based on the OLS regression of copra domestic price from Intal and Power (1989) on coconut producer prices from FAOSTAT. The estimated equation is

$$\text{Copra domestic price} = 113.2156 - 0.05729 * (\text{year}) \\ + 0.004482 * (\text{coconut producer price})$$

adjusted $R^2 = 0.81$; all the coefficients are significant at 1% level.

Sugar border price: FAOSTAT

Sugar domestic price at grower level: Estimated value based on the OLS regression of raw equivalent sugar price from I&P on sugarcane producer price from FAOSTAT. The estimated equation is

$$\text{Grower price} = -184.8 + 0.939 * (\text{year}) + 0.006 * (\text{sugarcane price})$$

adjusted $R^2 = 0.95$; all the coefficients are significant at 1% level.

Nominal exchange rate (E_o): IMF, various dates. *International Financial Statistics*, International Monetary Fund, Washington, DC.

Supply of foreign exchange (Q_J): *International Financial Statistics*.

Demand of foreign exchange (Q_D): *International Financial Statistics*.

Elasticity of supply (e_s): Assuming no change after 1985, we use the values presented in Intal and Power (1989).

Elasticity of demand (h_D): Assuming no change after 1985, we use the values presented in Intal and Power (1989).

Import tax (t_M): General Agreement on Tariffs and Trade, 1993. *Trade Policy Review: the Philippines 1793*, vol. 1, General Agreement on Tariffs and Trade, Geneva.

Export tax (t_X): *Trade Policy Review: the Philippines 1773*.

Tax on nonagricultural tradables (t_{NA}): *Trade Policy Review: the Philippines 1773*.

Indonesia

There is no predecessor like Siamwalla and Setboonsarng (1989) or Intal and Power (1989) for Indonesia. We estimated all the rates for Indonesia

from 1967 to 1995. The initial year is 1967 because the Indonesian government started a new currency system in that year.

Rice border price: FAOSTAT.

Rice wholesale price: Badan Pusat Statistik, various years. *Statistical Yearbook of Indonesia*, Badan Pusat Statistik, Jakarta.

Maize border price: FAOSTAT

Maize wholesale price. *Statistical Yearbook of Indonesia*.

Rubber border price: FAOSTAT

Rubber domestic price: Domestic price is calculated as the border price per ton minus export tax and stamp duties per ton. Tax and duty are from World Bank 1989. *Strategies for Sustainable Development of Tree Crops*, Report No. 7697-IND, World Bank, Washington, DC.

Oil palm border price: FAOSTAT

Oil palm domestic price: From 1976 to 1990, Joint Marketing Office, various dates. *Monthly Report*, Joint Marketing Office, Jakarta; from 1991 to 1995, calculated value from tax schedule in Larson (1996).

Sugar border price: FAOSTAT.

Sugar domestic price at miller level: International Sugar Organization, various years. *Sugar Year Book*, International Sugar Organization, London.

Nominal exchange rate (E_ρ): *International Financial Statistics*.

Supply of foreign exchange (Q_s): *Statistical Yearbook for Asia and the Pacific*.

Demand for foreign exchange (Q_D): *Statistical Yearbook for Asia and the Pacific*.

Elasticity of supply (e_s): Because the structure of the economies is similar, we use the same elasticity as that used in the case study of Malaysia (= 0.5).

Elasticity of demand (h_D): Because the structure of the economies is similar, we use the same elasticity as that used in the case study of Malaysia (= 1.5).

Import tax (t_M): The effective rate of protection for the import-competing sector used by Bhattacharya and Pangestu (1993).

Export tax (t_X): The effective rate of protection for the export-competing sector used by Bhattacharya and Pangestu (1993)

Tax on nonagricultural tradables (t_{NA}): The effective rate of protection for the non-agricultural trading sector used by Bhattacharya and Pangestu (1993).

10

COMPARING AGRICULTURAL EXPORTS FROM THREE SOUTHEAST ASIAN COUNTRIES

Masayoshi Honma and Takehiko Hagino

Agricultural exports are an important source of foreign exchange and contribute to overall economic growth in many developing countries.' Expansion of agricultural exports can increase income and augment foreign exchange earnings, particularly in a country in the process of accelerating its development efforts (Johnston and Mellor 1961), since foreign exchange helps to promote overall economic development (Myint 1975).

Another potential advantage of agricultural exports is that importers in developed countries are likely to provide exporting developing countries with capital and technical advice on production and product improvement. The benefits of such advice may spread from the export sector to food production for domestic markets as well (Ghatak and Ingersent 1984). Even in countries that have shifted the weight of their economies from agriculture to manufacturing and other sectors, agricultural exports continue to play an important role in creating income in rural areas and related sectors.

In the 1950s and 1960s, however, it was widely believed that rapid growth in developing economies could not be achieved through increased agricultural (primary commodity) exports because forces limiting demand for primary products would cause an inevitable deterioration in terms of trade for primary commodities.² This belief was the foundation for an import substitution strategy that persisted even in the 1980s.³

Such pessimism may apply to agricultural exports as a whole because both price and income elasticities of demand for agricultural products are

generally low. However, it is not necessarily true that demand is a serious constraint to export of individual commodities from each country. For a small country, the price elasticity of demand for exports of a homogeneous commodity is large and there is a huge potential for gains if more efficient production reduces the export price. There are also many agricultural commodities whose demand elasticities are relatively large in terms of both price and income, such as horticultural products and processed foods. To take advantage of such opportunities to gain from agricultural exports, exporting countries must be able to adjust to dynamic changes in international markets and develop markets with large price and income elasticities of demand. Agricultural export performance for individual countries is determined not only by external factors (demand forces), but also by internal factors (changes in supply-side capability).⁴

This chapter assesses the agricultural export performance of Indonesia, the Philippines and Thailand since the 1960s and examines differences among the three in light of changes in both external and internal factors during this period. In the next section we provide a brief overview of the performance of agricultural exports from the three countries, then apply an econometric model to identify differences. The model tries to explain growth and patterns of agricultural exports with reference to external market conditions (world demand) and internal factors (competitiveness and export diversification), applied not only to aggregated agricultural exports but also to individual commodity exports. We then go on to explore the demand structure for exports by commodity in selected markets using a formal demand system model, then examine the transmissibility of export prices to import markets. Finally, we use the results of our statistical analyses to discuss the differences in the performance of the three countries' agricultural exports and draw conclusions about economic growth and rural welfare in the three.

PERFORMANCE OF AGRICULTURAL EXPORTS

Total exports of agricultural products

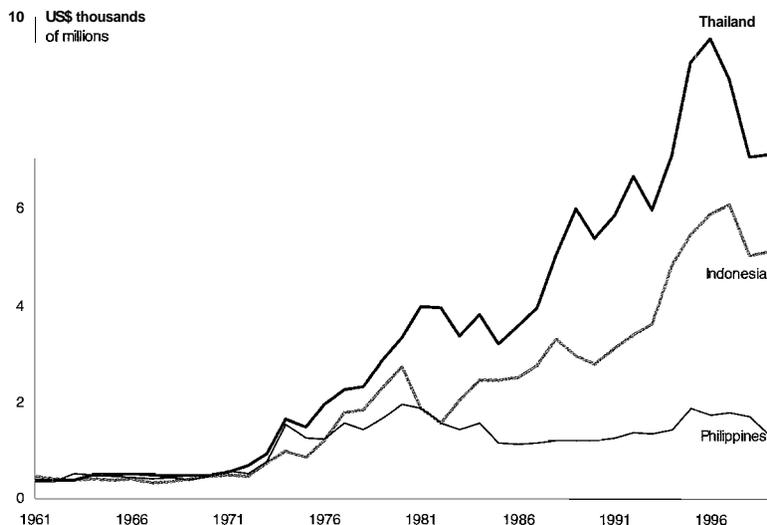
During the 1960s, agricultural exports from the Philippines, Indonesia and Thailand were similar in total volume, with exports values from the three countries remaining stable at \$400–500 million⁵ (Figure 10.1). Later, however, clear differences emerged. The Philippines remains at a low level of agricultural exports today, far behind Indonesia and Thailand. For the

period from 1961–63 to 1995–97, Thailand recorded a growth rate for agricultural exports of 9.7 per cent per year. The corresponding rate for Indonesia was 8.0 per cent per year, while for the Philippines it was just 4.4 per cent per year.

Thailand had the first spurt of agricultural export growth during the 1970s—more than 20 per cent per year in value and about 10 per cent per year in volume (Table 10.1). Indonesia followed Thailand in terms of the increased value of its exports, but by volume in the 1970s it remained at the level of the Philippines (Figure 10.2).

Differences in export performance among the three countries became clearer during the 1980s. The value of Thai and Indonesian agricultural exports continued to grow at annual rates of 5.4 and 2.5 per cent, respectively, while the growth rate of the value of Philippine agricultural exports turned negative (Table 10.1), widening the export gap between the Philippines and the other two countries.

Figure 10.1 Agricultural exports from Indonesia, the Philippines and Thailand, 1961–97



Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

During this period, the Philippines faced political instability that damaged its overall economic performance and external terms of trade. Indonesia's agricultural export volume increased at a rate of 6.7 per cent per year, a rate greater than Thailand's, but the value of its agricultural exports did not grow as strongly—their unit value index fell from 149 in 1979–81 to 100 in 1989–91 (Table 10.1).

During the 1990s (up until the currency crisis of 1997), the value of Thailand's agricultural exports continued to increase, averaging more than \$9 billion per year in 1995–97, while Indonesian exports also increased and averaged \$5.8 billion during 1995–97. Agricultural exports from the Philippines, on the other hand, averaged only \$1.8 billion per year during 1995–97, less than during 1979–81.⁶ Despite the positive growth rate in nominal dollars for Thai agricultural exports, Thailand's export volume in

Table 10.1 Agricultural export performance of Indonesia, the Philippines and Thailand (three-year averages)

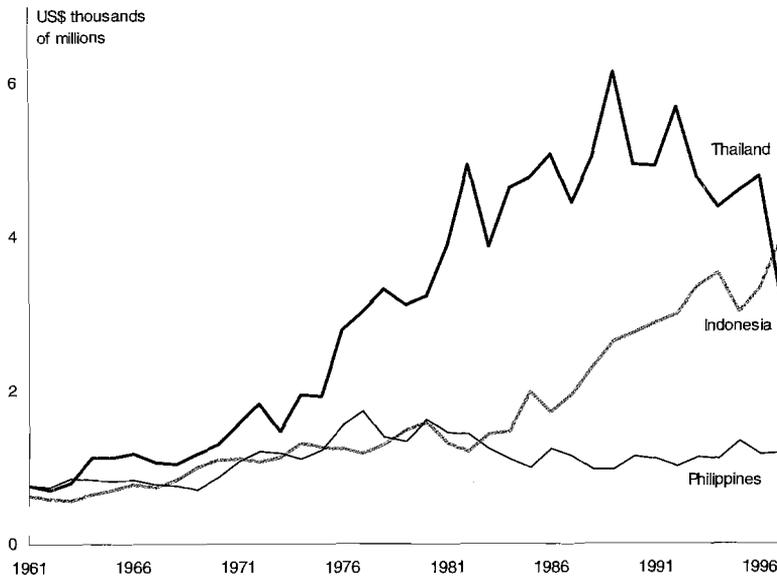
	1961–63	1969–71	1979–81	1989–91	1995–97
a. Total value of agricultural exports (US\$ million)					
Indonesia	425	459	2,314	2,962	5,829
Philippines	420	485	1,849	1,240	1,813
Thailand	391	518	3,410	5,760	9,077
b. Growth rate of (a) from previous period (compound annual rate, per cent)					
Indonesia		1.0	17.5	2.5	11.9
Philippines		1.8	14.3	-3.9	6.5
Thailand		3.6	20.7	5.4	7.9
c. Agricultural export value at 1989–91 prices (US\$ million)					
Indonesia	596	1,067	1,447	2,757	3,430
Philippines	787	877	1,462	1,069	1,221
Thailand	756	1,341	3,414	5,325	4,209
d. Growth rate of (c) from previous period (compound annual rate, per cent)					
Indonesia		7.5	3.1	6.7	3.7
Philippines		1.4	5.2	-3.1	2.2
Thailand		7.4	9.8	4.5	-3.8
e. Unit value index of agricultural exports (1989–91 = 100)					
Indonesia	69	42	149	100	159
Philippines	48	52	119	100	128
Thailand	47	36	93	100	167

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

real terms (1989–91 prices) declined during the 1990s and was exceeded by Indonesia's in 1997 (Figure 10.2). Thai exports of traditionally important commodities declined sharply, while the overall export unit value index increased from 100 to 167, which contributed to the positive export growth in nominal terms during the period. During the 1990s, Thai agricultural exports underwent significant structural changes.

Agricultural exports as a share of total exports from the three countries have declined dramatically (Figure 10.3). In the 1960s, the share of agriculture in exports was 50–60 per cent in Indonesia and the Philippines and about 80 per cent in Thailand. Agriculture's share in Indonesia declined sharply in the early 1970s because of rapid increases in its oil exports during the first oil crisis. Agriculture's share in the Philippines and Thailand, on the other hand, rose in 1974 as food prices soared on the world markets. Each country's agricultural exports now make up 10–15 per cent of total exports.

Figure 10.2 Agricultural exports from Indonesia, Thailand and the Philippines, 1961–97 (1989–91 prices)

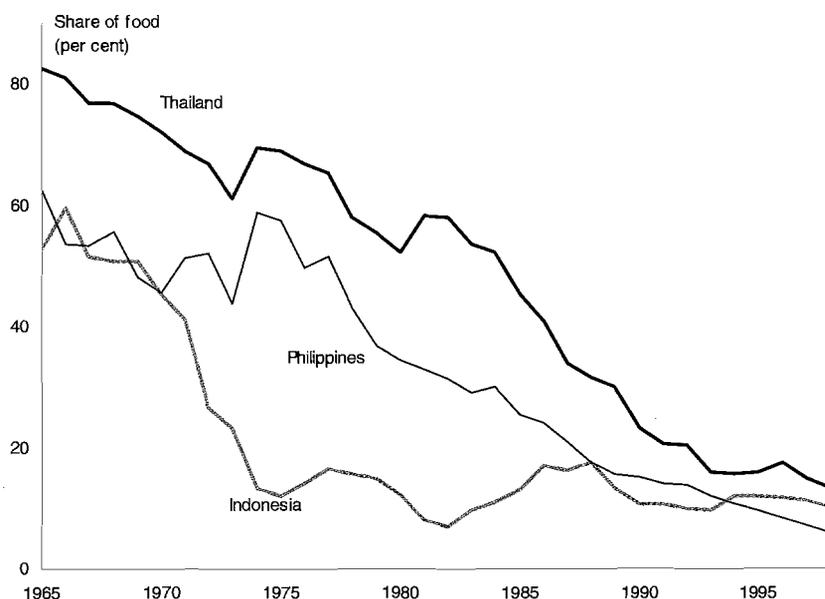


Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

The recent rapid growth of agricultural exports from Indonesia has kept pace with non-agricultural exports, thus stabilising the share of agricultural exports (Figures 10.1 and 10.3). In the Philippines, the agricultural share declined, and agricultural exports have been stagnant for the past two decades. Despite the growth of agricultural exports from Thailand, their share of the country's total exports has declined sharply since the 1980s as rapid industrialisation has boosted the growth of non-agricultural exports.

Thailand appears to have shifted its comparative advantage from agriculture to industry, although the performance of agricultural exports has also been prominent.' The success of both agricultural and industrial exports suggests that, until the recent currency crisis, industrialisation occurred smoothly in Thailand, as far as changes in export composition are concerned.

Figure 10.3 Agricultural exports from Indonesia, Thailand, and the Philippines as a share of total commodity exports, 1961–97



Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/> and United Nations, n.d. UN Comtrade (United Nations Commodity Trade Statistics), United Nations Statistics Division, New York

Export performance by commodity

To investigate structural changes in agricultural exports further, it is necessary to examine export performance by commodity (Table 10.2). The export value of the five commodities for each country in this table account for 60–80 per cent of their total value of agricultural exports, depending on country and year.

Indonesia. In Indonesia, rubber was the most important agricultural export at 67 per cent of total agricultural exports during 1961–63, but its share declined to just 30 per cent in 1995–97. The export quantity of natural rubber remained relatively stable and increased by 100 per cent from 1961–63 to 1995–97 (2.1 per cent per year). Although natural rubber still dominates Indonesian agricultural exports, coffee and palm oil have increased their shares. In the 1960s and 1970s in particular, exports of coffee grew rapidly and accounted for 23 per cent of Indonesian agricultural exports during 1979–81. The growth of coffee exports was supported not only by increased quantities, but also by favourable price (unit value) movements. In the 1980s and 1990s, however, coffee exports stagnated, and their share in total export value decreased to 10 per cent in 1995–97.

Meanwhile, Indonesian exports of palm oil increased constantly and their value share of agricultural exports reached 19 per cent in 1995–97. In the 1980s, higher export quantities increased the value of palm oil exports by 70 per cent, despite a 50 per cent decline in unit value. Tea used to be a major Indonesian export, but its share dropped to just 2 per cent of agricultural exports in 1995–97, while cocoa beans emerged as an important crop, contributing 4 per cent to the value of agricultural exports during 1995–97. As a whole, Indonesia seems to have succeeded in diversifying its export commodities by increasing exports of non-traditional products but not replacing traditional ones such as natural rubber and tea.'

Philippines. The Philippines experienced drastic structural changes in their agricultural exports during the late 1970s and 1980s. In the 1960s and 1970s, the most important agricultural export was sugar, with a share of 35–40 per cent of agricultural export value. Sugar exports during the 1960s and 1970s were supported by a quota system in which producers could access the US market at premium prices. Because of this quota system, Philippine sugar was exported exclusively to the United States until the quota system was terminated in 1973. Without the support system, Philippine sugar lost its competitiveness and sugar exports rapidly declined.

Table 10.2 Export quantity, value and unit value of major commodities, Indonesia, the Philippines and Thailand (three-year averages)

	1961-63	1969-71	1979-81	1989-91	1995-97
Indonesia					
Cocoa bean					
Quantity ('000 tons)	0.05	0.40	5.0	99.7	230.1
Value (US\$ million)	0.05	0.24	10.5	96.1	260.7
Unit value (US\$/ton)	917	515	2183	974	1148
Coffee, green					
Quantity ('000 tons)	64.5	101.9	223.2	386.2	303.2
Value (US\$ million)	14.9	61.4	538.7	412.1	570.4
Unit value (US\$/ton)	230	626	2394	1079	1963
Palm oil					
Quantity ('000 tons)	109.1	182.4	356.8	1148.4	2106.2
Value (US\$ million)	19.7	34.6	191.6	323.3	1083.5
Unit value (US\$/ton)	181	190	542	283	521
Natural rubber, dry					
Quantity ('000 tons)	672.1	787.1	872.6	1108.2	1363.2
Value (US\$ million)	284.1	231.9	965.1	895.5	1754.3
Unit value (US\$/ton)	425	295	1099	808	1291
Tea					
Quantity ('000 tons)	29.6	39.5	66.4	112.0	82.5
Value (US\$ million)	21.4	18.7	99.0	162.3	96.3
Unit value (US\$/ton)	717	456	1497	1450	1181
Philippines					
Banana					
Quantity ('000 tons)		132.5	883.3	877.6	1203.0
Value (US\$ million)		7.6	111.6	155.4	225.5
Unit value (US\$/ton)		57	126	177	187
Coconut oil					
Quantity ('000 tons)	145.0	316.3	920.6	912.6	1071.1
Value (US\$ million)	35.1	84.5	614.3	345.4	690.1
Unit value (US\$/ton)	233	266	685	389	653
Pineapple, canned					
Quantity ('000 tons)	50.7	79.3	183.0	189.0	209.0
Value (US\$ million)	9.9	19.3	81.4	91.7	86.6
Unit value (US\$/ton)	194	241	446	485	419
Sugar, total (raw equiv.)					
Quantity ('000 tons)	1060.4	1223.4	1380.9	244.8	223.9
Value (US\$ million)	149.2	187.2	467.4	105.3	95.4
Unit value (US\$/ton)	140	153	332	430	426

Tobacco leaves					
Quantity ('000 tons)	21.9	39.0	25.6	15.9	16.2
Value (US\$ million)	11.2	14.9	36.5	26.8	26.3
Unit value (US\$/ton)	509	391	1419	1672	1633
Thailand					
Cassava, total (equiv.)					
Quantity ('000 tons)	1626.5	3206.2	13437.5	22061.8	12988.6
Value (US\$ million)	20.4	53.2	655.6	915.9	633.5
Unit value (US\$/ton)	15	17	49	42	50
Maize					
Quantity ('000 tons)	594.6	1551.2	2237.0	1216.0	73.4
Value (US\$ million)	30.8	91.5	334.2	158.1	18.5
Unit value (US\$/ton)	52	59	149	130	267
Rice (milled rice equiv.)					
Quantity ('000 tons)	1420.9	1226.0	2873.7	4887.2	5740.0
Value (US\$ million)	163.2	134.2	975.9	1350.4	2036.4
Unit value (US\$/ton)	115	113	338	276	356
Natural rubber, dry					
Quantity ('000 tons)	188.5	286.6	482.7	1103.7	1528.0
Value (US\$ million)	98.1	109.0	568.7	922.8	1984.0
Unit value (US\$/ton)	521	383	1181	838	1302
Sugar, total (raw equiv.)					
Quantity ('000 tons)	33.1	82.5	920.7	2803.5	4198.2
Value (US\$ million)	2.7	8.4	273.3	673.4	1153.8
Unit value (US\$/ton)	81	108	304	243	275

Source: Food and Agriculture Organization of the United Nations, n.d. FAOSTAT (FAO Statistical Database), Food and Agriculture Organization of the United Nations, Washington, DC, <http://apps.fao.org/>.

By 1995–97, sugar exports came to just 224,000 tons in volume, less than one-sixth the 1979–81 level, and contributed only 5 per cent of total agricultural export value. In sugar's place, coconut oil emerged as a major export commodity, with its share rising to 33 per cent during 1979–81 and 38 per cent in 1995–97. Exports of coconut oil also depend on the US market, which imports about one-half of Philippine exports.

During the 1970s, banana became a major export commodity, mainly supplying the Japanese market. Banana exports accounted for 12 per cent of agricultural exports during 1995–97, with about two-thirds exported to Japan. The shares of canned pineapple and tobacco leaves in agricultural exports during 1995–97 remained at 4.8 and 1.5 per cent, respectively. The Philippines' performance in agricultural exports was healthy in the

1960s and 1970s, but faced difficulties in the subsequent era of domestic deregulation and international trade liberalisation.' So far no substitutes for sugar exports have emerged, with exports of other products slow to grow, most remaining at 1979–81 levels.

Thailand. Thai agricultural exports over the past four decades were the most prominent among the three countries. Rice was the most important export commodity at 42 per cent of the value of all agricultural exports during 1961–63, although its share had declined to 22 per cent by 1995–97. The second most important commodity was natural rubber, which accounted for 25 per cent of the value of all agricultural exports during 1961–63. The share of natural rubber declined to 16 per cent during 1989–91 but increased to 22 per cent during 1995–97. In terms of quantity, exports of natural rubber expanded by 130 per cent during the 1980s (8.7 per cent per year), making Thailand the world's largest exporter of natural rubber.

Thailand's rapid growth in agricultural exports during the 1960s and 1970s was supported by the rapid expansion of cassava and maize exports. Cassava exports increased from 1.6 to 3.2 million tons during the 1960s and reached 13.4 million tons during 1979–81, contributing 19 per cent to Thai agricultural exports. Maize exports grew from 0.6 to 1.6 million tons during the 1960s and had reached 2.2 million tons by 1979–81, while the value share of maize in agricultural exports was as high as 18 per cent during 1969–71 and 10 per cent during 1979–81. During the 1980s and 1990s, however, exports of these two commodities stagnated. Cassava exports declined from 22.1 million tons during 1989–91 to 13.0 million tons during 1995–97, despite the favourable price (unit value), and the share of cassava in agricultural exports dropped to 7 per cent during 1995–97. Declining cassava exports were mainly due to smaller quotas in the EU market.

The decline of maize exports was more drastic. Exports were halved during the 1980s and had almost disappeared by 1995–97, when they amounted to just 73,400 tons, only 0.2 per cent of the value of Thai agricultural exports during the period. This rapid decline was caused by the termination in 1981 of a contract with Japan, the major market for Thai maize. Increases in domestic demand for maize for feed also reduced maize exports. Later, Thailand became a net importer of maize.¹⁰

These structural changes in Thai agricultural exports explain why the growth rate in real terms (volume at 1989–91 price) slowed during the

1980s and even turned negative in the 1990s (Table 10.1). Unlike the Philippines, however, Thailand successfully increased production and exports to replace products that lost their competitiveness in international markets. Quantities of natural rubber and sugar exports both increased, and favourable prices more than offset the negative effects of reduced exports of cassava and maize, thus the value of total agricultural exports grew during the 1990s.

Agricultural exports by destination

In examining structural changes in agricultural exports, it is useful to look at each of the three countries' trade partners over time (Table 10.3).

For Indonesia, the most important partner in the 1960s (1965–67) was the European Economic Community (now the European Union), to which it directed 41 per cent of total food exports. The United States was Indonesia's second most important partner, purchasing 27 per cent of its food exports. The importance of these two destinations has declined, however, and the

Table 10.3 Composition of food exports from Indonesia, the Philippines and Thailand, by destination, 1965–97 (per cent)

	Indonesia			Philippines			Thailand		
	1965	1980	1995	1965	1980	1995	1965	1980	1995
	-67	-82	-97	-67	-82	-97	-67	-82	-97
ASEAN 6 ^a	7.9	11.5	15.6	0.2	9.3	4.8	30.9	17.4	12.8
Japan	13.2	23.9	32.4	5.7	21.6	34.8	20.3	10.3	19.3
China	0.7	0.7	3.1	0.0	2.9	2.1	0.0	2.8	7.4
Other Asia	5.4	5.1	10.0	0.7	9.2	13.3	29.4	11.0	10.7
Middle East	0.2	1.4	1.3	0.0	5.0	3.3	3.9	10.9	6.9
Africa	0.0	2.8	1.8	0.0	1.0	1.0	3.5	7.8	5.8
EC 12 ^b	40.7	29.8	15.1	9.3	12.6	10.1	7.9	24.3	17.3
Latin America	0.0	0.2	0.6	0.0	0.8	0.4	0.0	0.8	0.7
United States	26.6	19.1	15.3	82.2	26.3	24.9	3.6	5.8	11.4
Rest of world	5.3	5.5	4.8	1.9	11.3	5.3	0.5	8.9	7.7
Total	100	100	100	100	100	100	100	100	100

^a Brunei, Indonesia, Malaysia, Philippines, Singapore, and Thailand.

^b Belgium, Luxembourg, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, and United Kingdom.

Source: United Nations, n.d. UN Comtrade (United Nations Commodity Trade Statistics), United Nations Statistics Division, New York

share of each dropped 15 per cent during 1995–97. Meanwhile, agricultural exports to Japan increased, and Japan's share jumped to 32 per cent during 1995–97 from 13 per cent during 1965–67. Indonesian food exports to other ASEAN countries increased gradually, as did exports to other Asian countries. Indonesia diversified its food exports to more partners over the decades by shifting destinations from the European Union (EU) and United States to Asian markets. Asian developing countries (the ASEAN six, China, and other Asian countries) imported 29 per cent of Indonesian food exports during 1995–97.

Philippine food exports during the 1960s depended heavily on the US market, which purchased 82 per cent during 1965–67. The US share declined sharply in the 1980s because special treatment of Philippine exports to the United States stopped; by 1995–97 the US share was down to 25 per cent. Over the decades, the Philippines strengthened its food exports to Japan, whose share soared to 35 per cent during 1995–97 from 6 per cent during 1965–67. The Philippines diversified destinations for food exports to Asia, and sent about 20 per cent of exports to Asian developing countries during 1995–97.

Compared to Indonesia and the Philippines, food exports from Thailand were highly diversified even during the 1960s. Japan was Thailand's most important partner, purchasing 20 per cent of its food exports during 1965–67. During the 1960s, Thailand exported food mainly to Asian countries, with the share as large as 60 per cent during 1965–67. Later, however, it diversified its food exports to other areas of the world. While Japan's share was still at 19 per cent during 1995–97, that of Asian developing countries had been halved to 31 per cent, although exports to China increased. Thailand has very successfully developed new markets and destinations for its agricultural products, which is one of the reasons it has continued to enjoy such a high growth rate for agricultural exports over the decades.

PRINCIPAL AGRICULTURAL EXPORTS

Determinants

Differences in the performance of agricultural exports are the result of market movements in importing countries, as well as supply responses. Expansion of world markets for traditional export products is a major factor on the demand side. If the market expansion is external, the success of exports from a country depends on domestic supply conditions. The major factor

on the supply side is the country's ability to maintain its competitiveness" in exports of traditional products and diversify to new product lines (Athukorala 1998). It is worthwhile, then, to compare the sensitivity of exports to the three variables of external market expansion, competitiveness, and commodity diversification as determinants of export performance.

The conventional approach to disaggregating trade performance into market expansion and competitiveness is constant market share analysis (CMSA), which is simple and easy to calculate for each factor, but cannot explain the effects of new products introduced after the base period and hence does not allow diversification effects to be directly considered.¹² We use the approach of Athukorala (1991), who adopted the methodology of Kravis (1970b) and Love (1984), which involves a time-series regression analysis in which the three independent factors are separately measured as indexes to explain changes in agricultural export volumes in real terms. It is expressed as

$$XV_t = F(WD_t, CM_t, DV_t) \quad (10.1)$$

where XV is volume of total agricultural exports in real terms, WD is world demand for exports of traditional agricultural products for a country, CM is competitiveness in exports of traditional agricultural products, DV is export diversification, and t represents time.

World demand (WD) is measured in terms of world exports of agricultural commodities at constant prices weighted by the importance of each commodity for the given exporting country in an initial period

$$WD_t = \sum_{i=1}^n \alpha_i WX_{it} \quad (10.2)$$

where α_i is the share of commodity i in the country's total agricultural exports in the initial period, WX_{it} is world exports of commodity i at a constant price, and n is the number of agricultural commodities exported from the country. If we consider traditional products to be those with large shares in total agricultural exports in the initial period, WD represents world demand for traditional agricultural exports for the county.

An index to measure the competitiveness of traditional agricultural exports (CM) is constructed as the ratio of actual (observed) exports to hypothetical exports. The latter are estimated assuming that the country maintained its initial market shares in exports of these commodities. Therefore,

$$CM_t = 100 \left[\frac{\sum_{i=1}^n XP_{it}}{\sum_{i=1}^n \beta_i XW_{it}} \right] \quad (10.3)$$

where, for each i -th commodity, XP is the value of exports from the given country, XW is the value of world exports, and β is the country's share of the world market in the initial period.

Export diversification (DV) is measured by the Gini-Hirschman coefficient

$$DV_t = 100 \sqrt{\frac{\sum_{i=1}^m \left(X_{it} / \sum_{i=1}^m X_{it} \right)^2}{m}} \quad (10.4)$$

where X_{it} is value of exports of the given commodity and m is the number of commodities for total agricultural exports. DV is an indirect measure of diversification or a direct measure of concentration. If total exports are composed of a single commodity, DV takes the highest figure of 100. As m increases and/or total exports are more evenly distributed, the DV index takes a lower value.

The coefficients of WD and CM are expected to be positive. DV is an inverse measure of diversification, so the sign of the coefficient is hypothesised to be negative if diversification contributes to increases in total agricultural exports. As mentioned previously, WD captures the external market conditions while CM and DV are considered to reflect domestic supply factors including various policy changes.

Empirical estimations

The model was applied to agricultural export performance in Indonesia, the Philippines and Thailand using export data from 1961 to 1997. It is desirable to introduce all exported agricultural commodities to the model, but consistent export data in appropriate categories are not available. Therefore, the model is applied to exports of principal agricultural products during the last four decades from each country — commodities that were recorded as one of the top ten in export value at least once in any of the four decades. The number of principal commodities is 18 for Indonesia, 15 for the Philippines, and 17 for Thailand. The value of the principal commodities covers 80–99 per cent of the total agricultural export value for the three countries, with variations by country and year.

The data for the variable XV are total values of principal agricultural exports in US dollars evaluated at 1990 prices (unit values), thus XV is

considered as real export volume at 1990 prices. To calculate the weights for variables of WD and CM in the initial period, 1961–69 data were used. Data for WX_i , world exports of commodity i at a constant price, were obtained as annual world export quantities multiplied by the 1990 unit value. All data were drawn from the FAOSTAT database (FAO n.d.).

Prior to estimation, non-stationarity (or the presence of a unit root) in each of the data series was tested using the Augmented Dickey–Fuller procedure (Dickey and Fuller 1979). The tests suggested that for all three countries the violation of the assumption of stationarity could not be rejected in data series of variables in level (original) form, but the tests rejected the unit-root hypothesis in first-difference form. Therefore, the data in first-difference form were used for regressions.

In addition, the error correction model (ECM) was applied when the dependent variable and the explanatory variables were cointegrated to consider that information. The ECM is useful for separate identification of short-run and long-run effects.¹³ To estimate equations for the ECM, the Engle–Granger (1987) two-step procedure was used. In this method, first the dependent variable is regressed on explanatory variables using the data in level form by the OLS, then a unit-root test for cointegration is applied to the residuals of the first stage OLS. If cointegration is accepted, lagged residuals in the first-stage OLS are used as the error correction term in the ECM with the explanatory variables in difference form to regress the dependent variable in difference form.

The estimation results in the log linear specification of Equation 10.1 are shown in Table 10.4. The ECM is applicable to Indonesia and the Philippines, rejecting the unit-root hypothesis on the residuals of the first stage OLS. For Thailand, the unit-root hypothesis is not rejected for the entire estimation period of 1961–97, but it is rejected for the period 1961–90. The ECM could not adequately explain declines in Thai exports during the 1990s. Thus, for Thailand we used the results of regression in first-difference form for the short-run effects and the ECM results for the long-run effects, limiting the time period to 1961–90.¹⁴

In the short run, world demand (WD) and competitiveness (CM) significantly influence the performance of agricultural exports (XV), but export diversification (DV) affects little for all three countries. Thailand has the largest world demand elasticity of the three, followed by Indonesia, then the Philippines. Thailand also has the largest value of competitiveness elasticity, followed by the Philippines, then Indonesia. This means that in

the short run, Thailand took more advantage of expanding world markets and increased its market share for traditional exports to a greater extent than the other two countries.

In the long run, however, Indonesia has the largest value of world demand elasticity while the Philippines has the largest in competitive elasticity, although neither is very different from Thailand (1961–90). In the long run, export diversification had significant effects on exports from Indonesia and Thailand but not on exports from the Philippines. Indonesia and Thailand introduced new export products during the 1970s and thereafter, thus contributing to growth of their agricultural exports, but this was not the case in the Philippines. Examples of new products include cigarettes, cocoa beans and coconut oil in Indonesia, and chicken meat, canned pineapple and refined sugar in Thailand.¹⁵ These are all processed or high value-added products.

Table 10.4 ECM regressions to explain principal agricultural exports from Indonesia, the Philippines and Thailand

	Indonesia (1961–97)		Philippines (1961–97)		Thailand (1961–97)		Thailand (1961–90)	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Adjusted error								
speed	-0.637**	-3.998	-0.354**	-2.297	-0.132	-1.524	-0.618**	-3.187
Constant	-3.463**	-3.968	-1.766**	-2.289	-0.442	-1.544	-3.248	-3.180
Long run								
ln(WD)	1.528**	8.720	1.136**	6.541	1.324**	4.102	1.455**	9.348
ln(CM)	0.556**	3.700	0.922**	4.486	0.420	1.333	0.774**	4.839
ln(DV)	-0.495**	-2.893	-0.336	-1.506	-0.388	-0.768	-0.579**	-2.476
Short run								
Dln(WD)	0.701**	2.281	0.415*	1.788	0.739**	2.433	0.865**	2.803
Dln(CM)	0.529**	3.737	0.713**	3.948	1.125**	6.980	1.065**	6.374
Dln(DV)	-0.244	-1.499	-0.288	-1.553	-0.429	-1.136	-0.433	-1.315
N(ECM)		36		36		36		29
Adj R2		0.494		0.325		0.610		0.685
DW		1.556		1.919		2.057		1.885
N(OLS)		37		37		37		30
Adj R2		0.974		0.613		0.856		0.976
DW		1.296		1.086		0.326		1.343
Long-run								
error ADF		-3.960**		-3.519**		-0.835		-3.504**

Note: * Statistically significant at 10 per cent level. ** Statistically significant at 5 per cent level.

Source: Authors' calculations.

Growth accounting analysis

In order to discover how much each factor of the export determinants in the model contributed to growth of agricultural exports in each country, a growth accounting analysis was conducted. The growth accounting equation is derived from the log linear specification of Equation 10.1

$$G(XV) = b_1G(WD) + b_2G(CM) + b_3G(DV) \quad (10.5)$$

where G denotes percentage changes in the variable in the following parentheses and b_1 , b_2 and b_3 are estimated long-run coefficients of WD , CM and DV , respectively, in the ECM estimation.

The growth accounting Equation 10.5 is applied to explain growth rates of principal agricultural exports for the period of time extending from the initial stage (1961-45 average) to the most recent (1993-97 average for Indonesia and the Philippines, and 1986-90 average for Thailand). It is also applied to growth rates in the first-half period (from 1961-45 to 1978-82 in Indonesia and the Philippines and from 1961-45 to 1973-77 for Thailand) and the second-half period (from 1978-82 to 1993-97 for Indonesia and the Philippines and from 1973-77 to 1986-90 for Thailand) (Table 10.5).

The three determinant factors adequately explain the growth rates of agricultural exports from Indonesia and Thailand, whose unexplained residuals are only 5.5 and -0.7 per cent, respectively, for the entire estimation period. For the Philippines, however, the unexplained residual is -36.9 per cent, showing that the model does not fit well for this country's export performance. World demand is the major contributor to growth of agricultural exports from all three countries, accounting for 63, 188 and 59 per cent of the export growth of Indonesia, the Philippines and Thailand, respectively. Meanwhile, competitiveness accounts for 14 and 30 per cent of export growth for Indonesia and Thailand, respectively, but its value for the Philippines is negative, meaning that the Philippines lost market share in traditional exports. On the other hand, the contribution of export diversification is relatively large in the Philippines, although the estimated coefficient is not statistically significant. Export diversification accounts for 17 and 12 per cent of export growth for Indonesia and Thailand, respectively.

When the contributions of the three factors are divided into two periods, the contribution of world demand can be seen to have been greater during the first half than during the second half for all three countries. During the

second-half period, competitiveness accounts more for export performance, particularly for negative growth in the Philippines and stable growth up to 1990 in Thailand. The contribution of export diversification was more important during the first half than during the second half for both Indonesia and Thailand.

Agricultural exports have been considered under the assumption that export prospects for agricultural products are determined predominantly by long-term patterns of world demand, leaving little room for supply-side factors to contribute to export success (Athukorala 1998). Thus, in Table 10.5, the demand factor, WD , accounts for more than one-half of the export growth rate in all three countries. It is important to note, however, that the high rates of agricultural export growth in Indonesia and Thailand could

Table 10.5 Factors accounting for growth of agricultural exports from Indonesia, the Philippines and Thailand

	Growth rate of agricultural exports (XV)	Contribution of changes in			Residual
		World demand (WD)	Competitiveness (CM)	Export diversi- fication (DV)	
Indonesia (1961-97)					
1961-65, 1993-97	5.09	3.22	0.73	0.86	
Per cent	100	63.3	14.4	16.9	5.5
1961-65, 1978-82	4.51	3.23	0.38	0.87	
Per cent	100	71.7	8.5	19.3	0.6
1978-82, 1993-97	5.75	3.21	1.13	0.84	
Per cent	100	55.8	19.6	14.7	9.9
Philippines(1961-97)					
1961-65, 1993-97	0.68	1.28	-0.59	0.25	
Per cent	100	188.0	-87.5	36.4	-36.9
1961-65, 1978-82	2.81	2.22	-0.05	0.30	
Per cent	100	78.9	-1.9	10.8	12.2
1978-82, 1993-97	-1.68	0.22	-1.20	0.18	
Per cent	100	-13.3	71.7	-11.0	52.6
Thailand(1961-90)					
1961-65, 1986-90	6.84	4.02	2.07	0.81	
Per cent	100	58.8	30.2	11.8	-0.7
1961-65, 1973-77	7.64	4.84	1.39	1.23	
Per cent	100	63.4	18.2	16.1	2.3
1973-77, 1986-90	6.11	3.27	2.70	0.41	
Per cent	100	53.4	44.1	6.7	-4.2

Source: Authors' calculations.

not have been achieved without contributions from the domestic factors CM and DV . At the same time, the failure of the Philippines to expand agricultural exports came from losses in competitiveness, particularly during the 1980s and 1990s. These facts imply that there is much room for the supply side to achieve export success by improving supply factors such as market promotions, infrastructure investments, and productivity increases, as well as by introducing new export products. Therefore, government policy incentives to improve supply-side factors are one of the key determinants of agricultural export performance.

Effects of government interventions

The most important policy that relates to export performance is direct or indirect government intervention in agricultural markets. Price and exchange rate policies are particularly important because they directly affect the prices of export products. The degree of government intervention can be measured by the direct and indirect nominal protection rates presented by Schiff and Valdes (1992). For a commodity, the direct nominal protection rate (DPR) is defined as the proportional difference between domestic price and border price with the latter evaluated at the official exchange rate. Thus, the DPR measures the degree of protection by taxes, subsidies, tariffs, export taxes, import quotas, and all other measures that affect the domestic price directly.

The indirect nominal protection rate (IPR) is defined as the proportional difference between the domestic agricultural price in relation to a price index of the non-agricultural sector, and the value of that relative price when measured at the equilibrium exchange rate and in the absence of industrial trade interventions (Schiff and Valdes 1992). The equilibrium exchange rate is the exchange rate that is supposed to prevail if the exchange rate is used to balance the current account under a completely free-trade regime. The IPR is a weighted average of the effect of real exchange rate overvaluation and the effect of industrial protection for the agricultural sector.

Increases in DPR mean increases in the domestic price if the border price gives domestic farmers an incentive to produce more. Increases in IPR mean decreases in the export price in foreign currency through correction of the overvalued exchange rate and elimination of industrial protection so as to make exports more competitive in the world market. Therefore, both DPR and IPR are supposed to have positive effects on agricultural exports and competitiveness. To test this hypothesis, regressions were conducted for XV

and CM on the direct protection coefficient ($DPC = DPR + I$) and the indirect protection coefficient ($IPC = IPR + I$) in linear log specification. Data for DPC and IPC are available in Akiyama and Kajisa (2000).

In prior investigation on stationarity and cointegration, data in the first-difference form appeared to be the most appropriate for the regressions. The estimation results are shown in Table 10.6. Explanatory power is low in all cases, but the indirect protection policy has significant effects on the competitiveness of the Philippines and principal agricultural exports from Thailand. Agricultural exports from Thailand appeared to have been influenced strongly by indirect protection policies such as exchange rates and industrial protection. One of the reasons the relationship between DPC and XV or CM was not found is that the number of commodities in the calculation of DPC is limited, meaning that DPC cannot capture changes in domestic prices of export products very well.

Export performance by commodity

In the previous section, the performance of principal agricultural exports was examined using a model that explains exports by market expansion, competitiveness and export diversification. The model *can* be also applied to evaluate performance of exports at a commodity level. It *can* be modified to explain total exports of commodity i (XQ_i) by the three factors of world demand (WD_i), competitiveness (CM_i), and diversification in destination of exports (DV_i).

Table 10.6 Regressions for the effects of direct and indirect protection policies on agricultural exports

	Indonesia		Philippines		Thailand	
	DXV coef.	DCM coef.	DXV Coef.	DCM coef.	DXV coef.	DCM coef.
Constant	0.048**	0.016	0.011	-0.002	0.054**	0.031*
Dln(DP)	-0.183	0.08	0.141	0.007	0.054	0.151
Dln(IP)	0.628	0.259	1.123	1.003*	1.736**	0.682
N(OLS)	29	29	34	34	33	33
Adj R2	0.069	-0.062	0.041	0.055	0.107	0.014
DW	1.897	2.220	1.841	2.512	1.899	2.700

Note: * Statistically significant at 10% level. ** Statistically significant at 5% level.

Total exports of a commodity are simply the quantities exported from a given country. World demand is measured as a sum of total imports of the commodity in traditional markets weighted by the importance of each market for the country, which is the initial share of exports to each market as a part of total exports from the country. The index for competitiveness is constructed similarly to CM in the previous section, as the ratio of actual exports to hypothetical exports. The latter are estimated assuming that the country maintained its initial market shares in traditional markets for the commodity. Export diversification is measured by the Gini-Hirschman coefficient.

The model was applied to explain the export performance of three important agricultural commodities from each country to principal markets

- Indonesia—coffee, palm oil, natural rubber
- the Philippines—banana, coconut oil, raw sugar
- Thailand—rice, natural rubber, raw sugar.

The model requires data that identify trade sources and destinations. The 10 most important importing countries for each commodity were selected. The export and market shares in the initial period were calculated using 1960s data (1965–69 or 1967–69), except the shares of banana and sugar exports from the Philippines for which 1971–75 data were used.

As in the previous case, non-stationarity in each of the data series was tested prior to estimation, using the Augmented Dickey–Fuller procedure. In the examination of the applicability of the ECM, exports of natural rubber and palm oil from Indonesia and banana from the Philippines failed to reject the unit-root hypothesis for the residuals of the first stage OLS. The OLS was therefore applied to the data in the first-difference form for the above three cases while the ECM was applied to the other six cases (Table 10.7).

In the short run, most commodity exports are explained by world demand and competitiveness factors. Export diversification has significant effects only on coconut oil exports from the Philippines. Many of the estimated coefficients of WD and CM are close to unity. This means that in many cases exports are expanding parallel to initial world demand and initial competitiveness. Exceptions are the effects of world demand on exports of coffee from Indonesia and raw sugar from Thailand, whose coefficients are well below unity.

In the long run, export diversification has significant effects on exports of coffee from Indonesia, coconut oil from the Philippines, and natural rubber

Table 10.7 Estimates of export equations for major agricultural products

	Indonesia		Philippines		Thailand	
Adjusted error	0711	4222	0513	0611	4223	042
speed	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Constant	-0.181**	0.014*	-0.820**	-0.453**	-1.141*	-0.233
	-0.391**		-0.000	-3.544**		-0.170
Long run						
ln(WD)	1.135*		0.899**	0.991**		0.796**
ln(CM)	1.100**		1.003**	0.888**		1.118**
ln(DV)	-1.536**		0.014	-0.257**		-0.133
Short run						
Dln(WD)	0.356**	1.004**	0.987**	0.900**	0.947**	0.698**
Dln(CM)	0.811**	0.992**	1.007**	1.002**	0.955**	0.949**
Dln(DV)	0.082	-0.013	-0.225	0.001	-0.118*	0.045
N(ECM)	29			23	29	30
Adj R2	0.832			0.999	0.980	0.944
DW	2.234			1.873	1.664	2.317
N(OLS)	30	27		23	24	30
31						31
Adj R2	0.735	0.993	0.978	1.000	0.989	0.939
DW	1.050	1.980	1.093	1.507	1.212	0.811
Long-run						
error DF	-3.988**		-3.461**	-3.737**	-3.132*	-4.035**
						-3.718**

Note: Commodity codes: 0711=coffee; 2311=natural rubber; 4222=palm oil; 0513=banana; 0611=raw sugar; 4223=coconut oil; 042=rice.

* Statistically significant at 10 per cent level. ** Statistically significant at 5 per cent level.

Source: Authors' calculations.

from Thailand. Interestingly, world demand had a negative coefficient for exports of raw sugar from Thailand, perhaps because Thailand expanded raw sugar exports by increasing its share in traditional markets when the markets were shrinking.

To quantify the contribution of each factor on commodity exports, a growth accounting analysis was conducted in a similar manner to Equation 10.5 (Table 10.8).

For Indonesia, export diversification was the major growth source for coffee exports while competitiveness made the major contribution to the growth of natural rubber exports. World demand alone explains the growth

Table 10.8 Factors accounting for export growth of major commodities from Indonesia, the Philippines and Thailand

	Growth rate of total commodity exports (XQ)	Contribution by changes in			Residual
		World demand (WD)	Competitiveness (CM)	Export diversi- fication (DV)	
Indonesia					
Coffee	5.26	-0.10	0.67	2.39	
1967-71, 1992-96	100%	-1.9	12.7	45.4	43.8
Natural rubber	1.51	0.60	1.05	0.01	
1967-71, 1992-96	100%	39.8	69.5	0.4	-9.6
Palm oil	5.58	5.52	-0.30	0.00	
1967-71, 1992-96	100%	98.9	-5.4	0.0	6.5
Philippines					
Banana	3.61	-0.63	3.68	0.36	
1971-75, 1990-94	100%	-17.5	101.9	10.1	5.5
Raw sugar	-8.41	-4.21	-4.33	0.00	
1971-75, 1990-94	100%	50.0	51.5	0.0	-1.6
Coconut oil	3.93	3.02	-0.06	0.64	
1965-69, 1990-94	100%	76.9	-1.6	16.2	8.4
Thailand					
Rice	3.47	-0.41	2.69	0.24	
1965-69, 1991-95	100%	-11.9	77.5	6.8	27.6
Raw sugar	20.63	0.70	17.36	-0.16	
1965-69, 1991-95	100%	3.4	84.1	-0.8	13.3
Natural rubber	7.91	2.98	4.76	-0.03	
1965-69, 1991-95	100%	37.6	60.2	-0.3	2.5

Source: Authors' calculations.

rate of palm oil exports from Indonesia. Export growth rates for the three commodities from the Philippines are all explained by the model, with small residuals. The growth of banana exports resulted mostly from an increased share in traditional markets, particularly Japan. World demand and competitiveness contributed evenly to the export growth of raw sugar. For the export growth of coconut oil, the major factor was the growth of world markets, but export diversification also contributed. In Thailand, the major source of export growth was competitiveness for all three crops. Competitiveness alone explained the export growth rate for raw sugar. Though traditional markets for Thai rice were shrinking, Thailand increased its market shares and showed positive growth rate in rice exports.

It is possible to test the hypothesis on the effects of government interventions on exports by commodity. For a given commodity, a direct protection coefficient is the ratio of domestic price to border price converted at the official exchange rate. An indirect protection coefficient is common for all the agricultural exports. Thus, regressions were conducted using the data in first-difference form to see the effects of direct and indirect protection policies on each commodity export. Out of nine cases, only two cases indicated a significant coefficient for the direct protection coefficient variable. No significant effects for the indirect protection coefficient were observed.

The two cases with a significant coefficient of a direct protection variable were exports of natural rubber from Indonesia and rice from Thailand. The regression results obtained using the data in the first-difference form are shown in Table 10.9. The significant coefficients of the direct protection variable in equations for rice exports from Thailand reasonably reflect the effects of abolition of the export **tax** on rice in 1986.

Product differentiation and price competition

Price plays an important role in determining export performance. Price and quantity are determined simultaneously to satisfy both demand and supply equations, thus it is desirable to specify both equations to investigate the role of price and export performance. While it is difficult statistically to estimate export supply equations, particularly for developing countries, export demand equations are easily estimated using only trade data if total imports to a market are considered. In this section, we examine the demand structure for exports of major commodities to selected markets.

One underlying assumption is product differentiation in consumer demand. It is assumed that consumers differentiate products of a commodity

Table 10.9 Regressions for the effects of direct and indirect protection policies on exports of natural rubber from Indonesia and rice from Thailand

	Indonesia natural rubber		Thailand rice	
	DXQ Coef.	DCM Coef.	DXQ Coef.	DCM Coef.
Constant	0.021	0.028	0.016	-0.005
Dln(DP)	2.282*	3.965**	1.607**	1.420**
Dln(IP)	-0.044	-0.402	0.233	0.683
N(OLS)	26	26	30	30
Adj R2	0.055	0.251	0.245	0.216
DW	2.465	2.445	1.985	2.270

Note: * Statistically significant at 10 per cent level. ** Statistically significant at 5 per cent level.
Source: Authors' calculations.

by place of production and that the commodity is weakly separable from all other kinds of commodities. Demand for imports of the commodity by source (supplying country) can be expressed as a function of import price and total expenditure for imports of this specific commodity (Armington 1969).

In specifying the demand equations for imports by supplier, it is desirable to construct a complete system of demand equations. We use the almost ideal demand system (AIDS) of Deaton and Muellbauer (1980) to estimate the demand equations for selected agricultural exports from the three countries. In the AIDS specification, the budget share of imports of a commodity from source *i* is given by

$$w_i = \alpha_i + \sum_{j=1}^n \gamma_{ij} \ln p_j + \beta_i \ln(M/P) \quad i = 1, \dots, n \tag{10.6}$$

where w_i is the expenditure share of source *i* in total imports of the given commodity, p_j is the price of imports from source *j*, *M* is total expenditure on imports of this commodity from all sources, and *P* is the aggregate price index defined as

$$\ln P = \alpha_0 + \sum_k \alpha_k \ln p_k + \frac{1}{2} \sum_j \sum_k \gamma_{jk} \ln p_k \ln p_j \tag{10.7}$$

The theoretical restrictions of adding-up, homogeneity, and symmetry, respectively, require that

$$\sum_i \alpha_i = 1, \sum_i \gamma_{ij} = 0 \text{ and } \sum_i \beta_i = 0; \sum_j \gamma_{ij} = 0; \text{ and } \gamma_{ij} = \gamma_{ji} \quad (10.8)$$

Because using the price index of Equation 10.7 often causes empirical difficulties, it is common to replace P by a linear approximation in the form of Stone's (geometric) price index defined as

$$\ln P^* = \sum_k^n w_k \ln p_k \quad (10.9)$$

The model that uses the price index of Equation 10.9 for the price index of Equation 10.7 is called the 'linear approximate almost ideal demand system' (Blanciforti and Green 1983).

Given the total expense of importing the commodity, uncompensated price elasticity, η_{ij} , and expenditure elasticity, μ_i , treating expenditure shares as constant parameters in derivatives for elasticities, are calculated, respectively, as

$$\eta_{ij} = -\delta_{ij} + (\gamma_{ij} - \beta_i w_j) / w_i \quad (10.10)$$

$$\mu_i = 1 + \beta_i / w_i \quad (10.11)$$

where δ_{ij} is the Kronecker delta.

The model was applied to estimate the import demand equations for rice, banana, raw sugar, coffee, natural rubber, palm oil and coconut oil in the major countries to which Indonesia, the Philippines and Thailand exported. Trade flow data are available in UN Comtrade (United Nations, n.d.) and were drawn from the International Economic DataBank of Australian National University.

According to the results of the tests for non-stationarity using the Augmented Dickey–Fuller procedure, all data series in regressions were used in the first-difference form.¹⁶ Import demand for an importing country is represented by a system of equations. It is common in estimating a system of equations to use the seemingly unrelated regressions (SUR) techniques, which take into account covariances among error terms of equations. Because of the adding-up conditions, the contemporaneous covariance matrix is singular. Following standard procedure, one equation for the rest of the world in each system was deleted. The estimates are invariant to the equation deleted in the iterative SUR. In estimating parameters by the SUR, symmetry and homogeneity restrictions were imposed."

Using the estimated parameters and mean values of the import shares, uncompensated own price elasticity of import demand and elasticity of import demand to expenditure on the total imports of the given commodity were calculated following Equations 10.10 and 10.11. Calculated elasticities are summarised in Table 10.10. In most cases the calculated own price elasticity is relatively large. For exports from Indonesia, in nine of the 16 markets the own price elasticity is greater than one in absolute value. For exports from the Philippines, the own price elasticity is greater than one in five of the 10 markets, while for exports from Thailand only two of the 12 markets have the own price elasticity greater than one. Among the conimodities, palm oil and coconut oil in particular have large values of own price elasticity in most markets.

Expenditure elasticity of import demand denotes the per cent change in demand for imports from the given country to the per cent change in total expenditures for imports from all countries. If the expenditure elasticity is greater than one, the share of the given country is increasing as the market is expanding. The expenditure elasticity is greater than one in six of 16 markets for Indonesian exports, six of 10 markets for Philippine exports, and five of 12 markets for Thai exports. It is interesting that, for exports of coconut oil from the Philippines and rice from Thailand, the expenditure elasticity does not vary much by market, while for other exports it varies from a small value to a large value depending on the market. The expenditure elasticity can be interpreted as an indicator of non-price competitiveness in each market. Thus, Philippine coconut oil and Thai rice seem to have maintained their shares in most world markets thanks to their strong non-price competitiveness. Other exports, however, failed to establish competitiveness uniformly and could not take advantage of success in one market to gain in another.

PRICE TRANSMISSION FROM EXPORTING TO IMPORTING COUNTRIES

Earlier, we examined importer behaviour for market characteristics of agricultural exports from the three countries. Such information is important and useful when exporters consider export strategies. In markets where the price elasticity of demand is greater than unity, export earnings are expected to increase if the export price falls, for example, by increasing production efficiency. In markets in which expenditure elasticity is greater than unity, market share is expected to increase as the market expands, and prices will rise as far as the export supply curve has a positive slope.

Table 10.10 Elasticities calculated from AIDS estimates of import demand equations for major commodities exported from Indonesia, Philippines and Thailand to selected markets

Exporter	Importer	Coffee		Natural rubber		Palm oil		
		Price ^a	Expend. ^b	Price ^a	Expend. ^b	Price ^a	Expend. ^b	
Indonesia	Canada			-0.36	0.43			
	China					-2.85	-0.13	
	Germany	-1.89	2.99					
	India					-1.07	1.16	
	Japan	-0.82	2.29			-1.75	0.37	
	Korea	-0.53	-0.49	-5.23	2.52			
	Netherlands	-0.66	0.10	-0.55	0.24			
	Singapore							
	United Kingdom	-1.34	0.85	-2.06	1.75	-1.55	1.44	
	United States	-0.46	0.37	-1.08	0.81	-0.41	0.77	
	Philippines		Banana		Coconut oil			
		France			-1.74	2.39		
		Germany			-1.54	1.07		
Hong Kong		-0.85	1.02					
Italy				-5.99	2.69			
Japan		-0.92	0.91	-1.08	0.98			
Korea		-0.94	0.91					
Netherlands				-2.32	1.30			
Saudi Arabia		-0.65	0.46					
United States				-0.79	1.21			
Thailand		Rice		Raw sugar		Natural rubber		
	France					-0.46	0.62	
	Hong Kong	-0.64	1.36					
	Indonesia	-0.85	0.91					
	Japan					-0.61	0.37	
	Korea			-0.92	0.85	-0.58	0.03	
	Malaysia	-0.40	0.97	-0.59	2.35			
	Saudi Arabia	-2.23	1.27					
	Singapore	-0.64	0.97			-0.79	1.34	
	United Kingdom							
	United States					-2.04	1.79	

Note: Figures in the 'Price' column are uncompensated own price elasticity of import demand. Figures in the 'Expend' column are elasticity of import demand to expenditure on total imports of the given commodity.

Source: Authors' calculations.

For exporting countries, however, strategies to take advantage of such market characteristics do not work well if any factors disturb transmission of the changes from exporters to importers, such as variable transportation costs, inefficient distribution systems, and traders' marketing power. It is important, therefore, to examine the degree of transmission of changes, particularly for prices from exporters to importers. To examine the degree of transmission between the export prices of major commodities from the three study countries and the corresponding import prices in selected importing countries, a regression analysis was conducted

$$\ln PM_{ijt} = a_{ij} + \beta_{ij} \ln PX_{ijt} + \varepsilon_{ijt} \quad (10.12)$$

where PM and PX are the c.i.f. import price and f.o.b. export price, respectively, of a commodity traded from county i to country j ; t is time; and ε is an error term. Unit values of imports to importing countries by source and unit values of exports from exporting countries by destination were used for the c.i.f. import prices and the f.o.b. export prices, respectively. Data were obtained from UN Comtrade (United Nations, n.d.), stored in the International Economic DataBank of Australian National University.

The regression was conducted for the 38 trade flows to which the AIDS model was applied in the previous section. Prior to estimating the equations, non-stationarity was tested for each of the data series." Judging from the test results, all data series were used in the first-differential form for regression. The price transmission elasticities estimated by regression are summarised in Table 10.11.

Most coefficients estimated in regression are significantly different from zero. However, if the transmission is perfect, the coefficient is expected to be unity. Therefore, a hypothesis for the coefficient to be unity was statistically tested for all the estimated equations. The elasticities that are significantly different from unity are those with asterisks in Table 10.11.

- For Indonesian exports, the hypothesis was rejected in 11 of 16 trade flows. In particular, the price transmission elasticities of coffee exports to all six destinations are significantly less than unity.
- For Philippine exports, the elasticities are significantly less than unity in 7 of 10 trade flows, and the unity hypothesis was not rejected only for the elasticities of banana to Hong Kong and Saudi Arabia and coconut oil to Japan.
- For Thai exports, the hypothesis was rejected for six of 12 trade flows. The elasticities of all five rice trade flows and the natural rubber trade

Table 10.11 Price transmission elasticities and ratios of import price to export price for major export products from Indonesia, the Philippines and Thailand in selected markets

Exporter	Importer	Coffee		Natural rubber		Palm oil	
		Elasticity ^{ac}	PM/PX ^{bd}	Elasticity ^{ac}	PM/PX ^{bd}	Elasticity ^{ac}	PM/PX ^{bd}
Indonesia	Canada			0.94	1.11		
	China					1.01	1.05*
	Germany	0.74**	1.23				
	India					0.68	1.09
	Japan	0.86**	1.14			0.91**	1.13*
	Korea	0.72**	1.17	0.80**	1.06*		
	Netherlands	0.67**	1.25	0.67**	1.14		
	Singapore						
	UK	0.75**	1.26	0.90	1.16*	0.82**	1.22
	US	0.84**	1.15	0.98	1.15*	0.46**	1.08
Philippines		Banana		Coconut oil			
	France			0.60**	1.23		
	Germany			0.79**	1.10		
	Hong Kong	0.76	2.31*				
	Italy			0.62**	1.17		
	Japan	0.47**	2.43	1.00	1.11*		
	Korea	-0.10**	2.91				
	Netherlands			0.86**	1.09		
	Saudi Arabia	0.44	2.53				
	United States			0.85**	1.07		
Thailand		Rice		Raw sugar		Natural rubber	
	France					0.87	1.13*
	Hong Kong	0.93**	1.08*				
	Indonesia	0.45**	1.21				
	Japan					0.92**	1.05*
	Korea			1.03	1.20	0.91	1.06*
	Malaysia	0.87**	1.09*	1.07	1.16		
	Saudi Arabia	0.70**	1.15*				
	Singapore	0.90**	1.10*			0.98	1.03*
	UK						
US					0.94	1.09*	

Note: Figures in the 'Elasticity' columns are price transmission elasticities obtained from regressions of import price (PM) on export price (PX) in differential form after logarithmic transformation. Figures in the 'PM/PX' columns are mean values of the ratio of import price to export price for each trade flow over the estimation period. Figures with ** in the 'Elasticity' columns are significantly different from unity (1) at the 5 per cent level. All other figures are not significantly different from unity at the 10 per cent level. Figures with * in the 'PM/PX' columns are those whose coefficient of variation (CV) over the sample period is less than 10 per cent.

flow to Japan were significantly less than unity while the two of raw sugar and four of natural rubber did not reject the hypothesis.

In trade flows for which the price transmission elasticity is significantly less than unity, the export price changes are partly absorbed in the process of international distribution. One possible explanation for the imperfect price transmission is the behaviour of distributors who may risk price changes to guarantee a certain quantity of supply offset by reduced market margins when export prices rise. A second possible explanation is the behaviour of traders. If they have enough market power to set prices in import markets, they set each price monopolistically and make the marginal revenue derived from the import demand curve equal to the marginal cost that is the export price. The marginal revenue curve is less elastic than the demand curve, thus changes in monopolistic import price along the demand curve are smaller than changes in the marginal cost (export price). Therefore, PM became less elastic in response to changes in PX . This could happen for the commodities whose price elasticities of demand are greater than unity among those with low transmissibility, such as Indonesian coffee to Germany and the United Kingdom, Philippine coconut oil to Europe, and Thai rice to Saudi Arabia.

A third possible explanation is that, if commodities are traded in an integrated system such as a transnational corporation, it is not necessary to transmit the export price to the import price perfectly because the pricing mechanism can be transferred from one sector to another within the integrated organisation. This is especially so in cases where production and international trading are integrated, such as transnational corporations that manage banana plantations in the Philippines. A fourth possible explanation is that it may be simply a data problem. For a given shipment, there is a time lag between date of export and date of import. Data are annual, so for some shipments exports were recorded in one year and imports in the next, and this may have appeared as low transmissibility in estimates. Further investigation is necessary to identify the source of low transmissibility by commodity and by country.

Table 10.11 also shows mean values of the ratio of import price (PM) to export price (PX) for each trade flow over the estimation period. The ratio minus one multiplied by 100 is the percentage of distribution cost and market margins to the export price. The distribution costs and market margins are 3–26 per cent of export prices, except for banana from the Philippines whose value is more than 100 per cent.¹⁹ Four factors are considered to determine the differences in the ratio of PM/PX —

- the mark-up or market margin for international distributors
- the transportation cost, assumed to be proportional to the distance from origin to destination
- the cost associated with commodity-specific shipping costs a factor that depends on the structure of an industrial organisation for trade management, which may vary by country and market.

The ratios in natural rubber from both Indonesia and Thailand are very likely to be proportional to the distance from origin to destination, but ratios to the United States for coffee, palm oil and coconut oil are clearly low compared to ratios to other destinations for the same commodity exports. Also, in the cases of banana to Korea and rice to Indonesia, the ratios cannot be explained by the distance. More information is needed to clarify the differences among the ratios of PM/PX . It is important for exporting countries to know the structure of international distribution costs, since any improvement in efficiency will directly affect market prices and increase gains from exports even under the same domestic supply conditions.

CONCLUDING REMARKS

During the 1960s, the agricultural export performances of Indonesia, the Philippines and Thailand were similar, both in nominal and real value terms. Since then, however, differences have emerged. During 1995–97, Thailand recorded \$9 billion dollars of agricultural exports per year on average, while Indonesian annual exports amounted to \$5.8 billion dollars during the same period and exceeded Thailand's in real value (1989–91 price) in 1997. On the other hand, annual agricultural exports from the Philippines during 1995–97 remained at \$1.8 billion dollars on average, the same level as during 1979–81.

What caused these differences? One important factor was diversification and adjustment when market conditions changed. Indonesia shifted the weight of its agricultural exports from natural rubber in the 1960s to coffee in the 1970s, palm oil in the 1980s and cocoa in the 1990s, at the same time maintaining steady exports of natural rubber. Indonesia also diversified the destinations of its exports from the United States and European countries to Japan and other Asian countries over the decades. Such diversification in both commodity and destination contributed to the growth of Indonesian agricultural exports.

Changes in the structure of Thai agricultural exports were more drastic, although rice has dominated continually. Most dramatic were the emergence

of cassava and maize as major items in the 1970s and their rapid disappearance from the markets in the 1990s. Exports of cassava and maize targeted the EC by quota and Japan by contract. Quota reduction and contract termination resulted in the sharp decline of exports of these commodities. Agricultural export growth was sustained by the expansion of exports of natural rubber and sugar and the introduction of new export commodities such as processed and horticultural products. Early in the study period, Thailand exported its agricultural products mainly to Asian countries, but later it developed new markets elsewhere in the world. This diversification of destinations also contributed to the success of Thai agricultural exports.

The Philippines, on the other hand, could not adjust its agricultural exports to changes in market conditions. Philippine agricultural exports—particularly sugar and coconut oil—were totally dependent on US markets. After the Philippines lost its market for sugar in the United States when special treatment ended, it could neither find alternative markets nor introduce new products for export. While coconut oil and banana have remained major export items since the 1980s, they have not contributed to export growth. In addition, coconut oil and banana were exported mostly to the United States and Japan, respectively, and destinations were not diversified in either case.

The differences in export performance among the three countries are characterised by the different factors contributing to export growth rate. Among the factors contributing to export growth rate for principal agricultural products, commodity diversification plays a more significant role in Indonesia than in the other two countries. In Thailand, competitiveness (increasing market share) has contributed most significantly to export growth over the past four decades. The growth rate of Philippine exports, on the other hand, is explained largely by market expansion. High growth rates for agricultural exports from Indonesia and Thailand were the result of internal efforts to diversify and/or strengthen competitiveness as well as expand markets. Agricultural exports from the Philippines depended mainly on external factors, and their growth was limited by stagnant market growth and lack of diversification in commodities.

Agricultural exports are often considered less promising than other exports because of the inelastic demand in both price and income. At the level of trade flows by commodity and by market, however, there are many opportunities to gain from exports. As this study shows, demand elasticities

are not necessarily small for individual trade flows. For commodities whose price elasticity of demand is more than unity, export earnings (value) are expected to increase if the price declines as a result of decreases in production costs, for example, in the exporting country.

Because of the existence of distributors and transportation costs, however, changes in exporting countries are not necessarily transmitted to markets. Transmission elasticity between export and import prices was significantly less than unity in 24 out of the 38 trade flows estimated in this study. If exporting countries are to capture all possible gains from their exports, the efficiency and transparency of international distribution systems must be increased. At the same time, domestic distribution systems must also be made more efficient, so producers in rural areas can benefit as much as possible from exporting their products. In fact, farm gate prices of most agricultural products remain very low compared to retail prices in importing countries.²⁰

It is also important when considering the impact of growth of agricultural exports on rural areas to examine production structure. One important question in this respect is whether production of exported commodities is labour-intensive. If it is labour-intensive, export growth creates more demand for labour and labour income goes up in rural areas. However, if it is intensive in land and/or other natural resources such as water, and ownership of such resources is unequal, gains from export growth go mostly to the owners of the resources (Berry 1998b).²¹ Thus, land distribution in the production of export crops is important. Export expansion is likely to have a positive effect on employment and the income of the poor when small enterprises are tied directly or indirectly to exports, which normally happens when the technology is labour-intensive (Berry 1998a).

Agricultural exports from the three study countries are basically all labour-intensive, but resource distribution is different among the three countries. In terms of firm size distribution, Thailand is characterised by a uni-modal distribution of peasants or family firms, while Indonesia and the Philippines are characterised by the coexistence of peasants and large estate farms or plantations specialising in tropical export crops (Hayami 2000). Agricultural export growth is therefore likely to have been more widespread and contributed more to welfare improvement in rural areas in Thailand than in Indonesia and the Philippines.

Furthermore, firm distribution is a key to explaining differences among the performances of the three countries' agricultural exports (Hayami 2000). As land becomes scarce relative to labour, plantations and large estate farms

lose their advantage, while small family farms able to cultivate land more intensively gain the advantage. In Thailand, export growth of non-rice crops has been achieved by increases in smallholder production. In Indonesia, coffee and natural rubber are produced by smallholders and smallholder production of oil palm has been expanded, although it was initially introduced on large plantations (Kawagoe 2001). The Philippines, on the other hand, still depends on plantations for export crops such as banana, pineapple and some coconut oil.

Factors determining comparative advantage have become more complicated than before, as composition of agricultural exports has changed, shifting to more value-added products such as processed foods and horticultural products, especially in Thailand and to some extent in Indonesia. In addition to production efficiency at farm level, exports of processed foods and horticultural products require more efficient technologies, marketing systems and infrastructure than traditional agricultural exports. In other words, in the process of economic development, comparative advantage is shifting from labour-intensive products to capital and technology-intensive products.

Whether agricultural exports can continue to contribute to economic growth and improved rural welfare depends on exporting countries' ability to adjust agricultural structure to changes in resource distribution and comparative advantage that occur in the course of economic development. Thailand has proven its ability in this respect, and its agricultural exports have grown even in the context of the rapid industrial growth of the last few decades. Indonesia has also shown the ability to adjust to changes in both external and internal factors. The Philippines, however, has failed to change the composition of its agricultural exports in response to shifts in its comparative advantage, thus its agricultural exports have fallen far behind those of Thailand and Indonesia.

NOTES

- ¹ On the relationship between export expansion and economic growth in general, see Maizels (1968), Michaely (1977), Feder (1982), Hsiao (1987), and Dutt and Ghosh (1996).
- ² This pessimistic view was expressed in the work of Prebisch (1950), Singer (1950), Nurkse (1952) and Myrdal (1957). For a useful survey of these authors' work and other related literature, see Myint (1979), Lewis (1989) and Krueger (1997).
- ³ For example, Lewis (1980) argued that slower economic growth in developing countries (trade) could be caused by slower economic growth in developed countries (see also Riedel

1984). For an empirical study of the long-run terms of trade in developing countries for the 1900–86 period, see Grilli and Yang (1988).

- ⁴ Despite the importance of agricultural export for developing countries, there are relatively few empirical studies. Studies that focus on total agricultural exports and/or exports of given commodities from developing countries include Islam (1988), Balassa (1989), Islam and Subramanian (1989), and MacBean (1989).
- ⁵ All monetary figures are in US dollars unless otherwise noted.
- ⁶ After the Asian currency crisis, the agricultural export values of all three countries decreased—Indonesia's to \$5.1 billion, the Philippines' to \$1.5 billion and Thailand's to \$7.1 billion on average in 1998–99 (FAOSTAT database).
- ⁷ The relationship between agricultural and industrial exports is best looked upon not as a dichotomy, but as a continuum in the development process (Findlay 1984, 1985; Lewis 1989; Athukorala 1998).
- ⁸ For details of production structure and policy changes in Indonesia, see Kawagoe (2001).
- ⁹ For details of policy changes in the Philippines, see Balisacan et al. (2001).
- ¹⁰ For details of export development in Thailand by commodity, see Shigetomi (2001).
- ¹¹ 'Competitiveness' improves for an exporter when market share increases in a given market. See Kravis (1970a, 1970b) for the terminology.
- ¹² For the details of CMSA, see Yotopoulos and Nugent (1976).
- ¹³ A general form of the ECM is expressed as

$$\Delta y_t = \mu + \beta(\Delta x_t) + \gamma(y_{t-1} - \theta x_t) + \varepsilon_t$$

where x_t and y_t are time series variables; ε_t is the error term; and γ is the parameter of adjustment speed ($-1 < \gamma < 0$). If the two variables have a cointegration vector $[1, -\theta]$, and thus the combination of them is $I(0)$, the form of this model becomes internally consistent. The coefficients of variables in differences (Δx) represent the effects of short-run dynamics, while those of the variables in levels (x_t) represent the effects of a long-run relationship.

- ¹⁴ The regression result in first difference form for Thailand for 1961–97 is

$$\Delta \ln XV = -0.007 + 0.727^{**} \Delta \ln WD + 1.085^{**} \Delta \ln CM - 0.385 \Delta \ln DV$$

where Δ denotes difference of value of the variable from the previous year and ** means that the estimated coefficient is statistically significant at the 5 per cent level.

- ¹⁵ Tobacco leaves and copra in Indonesia and raw sugar in Thailand are traditional agricultural exports, but processed products of these commodities are differentiated in this study. 'New products' does not necessarily mean that exports of those products were null during the initial period, but rather that these products had very small initial export shares and later increased to the extent that the DV index decreased.

- ¹⁶ The tables of statistics for stationarity are available from the authors on request.
- ¹⁷ Estimation results for the AIDS model of import demand systems for seven commodities are available from the authors upon request.
- ¹⁸ The tables of statistics for stationarity are available from the authors on request.
- ¹⁹ This large ratio of distribution costs for banana is not necessarily due to its commodity-specific characteristics, but rather to the structure of the banana export industry in the Philippines. See Honma (1991) for a comparison of the banana export prices of the Philippines and Taiwan.
- ²⁰ Honma (1991) emphasises the high share of benefits from trade that often go not to the producer or the consumer but to the intermediary.
- ²¹ For the relationship between export growth and income distribution, see Bourguignon and Morrison (1989).

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DETERMINANTS OF AGRICULTURAL GROWTH IN THAILAND, INDONESIA AND THE PHILIPPINES

Yair Mundlak, Donald F. Larson and Rita Butzer

Can Asia feed itself? What changes have taken place in the process of economic growth? What role has agriculture played in the process of economic growth? What impact has growth had on income distribution? These questions have been dealt with in the various papers in this volume. In this chapter, we approach these questions by examining the determinants of agricultural growth from the 1960s onward and some of its consequences for Thailand, Indonesia and the Philippines.¹ These countries share certain attributes: they are located near one another and have similar climates; they all experienced relatively high rates of population growth (above 2 per cent); the staple food in all of them is rice; and they all grow tree crops, whose output is largely export-oriented. At the same time, however, their overall economic performances over the past three decades have shown striking differences.² The growth rate of output (GDP) of the economy at large was 7.1 per cent in Thailand, 6.4 per cent in Indonesia, and only 3.6 per cent in the Philippines (Table 11.1). The growth rate of agricultural output (GDP) was 3.69 per cent, 3.44 per cent and 2.55 per cent for the three countries respectively. Clearly, the non-agricultural sectors grew much more rapidly than agriculture. The rates of growth of per capita output show even sharper differences; while in the Philippines per capita agricultural output barely grew, the rate was 1.46 per cent in Thailand, and 1.38 per cent in Indonesia. It thus appears that the Philippines has not only faced a real challenge of feeding a growing population, but has also been challenged to raise the overall standard of living with a per capita growth rate of 1.1 per

cent, as compared to 4.87 and 4.33 per cent in Thailand and Indonesia, respectively. Thus, the Philippines lagged behind in growth of agricultural output and total output. This apparent correlation between total performance and agricultural performance suggests that common factors affect agriculture and non-agriculture.

CHANGES WITHIN AGRICULTURE

Table 11.2 summarises the changes in agricultural output and inputs by sub-periods. The country ranking of output follows the pattern observed in Table 11.1. The time pattern shows a decline in the output growth rate beginning in 1980. The most drastic change took place in the Philippines, where the rate declined from 3.8 per cent during 1961–80 to 1.4 per cent during 1980–98. In the latter period, the growth rate was less than the population growth rate.

Agricultural labour in our data set is a stock number. For the period as a whole, the labour force grew at a slightly lower rate than population; the difference indicates migration of labour to the non-agricultural sectors. The exception is Thailand in the boom period of the 1970s, when the agricultural labour force grew at a rate of 3.8 per cent. The determinants of the pace of migration are discussed in Larson and Mundlak (1997) and Butzer, Larson, and Mundlak (Chapter 12, this volume). When the pace of migration is low, labour supply rises due to population growth, and labour productivity in agriculture tends to decline.

Land expanded at a slower pace than labour, therefore the land–labour ratio declined (Figure 11.1). We differentiate between growth of irrigated

Table 11.1 Selected growth rates (per cent per annum)

	Thailand 1961–97	Indonesia 1961–98	Philippines 1961–98
Population	2.23	2.06	2.51
output			
Agriculture	3.69	3.44	2.55
Total	7.10	6.39	3.61
Output per capita			
Agriculture	1.46	1.38	0.04
Total	4.87	4.33	1.10
Agriculture/total	0.30	0.32	0.04

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC.

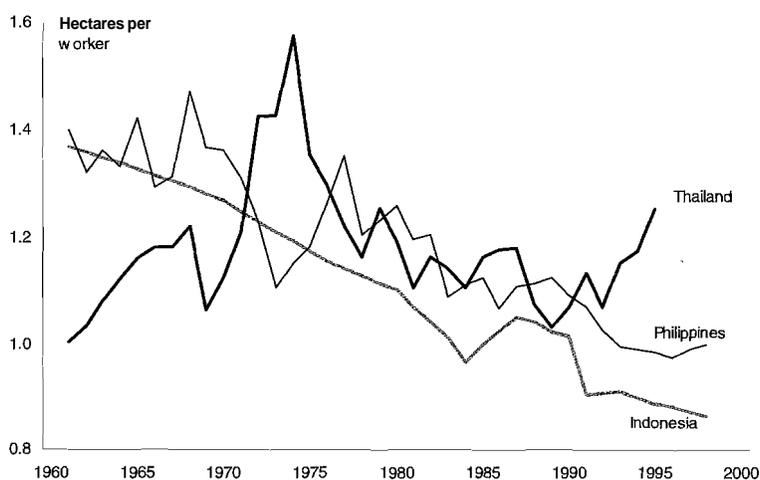
Table 11.2 Growth rates in agricultural output and inputs
(percent per annum)

	Output	Land		Fertiliser	Labour	Capital		
		Irrigated	Rain-fed			Total	Machines	Ag. origin
Thailand								
1971–95	3.35	3.52	0.61	10.00	2.00	1.80		
1971–81	3.78	3.82	1.36	11.50	3.75	1.00		
1981–95	3.22	2.61	0.09	9.96	0.42	3.15		
Indonesia								
1961–98	3.44	0.61	0.31	10.13	1.64	11.24		
1961–80	3.39	0.25	-0.13	12.45	1.11	10.18		
1980–98	3.04	0.69	0.68	3.69	1.95	12.68		
Philippines								
1961–98	2.55	2.64	1.01	5.36	2.17	4.55	3.75	
1961–80	3.82	3.20	1.42	7.35	2.30	6.64	3.47	
1980–98	1.38	1.15	0.18	4.90	1.50	0.28	3.35	

Note: For the Philippines, the data distinguish between capital of agricultural origin (livestock and orchards) and machines.

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC.

Figure 11.1 Land-labour ratio

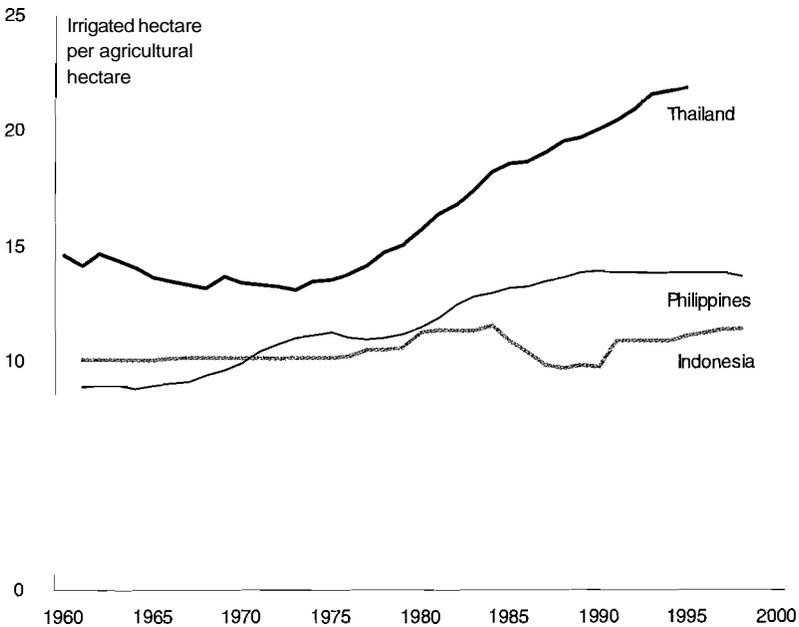


Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

and non-irrigated (or rain-fed) land.³ Irrigated land is more productive for a variety of reasons—for example, it allows multiple crops per year, and in many cases it represents better-quality land. Irrigated land constitutes a small fraction of total land (Figure 11.2). Its expansion requires investment in a water supply and an irrigation system, thus it is constrained by the availability of capital. Major projects are usually financed by public programs. In Thailand and the Philippines, the pace of growth of irrigated land exceeded that of growth of labour, and resembled the rate of output growth. The pace in Indonesia was considerably slower.

Indonesia seems to have faced the most severe capital scarcity. The capital–output ratio in Indonesia in 1961 was 0.07, much lower than in the other two countries (Figure 11.3). The situation changes as a result of the swift growth of capital. The fast growth of the capital stock resulted in convergence to the order of magnitude in the other two countries. Thus, in 1996, the ratio was 0.84 in the Philippines, 1.2 in Indonesia, and 2.5 in Thailand.

Figure 11.2 Ratio of irrigated land to agricultural land (per cent)



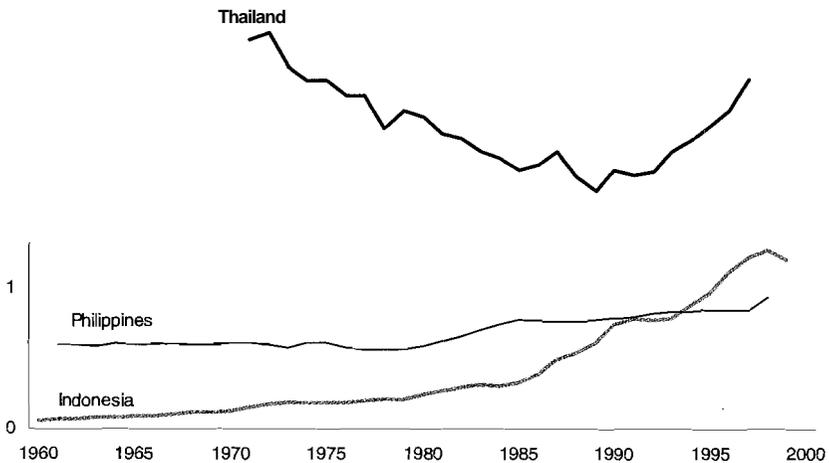
Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

How does it compare with other countries? Mundlak (2000) presents an empirical distribution of the fixed capital–output ratio of 58 countries. The median of this distribution was 1.4 in 1970 and 1.8 in 1990. Our figures for the Philippines include capital of agricultural origin in addition to fixed capital, thus the comparison is obscured.⁴ Keeping this in mind, we can see that the capital–output ratio in the Philippines and Indonesia was below the sample median.

Fertiliser was the fastest growing input. The fertiliser–land ratio was lowest in Indonesia (Figure 11.4), which also had the lowest ratio of irrigated land (Figure 11.2). For the period as a whole, the growth rate was about 10 per cent in Thailand and Indonesia and 5.4 per cent in the Philippines. This growth reflects the introduction of new varieties that are fertiliser intensive, as well as expansion of irrigated land, and with it the extent of multiple cropping. In all three countries, the rate of growth decreased in the period after 1980. The change was particularly strong in Indonesia. To obtain

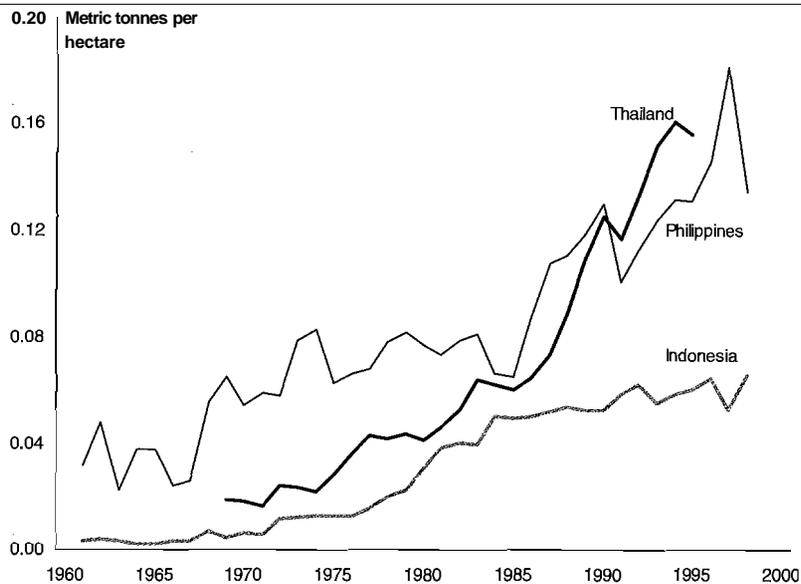
Figure 11.3 Ratio of the value of agricultural capital to output

4 , Ratio



Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

Figure 11.4 Ratio of fertiliser to land



Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

perspective we note that in the United States the growth rate of fertilisers during 1950–80 was 3.1 per cent, and practically zero thereafter (Gardner 2002). The considerably higher growth rates in Asia underscore the strong impact of the Green Revolution on the demand for fertilisers in Asia.

EMPIRICAL PRODUCTION FUNCTION

To obtain the contribution of the various inputs to output, we estimate a Cobb-Douglas production function. In order to concentrate on the results and their economic meaning, we defer discussion of technical aspects of the estimation and description of the variables to later sections and country sections. We note, however, that the dependent variable is the log of value added, not production. In this section we present a set of final results and concentrate on their meaning (Table 11.3). The upper panel in Table 11.3 presents input elasticities, and the lower panel presents coefficients of what we refer to as state variables. We did not impose constant returns to scale in

Table 11.3 Production function summary results

Variable	Thailand 1971-95	Indonesia 1980-98	Philippines 1971-98
Inputs			
Irrigated land	0.132	0.457	0.155
Rain-fed land	0.248	0.230	0.425
Fertiliser	0.061	0.084	0.077
Capital	0.415	0.031	0.163
Labour	0.144	0.198	0.181
State variables			
Price	0.034	0.127	0.320
Price spread		0.161	-0.696
Inflation	-0.323		-0.104
No schooling	-0.009	-0.003	
Education			0.213
Roads	0.096	0.073	
Infant mortality	-0.004	-0.002	
Rank	2	1	2
DW	1.748	1.25	1.078
R ²	0.982	0.990	0.984

Note: Based on Tables 11.8, 11.13 and 11.20, which provide additional details.

Source: Authors' calculations.

the estimations. The elasticities of the inputs reported in the table are the normalised values, obtained by dividing the estimated elasticities by their sum. The impact of the normalisation is somewhat marginal, however, since the sum of the five elasticities in the original estimates were, for Thailand, Indonesia and the Philippines, 0.908, 1.012 and 0.910. In a competitive market with full information, the elasticities should equal the factor shares, up to a stochastic error. If the countries use the same technology, the estimates should be quite similar, but they are not. An awareness of this fact is crucial to understanding the discussion in this paper.

The elasticity of irrigated land in Indonesia is 0.46, which is quite high. Rain-fed land was most important in the Philippines, with an elasticity of 0.43. The sum elasticities of the two types of land ranged from 0.38 (Thailand) to 0.69 (Indonesia). The impact of the high elasticity of irrigated land in Indonesia will be noticed throughout our discussion. Two circumstances might be related to this result. First, a good part of the irrigated land is in Java, by far the most productive island, and second, the share of

irrigated land in total land was smallest in Indonesia (Figure 11.2), which indicates that irrigated land was relatively scarce there.

There is more agreement in the estimates of fertiliser elasticity which varied between 0.06 and 0.084. To interpret this result, remember that the dependent variable is the log of value added and not of production. In the computation of value added, the cost of raw materials is deducted from total output. profit-maximising firms cannot increase profits by changing the quantity of raw material away from the optimal level (an example of the envelope theorem). The value-added function can be viewed as a restricted profit function in the sense that it provides the maximum value added given the restricted (fixed) inputs and the pertinent prices. This implies that the coefficient of fertiliser should be zero, in the sense that there should be no functional distribution to fertiliser from value added. This, however, is not the case. We return to this later.

There is a considerable difference among the countries in capital elasticity. It is particularly high in Thailand, where land elasticity was lowest, and particularly low in Indonesia, where irrigated land elasticity was highest. Thailand had the highest capital–output ratio, Indonesia had the lowest, and most of the time the difference was substantial (Figure 11.3). Finally, labour elasticity was relatively low, in that labour is attributed to less than 20 per cent of total output. We defer discussion of the results related to the state variables in the lower part of the table in order to continue the discussion of the meaning of input productivity. We begin with an evaluation of marginal productivity, or shadow prices.

Shadow prices

The emphasis in the regression analysis has been on explaining variations in output in terms of changes in inputs and state variables. We turn now to an evaluation of the economic meaning of the results, beginning with the marginal productivity, or shadow price, of the various inputs. Recalling that output is measured in value, we can use the estimated elasticities to recover marginal value products, that is $\partial y / \partial x_i = \varepsilon_i \bar{y} / \bar{x}_i$, where ε_i is an estimated elasticity associated with input i , and inputs (x) and output (y) are measured at average levels. This measure of marginal productivity represents a shadow value, which under perfect circumstances equals the price of the input. The comparison of shadow prices to actual prices is hindered by limited information on factor prices. However, we can also calculate marginal rates of technical substitution,

$$\frac{\partial y / \partial x_i}{\partial y / \partial x_j}$$

When factor prices (w) are available, say for x_j , we can check to see if the following identity approximately holds,

$$\frac{\partial y / \partial x_i}{\partial y / \partial x_j} = \frac{\partial y / \partial x_i}{w_j}$$

We can extend this discussion to a cross-country comparison of the shadow prices and to their changes over time. To facilitate the cross-country comparison, we convert the value terms to constant 1993 US dollars.⁵ Table 11.4 presents the average levels of the shadow prices for the sample period used for each country. The periods are not identical, but the degree of overlap is substantial. In order to trace the source of cross-country differences, we report the elasticity and mean value of the average productivity (y/x) in addition to the marginal productivity. This discussion is followed by analysis of the time pattern of the changes.

Land

The marginal productivity of irrigated land was \$352 per hectare for Thailand during 1971–95, \$1,001 for the Philippines during 1961–98, and \$2,288 for Indonesia during 1971–98 (line A1 of Table 11.4). The values for Thailand and the Philippines do not vary drastically over time, but rise considerably for Indonesia. These are the shadow values of the annual rent on irrigated land. Thus, there is a considerable difference in the order of magnitude of rent across countries. The estimates reflect estimated elasticities and average productivity. Outstanding in this comparison is the high elasticity for irrigated land in Indonesia. The extent to which this value is an accurate report of reality occupies our subsequent discussion. The average productivity of irrigated land is highest in the Philippines, but it is not much higher than the value obtained for Indonesia. The average productivity of irrigated land is far lower in Thailand, which also had the lowest elasticity for irrigated land and hence the lowest value for shadow rent.

The shadow rent on rain-fed land is \$138 for Thailand and Indonesia and \$363 for the Philippines (line A2). The cross-country comparison is affected by the conversion of the values from local currency to constant 1993 dollars. To neutralise this effect as well as others that influence the

levels, we examine the ratio of the shadow rent on irrigated land to rain-fed land. As already mentioned, there are several reasons why irrigated land is more productive, and the ratio of marginal products provides a measure of this difference. The results for Thailand and the Philippines are quite similar, 2.5 and 2.7 respectively (line C1). This is suggestive—at the margin, irrigated land is about 2.5 times as productive as rain-fed land. The productivity of irrigated land relative to rain-fed land is considerably higher in Indonesia. This largely reflects the high elasticity for irrigated land in Indonesia. The variability in the ratio of the average productivity of the two types of land, or equivalently the share of irrigated land in total land, is not that large—it is quite similar in Indonesia and the Philippines, and about twice as large in Thailand.

Capital

The marginal productivity of capital is an estimate of the shadow price of the user cost of capital consisting of interest rate, r , depreciation rate, d , and

Table 11.4 Productivity, prices and shadow prices

	Thailand 1971–95		Philippines 1961–98		Indonesia 1971–98	
A. Productivity (1993 US\$)	Avg.	Marginal	Avg.	Marginal	Avg.	Marginal
Irrigated land (\$/ha)	2,670	352	6,448	1,001	5,004	2,288
Rain-fed land (\$/ha)	559	138	856	363	602	138
Fertiliser (\$/mt)	8,760	538	10,985	842	17,793	1,493
Capital (rate of return)	0.47	0.20	1.53	0.15	3.07	0.09
Labour (\$/year)	548	79	883	160	544	108
Machines (rate of return)			92.0	5.7		
B. Reported prices (1993 US\$)						
Wage rate (\$/year)		311		349		493
Fertiliser price (\$/mt)		873		921		743
Fertiliser, distortion rate		0.62		0.91		2.01
C. Marginal rate of substitution						
Irrigated for rain-fed land		2.54		2.75		16.54
Irrigated land for labour		4.47		6.27		21.21
Irrigated land for wages		1.13		2.87		4.64
Irrigated land for labour adjusted		1.55		1.59		4.88
Irrigated land for capital		1,784		6,516		24,353
D. Derived prices (1993 US\$)						
Irrigated land (\$/ha)		2,346		6,673		15,253
Irrigated land-capital base (\$/ha)		2,373		8,667		32,390

Source: Authors' calculations.

expected capital gain. Because we deal with long-term averages, we evaluate the result under the assumption of zero expected capital gain. The marginal productivity of capital was 20 per cent in Thailand, 15 per cent in the Philippines, and 9 per cent in Indonesia (line A4 in Table 11.4). On the whole, these results are highly suggestive.

In the case of the Philippines, we differentiated between two types of capita—machinery and capital of agricultural origin, mainly livestock and orchards. The former constitutes only about 2 per cent of the latter, thus it is ignored in the discussion. It should be noted, however, that the shadow price on machinery is extremely high, reflecting the very high average productivity of machinery due to the low level of the input.⁶ The lowest marginal productivity of capital is obtained for Indonesia. The estimate in Indonesia varied considerably over time, being high in the early years and declining later with the rapid increase in capital stock in agriculture.

Labour

The marginal productivity of labour varied between \$79 per year in Thailand and \$160 in the Philippines (line A5). The big story here is not the cross-country differences, but rather the big gap between the marginal productivity of labour and the wage rate (also reported in Table 11.4). Note that wage rates in Thailand and the Philippines are reported as daily wage rates.⁷ We converted them to annual rates by assuming an average of 150 working days per year in agriculture for a person reported to be in the agricultural labour force. The assumption of 150 working days per year in agriculture is of course arbitrary. A substantially larger number would make the gap between the annual wage and the marginal productivity of labour even higher, and by the same token make the labour share unreasonably high. Agricultural labour demand is seasonal, meaning that rural labour enjoys less than full-year employment in agriculture. Labour time not spent in agriculture is spent in non-agricultural activities, including unemployment. For Indonesia, the data report annual wages, thus the problem of converting daily wages to annual wages does not exist or is disguised.'

The big difference between the estimated shadow price of labour and the wage rate may arise for several reasons. First, estimated labour elasticities may be biased downward. Indeed, the elasticities are far lower than the respective labour shares, but this gap is another face of the same problem and could just as well be caused by an upward bias in the estimated labour shares. It is important to note that the gap is common to **all** countries,

which weakens the likelihood that the culprit is a big downward bias in estimated labour elasticities. Second, workers classified as agricultural may devote part of their time to activities outside agriculture, with the consequence that the size of the effectual labour force in agriculture is considerably lower than is reported.⁹ In terms of our calculations, this is another way of saying that the average number of working days of a reported labour force in agriculture is less than 150 days. Third, the problem is not so much in the reported labour force, but in the mere fact that there is 'surplus labour' and disguised unemployment in agriculture. Fourth, the conversion of wages from local nominal values to constant dollars introduces annual variability in the country data due to the strength or weakness of the local currency. This problem is relevant mainly for Indonesia. In any event, it cannot account for the big gap between the shadow wage and the calculated wage.

Fertiliser

As noted, the dependent variable of the production function is the log of value added and not of output. Also, for reasons discussed earlier, we would expect the marginal productivity of fertiliser derived from the value-added function to be zero. This is the textbook result.

The argument, however, is valid only for homogeneous technology with competitive markets for both product and raw materials. When this is not the case, and prices perceived by farmers are different from those used in the national accounts, the argument no longer applies. Specifically, when the supply of fertiliser is not perfectly elastic, the empirical coefficient of fertiliser reflects the shadow price of fertiliser, which is different from the average market price. In this connection, we note that the growth rate of fertiliser use in the three countries was considerably higher than that of the other variables. This suggests that the countries were closing a gap in the excess demand for fertiliser, which is inconsistent with the assumption of optimal use under a perfectly elastic supply of fertiliser throughout the sample period. More evidence on this point is brought up in subsequent sections. The entire theoretical argument is modified further in the case for heterogeneous technology, which as explained below constitutes the framework of this analysis. In this case, a change in factor supply causes an inter-technique movement. This is believed to be the force behind the continuous excess demand for fertiliser.¹⁰

In evaluating our results, the estimated marginal productivity of fertilisers in the value-added function is referred to here as the distortion coefficient. Consider the maximisation problem, $\max L = py - wx + \lambda(x^c - x)$, where x^c is the constrained consumption of input x , p is the price of output y , and w is the price of input x . The first order condition on the marginal value-added function is $p \partial y / \partial x - w = \lambda$. If λ were equal to zero, the competitive unconstrained first-order condition would prevail. When value added is used as the dependent variable in a regression, and x is constrained, λ is the deviation of the first-order condition from the standard competitive model, and is referred to as distortion. It is measured in units of value added per unit of x . To normalise it, we divide it by w , and refer to the ratio as the distortion rate. The distortion coefficient thus reflects the shadow price of the constraints that prevented farmers from reaching the optimal use of fertilisers and would equal zero under the competitive market. This is a measure of excess demand at ongoing prices."

The results for fertiliser distortion are reported in line A3 of Table 11.4 in the column titled 'Marginal', and the results for the distortion rate (the ratio of distortion to the fertiliser price) appear in line B3. The fertiliser variable is an aggregate of different fertilisers. We have only the price of ammonium sulphate, which is more expensive (per metric tonne) than phosphate and potassium fertilisers. For this reason, the distortion rate is biased downward. The ratios are 0.62 for Thailand, 0.91 for the Philippines, and 2.01 for Indonesia (line B3). We return to this discussion below.

Prices based on **marginal** rates of substitution

We turn now to an evaluation of the shadow prices in terms of other factors, based on the marginal rate of factor substitution. We have already presented the results of the marginal rate of substitution of rain-fed land for irrigated land. The marginal rate of substitution of labour for irrigated land is obtained by dividing the marginal productivity of irrigated land by that of labour (line C2 in Table 11.4). The unit of marginal productivity of labour is output per year of labour worked in agriculture, but not specifically on irrigated land. Another approach is to use the wage rate rather than a marginal value of labour derived from parameter estimates. Calculations based on this approach suggest that labour income equivalent to 1.1 years in Thailand, 4.6 years in Indonesia, and 2.9 years in the Philippines would be required to rent one hectare of irrigated land (line C3 in Table 11.4).

The values in line C3 are lower than those reported in line C2. This may be because production on irrigated land and production on rain-fed land use different techniques. To be able to compute the marginal rates of substitution directly, we need to know how inputs used in production are allocated between irrigated and rain-fed lands. The data do not reveal this allocation, so additional assumptions are required. We proceed under the assumption that a hectare of irrigated land requires 2.5 times more labour than rain-fed land. This ratio is inspired by the ratio of marginal productivity of the two types of land. The computation of the labour requirements for irrigated land in the case of Thailand can be illustrated as follows. The total labour input is $L = L_i + L_r$, where the subscripts i and r signify irrigated and rain-fed land. Setting the requirement on one hectare of rain-fed land at 1, and on one hectare of irrigated land at 2.5, then the ratio of labour on irrigated land to total labour is

$$L_i / L = \frac{2.5A_i}{2.5A_i + A_r}$$

where A_i and A_r represent the areas of the two types of land. The ratio of averages in Thailand was $A_i / A_r = 0.212$. By substitution,

$$L_i / L = \frac{2.5A_i}{2.5A_i + A_r} = 2.5 / (2.5 + 1/0.212) = 0.346$$

That is, about 34.6 per cent of labour in agriculture was allocated to irrigated lands. Repeating the calculation for the Philippines and Indonesia, we get 0.253 and 0.233 (that is, 25.3 and 23.3 per cent) respectively. On the basis of this assumption, the marginal rate of substitution of adjusted labour for irrigated land is obtained as the ratio of the marginal productivity of irrigated land and that of adjusted labour. The results are 1.6 labour years per hectare for Thailand and the Philippines and 4.9 for Indonesia (line C4). The gaps between these values and those in line C3 are far smaller than the gap between the values in lines C2 and C3. The main impact of this adjustment is for Indonesia. In a textbook competitive economy, the marginal productivity of labour should be the same in all activities and should equal the wage rate. In such an economy, the results in lines C2 and C4 would be the same. It would also be the case for line C3 if the average labour year in agriculture did consist of 150 working days. The difference between the various estimates indicates that in reality there are several labour markets that are not perfectly connected, hence the difference in marginal productivity.

The annual shadow rent is capitalised to yield estimates of land values. In this exercise we discount using an interest rate of 0.15. Line D1 presents the capitalised value of the shadow rent of line A1. The results are roughly \$2,300, \$6,700, and \$15,300 (1993 dollars) for Thailand, Philippines and Indonesia, respectively. The value for Indonesia is rather high by international standards. We can also derive the land value using the marginal rate of substitution of capital for irrigated land, $m(A)/m(K)$. Unlike in the case of labour, we do not differentiate here for allocation of capital between irrigated and rain-fed land. Much of the capital is in trees (which are rain-fed) and livestock, thus it cannot be directly related to irrigated land. This ratio is reported in line C5. To derive estimated land value from these results, we impose the equality $m(A)/m(K)=R/(d+r)$. We extract from this equality the capitalised value of land, R/r , by assuming that $d/r = 1/3$. The results appear in line D2. The discrepancy between lines D1 and D2 reflects the difference in the discounting rate. For Thailand the values are practically the same because the shadow value of r is nearly 0.15, which is three-quarters of line A4. The difference for the other two countries reflects the fact that the shadow interest rate is lower than 0.15. Still, the country ranking and differences in the order of magnitude are maintained.

How reasonable are these results? In terms of all measures of land values, the estimates for Indonesia are the outlier. Indonesia is an extremely heterogeneous country, and it is impossible to relate the results to any particular situation. The foregoing exercise takes to an extreme the implications of the information embedded in the aggregate data that we all use in discussions. In order to avoid the big trap of becoming victims of information that might or might not be relevant, we conducted informal interviews in various locations on several islands prior to the start of the analysis in late 1998. The information showed a large spread in land prices depending on land quality and location. The order of magnitude of our results is consistent with this information. Interestingly, prices were always quoted in terms of rupiah per square meter. Thus, our calculations of prices per hectare perhaps convey a lack of realism. A more meaningful measure would be related to farm size. For instance, a common rice farm in Java covers 0.2 hectares, putting its value at just over \$3,000 (1993 dollars). This is high, but it is reality, and the search for reasons for these high values must therefore go beyond the quality of the estimates. To sum up, such an emphasis on land prices would require the gathering of more systematic information in the future, which would help shed light on the role of land in agriculture.

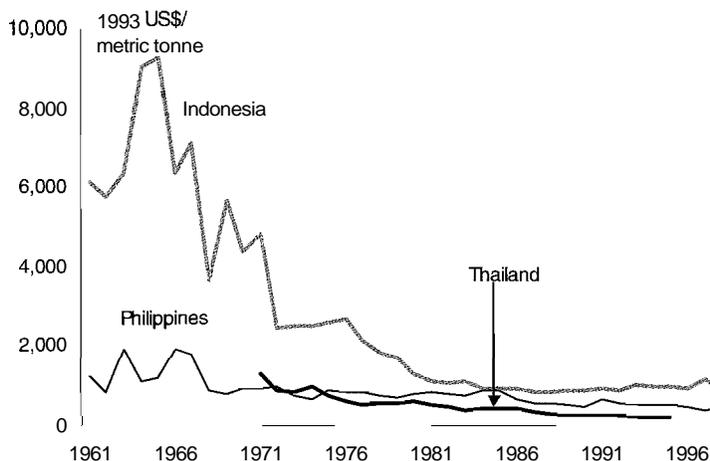
Interviews in Indonesia provided additional information pertinent to our evaluation. First, results depend on the elasticities, which should be close to the corresponding factor shares. In crop sharing, the owner gets half of the crop. He has small input responsibility, thus on a net basis the share is slightly less than one-half, but well within the neighbourhood of our estimates. Second, a daily wage rate often quoted was in the neighbourhood of 5,000 rupiah. The year 1998 was a turbulent one, when the average exchange rate was around 10,000 rupiah per dollar, compared to 2,900 rupiah per dollar in the previous year. Third, in rice farming, the contract harvest labour cost is one-eighth of the crop. If we double this share to include non-harvest activities, we get a labour share of one-quarter of the crop. All these approximations shed a more realistic light on the mechanical derivation of our estimates. As indicated above, evaluation in terms of dollars might cause a bias. If the Indonesian rupiah were overvalued, as it turned out to be in later years, there would be an upward bias in derived wage rates and land value. Also, the results depend on the assumption of the proportion of the labour reported as agricultural labour actually employed in agriculture.

Changes over time

The time profile of the marginal productivity of the inputs in question is plotted in Figures 11.5–11.9. Differences between countries reflect differences in elasticities and average productivity, whereas time variations reflect only changes in average productivity because elasticities are constant over time. There is a distinct growth in the marginal productivity of rain-fed land and labour in all countries, reflecting faster growth for output than inputs. In the case of labour, this was a decision internal to agriculture, in that the labour force was sufficiently large to produce returns below the ongoing wage rates. As discussed in Butzer, Mundlak and Larson (Chapter 12, this volume), the gap between returns in agriculture and opportunities outside agriculture encouraged migration of labour to non-agriculture.

The trajectory of returns to land is not the same for the two types of land. In the case of rain-fed land, marginal productivity growth reflects slow growth of land relative to output. The main expansion was in irrigated land, which affected shadow rent. The marginal productivity of irrigated land increased slightly in Thailand, and less so in the Philippines. On the other hand, there was a drastic rise in the marginal productivity of irrigated land in Indonesia. This pattern reflects expansion of irrigated land at roughly

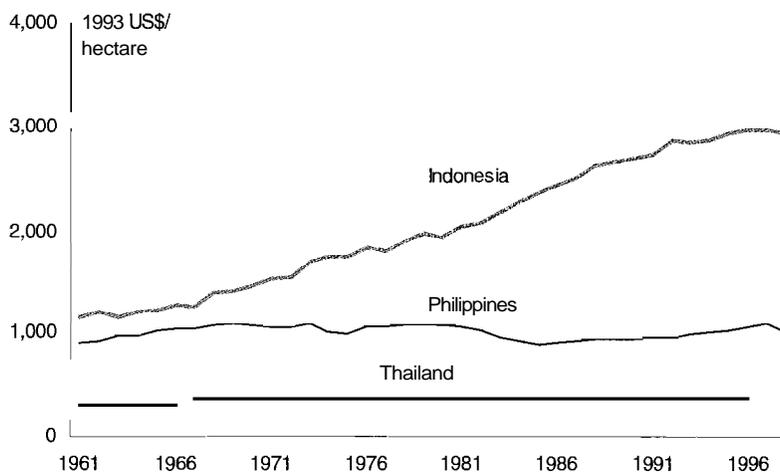
Figure 11.5 Marginal productivity of fertiliser



Note: The marginal productivity values are derived from the production-function parameters. See the discussion relating to Table 11.4.

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

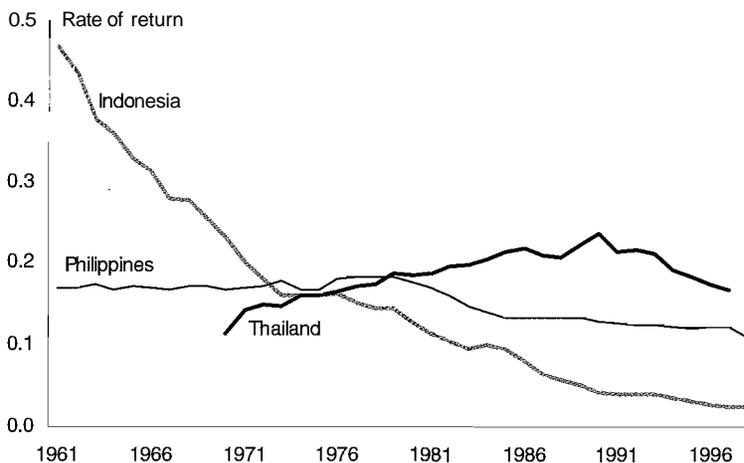
Figure 11.6 Marginal productivity of irrigated land



Note: The marginal productivity values are derived from the production-function parameters. See the discussion relating to Table 11.4.

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

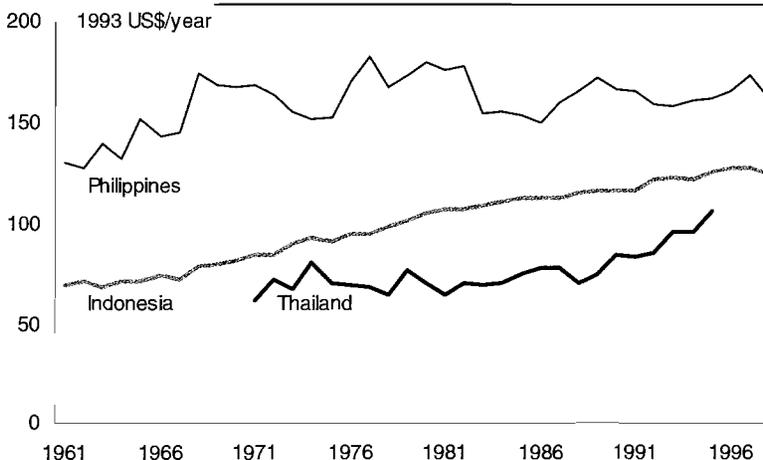
Figure 11.7 Marginal productivity of capital



Note: The marginal productivity values are derived from the production-function parameters. See the discussion relating to Table 11.4.

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

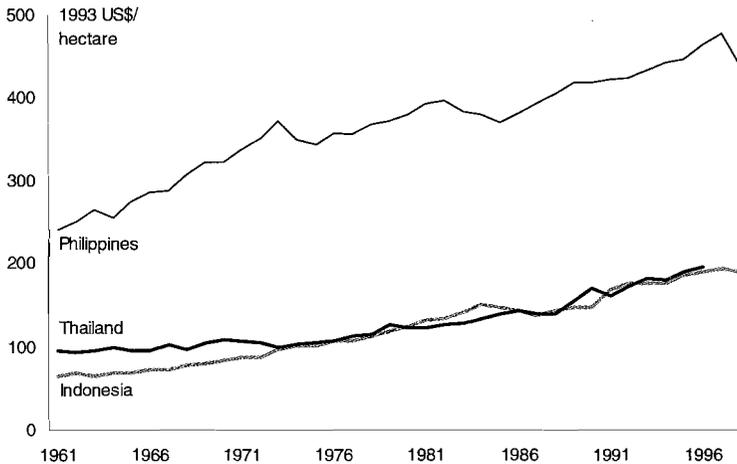
Figure 11.8 Marginal productivity of labour



Note: The marginal productivity values are derived from the production-function parameters. See the discussion relating to Table 11.4.

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

Figure 11.9 Marginal productivity of rain-fed land



Note: The marginal productivity values are derived from the production-function parameters. See the discussion relating to Table 11.4.

Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

the same rate of output growth in the two countries, whereas the expansion in Indonesia lagged behind. This pattern is consistent with the choice-of-technique model in that capital invested in land was directed to expansion of the more advanced technique, that of irrigated land, or simply irrigation, rather than to rain-fed land. During such a period of transition, the marginal productivity of the restricted resource—in this case irrigation—is constant. Why then has the marginal productivity of irrigated land increased in Indonesia? The explanation is the limited scope for expansion of irrigated land or capital. This is consistent with the very high marginal productivity of capital and extremely fast growth of capital stock (above 11 per cent per year) in Indonesia before the mid 1970s. The growth rate of capital stock was far greater than the growth rate of output, and the marginal productivity of capital continued to decline. Beginning in the 1980s, the shadow price of capital dropped to relatively low levels. It is possible that this was because calculations of marginal productivity are done with constant elasticities. We postulated that there would be a different picture if the elasticities were

allowed to change with the state variables—an exercise we could not undertake because of lack of data.

Nonetheless, as we discuss in a later section, estimates of capital elasticity were not sensitive to our choice of sample period. Having said this, it is clear that the economy responded with vigour to changes in technology. The various government programs, motivated by a desire to increase food supply, supplemented this response by moving resources into agriculture. In the Philippines, the rate of return to capital of agricultural origin fluctuated around 16 per cent during the period 1961–81, then gradually declined to 11 per cent. Recall that the rate on machinery was considerably higher, but because this component accounts for only a small fraction of the capital stock, it is not shown here. The situation in Thailand was somewhat different, with an initially slow growth rate of capital leading to an increase in the rate of return from 11 per cent in 1970 to almost 24 per cent in 1990. This increase triggered a rise in the growth rate of capital, which averaged 3.15 per cent in 1981–95, compared to 1 per cent in 1971–81.

The path of distortion in fertiliser is similar in the three countries, however its pace was different (Figure 11.5). The path is indicative of a fertiliser shortage that was alleviated gradually over time. The appearance of new fertiliser-intensive crops and varieties generated considerable excess demand, resulting in very high shadow prices. Over time, supply increased, while distortion decreased but remained fairly high in Indonesia and the Philippines. We calculated a distortion rate using the ratio of the distortion to the market price (Table 11.4 and Figure 11.10). To summarise, in the mid 1990s, the distortion rate was about 0.35 in Thailand, 1.0 in the Philippines, and 1.5 in Indonesia.

SOURCES OF GROWTH

This section discusses sources of growth. First, however, we need to complete the discussion on the approach to estimation and the role of state variables. Readers familiar with the approach or interested primarily in the empirical findings may skip this section and go directly to the results.

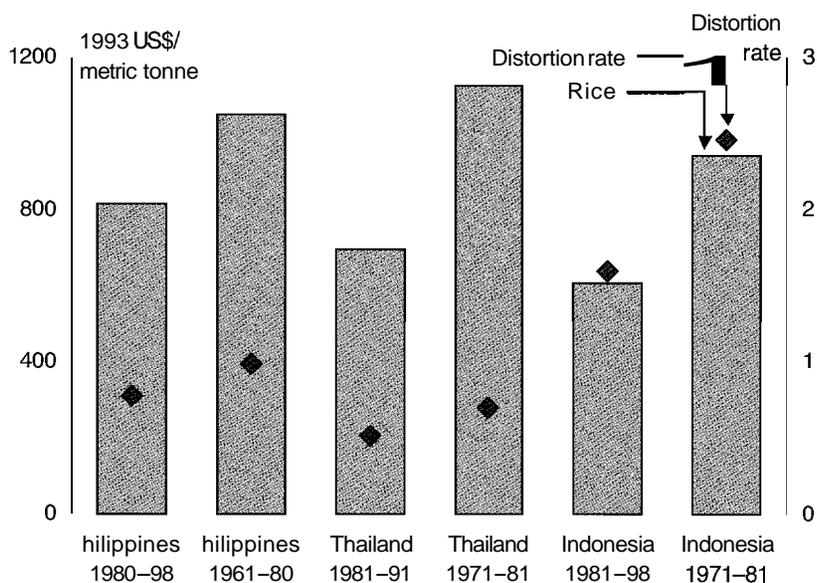
Specification

Output level is determined by the technology implemented and inputs used. In empirical analysis, generally the technology is represented by a single production function, implying that the technology is homogeneous. In reality, aggregate output is the sum of outputs produced using more

than one technique, meaning the technology is heterogeneous. The presentation of heterogeneous technology in terms of a given production function is problematic. The main reason is that, in this case, the set of implemented techniques varies over the sample. The techniques themselves are not observed, and factor productivity has to be inferred from the available data. The economic problem faced by producers in the case of heterogeneous technology involves making a decision on the production techniques to employ in addition to a decision on input levels.

A formal presentation of this approach requires that the optimisation problem at the firm level be expressed as a choice of techniques to be implemented (implemented technology) and their levels of intensity, given the available technology, product demand, factor supply and constraints, referred to as state variables (Mundlak 1988, 2000). This approach has important implications for the empirical analysis, specifically

Figure 11.10 Distortions in fertiliser markets



Note: The distortion is given by the partial derivative of the fertiliser variable in the estimated value-added function. The distortion rate is this value divided by the market price of fertiliser.

Source: Authors' calculations.

- the implemented technology is endogenous and is determined jointly with the input ratios
- the output path is determined by the evolution of the state variables, and
- the aggregate production function is not subject to a concavity constraint, even when each of the techniques is represented by a concave production function.

With a second-degree approximation, the aggregate production function looks like a Cobb-Douglas function, but the coefficients are functions of the state variables and possibly of the inputs

$$\ln y = \Gamma(s) + \beta(s, x) \ln x + u \quad (11.1)$$

where y is value added, x and s are vectors of inputs and state variables respectively, $\Gamma(s)$ and $\beta(s, x)$ are the intercept and the slope of the function, respectively, and u is a stochastic term. At each sample point, the data consist of aggregated techniques, the composition of which is likely to change over the sample points. To identify the aggregate production function, it is necessary to loosen the tie between decisions on the implemented technology and decisions on the level of inputs. This is achieved when deviations from the first-order conditions are more pronounced in the input decisions than in the choice of techniques.

Variations in the state variables affect the production function coefficients directly as well as indirectly through their effect on inputs. For this reason, estimates obtained under the assumption of constant coefficients provide a distorted view. Often empirical estimates are not robust because they are sensitive to the choice of sample. We can illustrate this by evaluating the elasticity of average labour productivity with respect to a given state variable (say s_i)

$$\partial \ln y / \partial s_i = \partial \Gamma(s) / \partial s_i + \ln x [\partial \beta(s, x) / \partial s_i] + \beta(s, x) (\partial \ln x / \partial s_i) \quad (11.2)$$

The state variables may not be independent. A change in one state variable may be associated with a change in the others, but this possible relation is ignored here for the sake of simplification. The first two terms show the response of the implemented technology to a change in the state variables, whereas the last term shows the output response to a change in inputs under constant technology. The elasticities in Equation 11.2 are functions of the state variables and thus vary over the sample points. The innovation

in this formulation lies in the response of the implemented technology to the state variables. To isolate this effect, we rewrite Equation 11.2, holding x constant to yield the elasticities

$$E_i = \partial\Gamma(s)/\partial s_i + \ln x[\partial\beta(s)/\partial s_i] \quad (11.3)$$

When a production function is estimated under the assumption of constant coefficients, the effect captured by Equation 11.3 becomes part of the unexplained production function residual. Equation 11.3 captures the fact that a change in the state variables may cause a change in the composition of techniques in addition to a change in the inputs used on a given technique. **As** such, it is correlated with inputs, thus the estimates are biased.

Estimation

The estimation of Equation 11.1 requires a specification of the functions $\Gamma(s)$ and $\beta(s, x)$ in terms of the arguments, s and x . The product of $\beta(s, x)$ with $\ln x$ will give quadratic terms. The time-series data to be used here are highly intercorrelated (strong multicollinearity), and it is impossible to identify the coefficients of the quadratic terms properly. The approach to identification is to use the factor shares, but this information is not available. We therefore impose constant slopes, but allow the intercept to depend on the state variables. This reduces the impact of the term in Equation 11.3 on the residual, and thereby removes the bias due to the correlation of the residual and the inputs. To be precise, this eliminates only the linear component of the residual and the inputs, but for linear estimators this is all that matters.

Strong multicollinearity decreases the precision of the ordinary least squares (OLS) estimates. In that case several coefficients are not significantly different from zero, whereas others take on unreasonable values, such as elasticities larger than one. Elimination of variables with non-significant coefficients is inconsistent with our prior knowledge that the variables belong to the equation. For instance, we do not want to eliminate an important input from the production function. From a formal point of view, the elimination of a variable is equivalent to an imposition of a linear homogeneous constraint on the coefficients of the function. There is a less costly possibility, namely to impose a constraint in such a way as to eliminate a linear combination of the variables in the equation instead of a particular variable. In general, when a variable or a linear combination of variables is eliminated from a

regression, the coefficients of the remaining variables are affected unless the variables are uncorrelated. This suggests that it is desirable to work with orthogonal (uncorrelated) regressors, which can be achieved by constructing orthogonal linear combinations of variables, referred to as principal components (PCs).

The analysis begins with the computation of regression in terms of the principal components. The non-significant components are eliminated, thus the question is which and how many principal components to eliminate from the regression. For this we need a criterion. Here we follow the algorithm in Mundlak (1981), which seeks to obtain the tightest confidence region for a given level of significance. We thus eliminate as many principal components as possible, subject to the restriction that the null hypothesis—that the coefficients are *jointly* equal to zero—is not rejected at the 5 per cent level of significance. This means that it is impossible to find a linear combination of the eliminated principal components to add to the regression that would subsequently have a regression coefficient significantly different from zero. The next step is to convert the coefficients of the principal components to those of the original variables.

When the regressors are written as a matrix, the number of regressors constitutes the rank of this matrix. The rank minus the number of eliminated principal components is referred to as the statistical rank. Thus, the statistical rank states the number of linear combinations of the original regressors that exhaust the information embedded in the whole set of regressors. The empirical results show that in most cases the statistical rank is between two and four, reflecting the high degree of multicollinearity.

The analysis begins with an estimation of the Cobb-Douglas production function with inputs alone. The inputs are irrigated land, rain-fed land, fertiliser, capital and labour. In general, the sum elasticities of a function with inputs alone are larger than one, some elasticities are larger than one, and others are negative or not significantly different from zero. This is then followed with a gradual introduction of state variables, the carriers of the implemented technology, starting with public goods consisting of measures of human capital and physical capital in infrastructure. The next step is to introduce incentives. In the search, we inspect the sum input elasticities, the Durbin-Watson statistics, and of course the sign of the coefficients. In the case of Indonesia and Thailand, serial correlation is not a problem. The situation is different for the Philippines, where the data show cyclical variations. To overcome this, we transform the variables as explained in the

section on the Philippines. The tables include the PC estimates obtained at the 5 per cent significance level and in some cases the OLS estimates. The latter are presented just as background information to illustrate how the choice of technique influences the estimates.

In concluding this section, it is important to point out explicitly that we use primal estimates of the production function to derive marginal productivities. This is in contrast to the dual approach where prices are used to identify the production function. The dual approach is inferior for several reasons, as discussed in detail in Mundlak (2001). Beyond this, the basic assumption of maintenance of the first-order competitive condition disguises crucial facts needed to understand the development process in the countries under consideration. This becomes clear in our discussion of the empirical results.

State variables

In our application, state variables scale production up or down, while leaving marginal rates of substitution unchanged. The state variables are referred to here as carriers of the implemented technology because they are correlated with that component of the residual which reflects changes in the implemented technology. The state variables included in the final results are roads (representing physical infrastructure), measures of education and health (representing human capital), and measures of incentives. Education is represented by the percentage of agricultural workers in Thailand and Indonesia who have no schooling (referred to as 'no schooling') and by the mean accumulated school years of the total labour force ('education') for the Philippines. Infant mortality rate represents the level of health. Both no schooling and infant mortality declined continuously during the period, whereas road length increased. These variables signify overall development during the period.

We have also tried other measures such as electricity consumption, but strong multicollinearity prevented their inclusion. These physical and human capital variables are policy variables, since they are largely publicly financed. Their regression coefficients were significant, and this was not seriously affected by the choice of other regressors. As anticipated in the foregoing discussion, the inclusion of the state variables in the regression affected estimated elasticities in the expected direction—namely the sum elasticities became close to one and individual elasticities were mostly positive. As we show below in the discussion of factor growth, state variables account for an

important part of changes in total factor productivity (TFP). This is consistent with the assumption that introduction of the more productive techniques was supported by improvement in these variables.

Unlike the role of policy variables, the role of prices was less consistent, although in general price coefficients had the right sign. The price effect is pronounced in the Philippines, exists but is not robust in Indonesia, and is not important in Thailand. Price variability was also important in the Philippines. Prices impact on growth in several ways. The regression coefficients of prices represent a direct impact of price variations on output, conditional on inputs. The indirect effect of prices on output occurs through their impact on the level of inputs and choice of technology. There is an additional effect which generally goes unrecognised. When there is a gap between the shadow price of an input and its market price, employment of the input will eventually rise. This is a generalisation of the formulation of the migration equation discussed elsewhere,¹² where the income gap between agriculture and non-agriculture generates a flow of labour to non-agriculture. Similarly, for instance, the gap between the marginal productivity of fertiliser and its market price increased fertiliser supply and consequently fertiliser use. This has been the case in all three countries. There can be various reasons for such a gap, which we will not discuss here. What is important for our current discussion is that, as long as the gap prevails, resources will flow, even when product price declines. This situation blurs the impact of prices on output in empirical analysis.

GROWTH ACCOUNTING

Agricultural technology improved dramatically during the study period. This change in available technology affected factor prices and their supply, which in turn resulted in productivity growth. The changes that took place over time are summarised in the growth accounting in Table 11.5.¹³ The results are based on the tables in the country sections.

In all countries, the growth rate of output during the first period (up until 1980 or 1981) was fairly similar, about 3.8 per cent for Thailand and the Philippines, and 3.4 per cent for Indonesia. The rates declined in the second period (from 1980 on), with most of the decline occurring in the TFP, not in the total factor. This is true in all countries, but the magnitude of the decline varied, with the steepest decline in the Philippines, from 0.98 per cent in 1961–80 to 0.13 per cent in 1980–98. The mildest change was in Indonesia, from 1.58 per cent in 1971–81 to 1.49 per cent in 1980–98.

Table 11.5 Sources of growth for Thailand, Indonesia and the Philippines

	Elasticity	Change (%/year)			Share of growth (%)		
		1961	1961	1980	1961	1961	1980
Philippines		1961	1961	1980	1961	1961	1980
		-98	-80	-98	-98	-80	-98
Output		2.55	3.81	1.38			
Inputs							
Irrigated land	0.155	2.64	3.20	1.15	16.0	13.0	12.9
Rain-fed land	0.425	1.01	1.42	0.18	16.8	15.8	5.6
Fertiliser	0.077	5.36	7.35	4.90	16.1	14.8	27.2
Capital, ag. origin	0.101	3.75	3.47	3.35	14.8	9.1	24.4
Labour	0.181	2.17	2.30	1.50	15.3	10.9	19.6
Capital, machines	0.062	4.55	6.64	0.28	11.1	10.8	1.3
State variables							
Price	0.320	0.00	1.75	-0.70	0.0	14.7	-16.2
Price spread	-0.696	0.03	0.14	-0.01	-0.8	-2.6	0.5
Inflation	-0.104	0.11	0.67	-0.64	-0.5	-1.8	4.8
Education	0.213	1.65	1.46	1.60	13.7	8.1	24.6
Factor accumulation		2.30	2.84	1.26	90.0	74.4	90.9
Total factor productivity		0.25	0.98	0.13	10.0	25.6	9.1
State variables					12.5	18.4	13.7
Portion of TFP due to state variables					125.1	71.7	150.7
Indonesia		1971	1971	1981	1971	1971	1981
		-98	-81	-98	-98	-81	-98
Output		3.39	3.69	3.04			
Inputs							
Irrigated land	0.457	0.80	0.97	0.69	10.9	12.0	10.4
Rain-fed land	0.230	0.52	-0.25	0.68	3.5	-1.6	5.2
Fertiliser	0.084	8.18	14.45	3.69	20.3	32.9	10.2
Capital	0.031	11.59	8.00	12.68	10.5	6.6	12.8
Labour	0.198	1.88	1.32	1.95	11.0	7.1	12.7
State variables							
Wholesale price ratio	0.127	1.36	0.84	2.37	5.1	2.9	9.8
Price spread	0.161	0.10	0.75	0.11	0.5	3.3	0.6
No schooling	-0.003	-1.30	-1.43	-1.22	11.5	11.6	12.0
Roads	0.073	5.71	5.46	5.09	12.4	10.9	12.3
Infant mortality	-0.002	-2.79	-2.97	-2.40	13.2	12.9	12.6
Factor accumulation		1.90	2.10	1.56	56.1	57.1	51.2
Total factor productivity		1.49	1.58	1.49	43.9	42.9	48.8
State variables					42.6	41.6	47.3
Portion of TFP due to state variables					97.1	96.9	96.8

Table 11.5 Sources of growth for Thailand, Indonesia and the Philippines (continued)

	Elasticity	Change (%/year)			Share of growth (%)		
		1971	1971	1981	1971	1971	1981
Thailand		-95	-81	-95	-95	-81	-95
Output		3.35	3.78	3.22			
Inputs							
Irrigated land	0.132	3.52	3.82	2.61	13.9	13.3	10.7
Rain-fed land	0.248	0.61	1.36	0.09	4.5	8.9	0.7
Fertiliser	0.061	10.00	11.50	9.96	18.4	18.7	19.0
Capital	0.415	1.80	1.00	3.15	22.3	11.0	40.6
Labour	0.144	2.00	3.75	0.42	8.6	14.3	1.9
State variables							
Real farm price	0.034	-1.10	2.28	-1.49	-1.1	2.1	-1.6
Inflation	-0.323	-0.28	0.67	-0.06	2.7	-5.7	0.5
No schooling	-0.009	-0.43	-0.73	-0.25	11.5	17.4	6.9
Roads	0.096	5.10	5.88	4.44	14.6	14.9	13.2
Infant mortality	-0.004	-0.87	-0.15	-0.44	9.9	1.5	5.1
Factor accumulation		2.26	2.50	2.35	67.6	66.3	72.9
Total factor productivity		1.08	1.27	0.87	32.4	33.7	27.1
State variables					37.5	30.2	24.2
Portion of TFP due to state variables					115.9	89.4	89.4
Alternative Thailand		1971	1971	1981	1971	1971	1981
		-95	-81	-95	-95	-81	-95
Output		3.35	3.78	3.22			
Inputs							
Irrigated land	0.129	3.52	3.82	2.61	10.8	10.4	8.4
Rain-fed land	0.286	0.61	1.36	0.09	4.1	8.2	0.7
Fertiliser	0.059	10.00	11.50	9.96	14.0	14.3	14.5
Capital	0.377	1.80	1.00	3.15	16.2	8.0	29.5
Labour	0.149	2.00	3.75	0.42	7.1	11.8	1.6
State variables							
Real farm price	0.023	-1.10	2.28	-1.49	-0.8	1.4	-1.1
Inflation	-0.295	-0.28	0.67	-0.06	2.5	-5.2	0.5
No schooling	-0.008	-0.43	-0.73	-0.25	0.1	0.1	0.1
Roads	0.081	5.10	5.88	4.44	12.3	12.6	11.2
Electricity	0.045	10.76	11.30	11.95	14.5	13.5	16.8
Infant mortality	-0.003	-0.87	-0.15	-0.44	0.1	0.0	0.0
Factor accumulation		2.19	2.49	2.20	52.3	52.7	54.5
Total factor productivity		1.16	1.28	1.02	47.7	47.3	45.5
State variables					28.8	22.4	27.5
Portion of TFP due to state variables					60.3	47.5	60.5

This seems like a paradox where the technical change is recorded more as a change in total factor than a change in TFP; however, it is consistent with changes that take place during the transition to more advanced techniques that are intensive in scarce resources (Mundlak 2000). The magnitude of TFP is path-dependent in that it depends on factor supply. When new techniques are intensive in scarce inputs, producers cannot shift immediately to make full use of the new technique because of insufficient supply of critical inputs. As a result, the shadow prices of these inputs rise, which in turn raises the level of the total factor, thereby reducing the measured TFP change. This does not reduce the impact of a change in the available technology but rather states that part of the technical change is absorbed in the factor prices. As a consequence, the quantity of the scarce inputs increases, and eventually the gap between the shadow price and their long-run supply price tends to disappear. The situation is different if all the inputs needed to implement the new technique are sold in a competitive market with a perfectly elastic supply. In that case, the share of TFP in total growth is expected to be more substantive.

Turning to individual inputs, irrigated land accounts for 10–16 per cent of output growth. The contribution of rain-fed land is substantial in the Philippines and Thailand during the first period, and far less important during the second period. This pattern also follows from the choice of techniques framework. Unlike traditional crops, new varieties and crops are intensive in irrigated land, thus scarce resources are mobilised to the irrigated land, causing the productivity of the non-irrigated land to suffer. For the period as a whole, fertiliser accounted for 14–20 per cent of growth. The relative importance of fertiliser was stable in Thailand, declined drastically in Indonesia, and increased in the Philippines in the latter period. The increase in the relative importance of fertiliser in the Philippines is partly a result of a decline in output growth (so the same impact of fertiliser carries a higher relative weight) and partly an alleviation of the supply condition. The relative importance of capital grew over time in all three countries, most significantly in Thailand. This is substantive evidence that the new techniques are capital-intensive.

There is less uniformity in the contribution of labour to growth. In the first period it was 14 per cent in Thailand, 7 per cent in Indonesia, and 11 per cent in the Philippines. In the latter period a gap opened up, with the contribution of labour to growth almost doubling in the Philippines and Indonesia, and declining to only 2 per cent in Thailand. The decline in

Thailand is consistent with the hypothesis that the initial endowment of rural labour exceeded needs, and that output growth was not in labour-intensive techniques.

Altogether, the state variables accounted for a large proportion of TFP growth. Indeed, in Indonesia they practically exhausted it. There is some variability in each country in the performance between the two periods. The elasticities used in the calculations are the same for the whole period, thus there will be short-term departures from the estimated values. Nevertheless, the overall record indicates that state variables serve well as carriers of the implemented technology shocks.

Roads as a representative of physical infrastructure accounted for 11–15 per cent of output growth in Thailand and Indonesia. This variable was not included in the regression for the Philippines. Schooling made a similar contribution, with some variability over time, as did infant mortality as a measure of health.

The price variable made a substantial contribution — in Indonesia it accounted for 10 per cent of output growth in the second period and 5 per cent for the period as a whole. In the Philippines, where prices varied considerably more than in the other countries, it contributed about 15 per cent in each of the two periods, but with different signs, so the net contribution was nil for the period as a whole. Overall, the contribution of the price spread was negligible.

POLICY IMPLICATIONS

The purpose of this analysis is to gain an understanding of underlying processes, which will enable us to evaluate roles for positive policies. At the aggregate level of the analysis, we can assess growth and income distribution.

It is an underlying fact that major technological advances changed agricultural production during the study period. In addition, there was an important development in non-agriculture in all three countries, at least in part of the study period. The input requirements of the new technologies were skewed in the direction of capital inputs, mainly irrigated land, fertiliser and other forms of capital. By definition, capital is scarce, thus the implementation of these new technologies stretched over a long period of time. This relates to the supply side. On the demand side, the three countries had to expand their exports in order to supplement growing domestic demand and absorb growing supply. The pace of growth was determined largely by the flow of resources to agriculture, as reflected in the weights

these inputs receive in accounting for output growth. The message for the future is clear—for growth to continue, available technologies must continue to grow. Without such growth, the impact of input growth will eventually decline. We already see some evidence to this effect in the later years of the study period, but this is not the only determinant of future growth. For agricultural producers to be able to take full advantage of new techniques, there must be a smooth flow of the required resources to agriculture. In retrospect, it would have been far more productive to respond without delay to the jump in fertiliser demand generated by the Green Revolution by allowing imports rather than relying on home production. The output of grain forgone because of the anti-import bias would have paid nicely for imported fertiliser.

The state variables indicate that public goods are important in facilitating the implementation of new technologies. Physical infrastructure integrates areas with major markets and reduces the costs of transactions. Other variables such as electricity, which did not enter the analysis because of the high correlation with roads, have their own important impact. Investment in such projects is not immediately connected to agricultural programs, but nevertheless has a strong impact on agricultural growth, and of course on the welfare of the rural population. This is also the case with health and schooling. Investment in such programs is constrained by resource availability, and it is in this sense that capital scarcity plays an important role in determining the pace of growth.

Assuming that changes in the available technology facilitate growth, the focus should be to allow the inputs in demand to flow into agriculture and avoid a gap between their shadow price and the long-run supply price. This has several consequences. Growth will be fastest and the benefits will be directed mainly to farmers rather than the distribution channels that always benefit from shortages. Not independently, the contribution of TFP will increase relative to total factor. The statement on the removal of obstacles to the flow of resources is meant here to be a road signal and not a detailed road map of an elaborate program. The elimination of obstacles has many aspects related to the distribution system, bureaucratic standards, and elimination of monopolistic lacunae along the way. It may not sound like a dramatic program, but its importance cannot be exaggerated.

On the whole, the new technologies are labour saving, and, along with natural population growth in agriculture, generate an oversupply of labour in agriculture. The excess supply is directed to non-agriculture, but the

ability of non-agriculture to absorb labour has to develop at a rather fast rate, the reason being that the more productive techniques in many industries are labour saving and more profitable even in countries with low wages. Low agricultural wages are one outcome of this gap. That said, however, as is shown in Butzer, Mundlak and Larson (Chapter 12, this volume), the same type of investments in education and health services that spur productivity gains on the farm also facilitate the flow of agricultural labour resources to other sectors.

Some of the country chapters suggest that rural poverty reduction was not progressing well, if at all. While aggregate poverty rates have fallen, much of the reduction has been urban poverty rates.¹⁴ Such lack of progress can be attributed to inadequate transfer policies. The more fundamental question, however, is why the growth that occurred did not lead to any decline in the incidence of poverty. This is another aspect of the issue of new technologies discussed above. Because the technologies are labour saving and wages are kept relatively low, labour income remains low. The wage rate did improve in some countries, but the big unknown is the average on-farm employment to which the daily wage rate is applied. In this situation, the welfare of landless labour is not improving and may even be deteriorating. On the other hand, the situation of land and capital owners improves as the demand for the resources in their possession increases and with it their returns. Over and above this effect, landowners have a natural advantage of being able to work more days on the farm and thereby increase their annual wage income even when they receive the same daily wage rate. Aside from transfer programs run for humanitarian purposes, the alleviation of rural poverty depends largely on development of employment opportunities outside agriculture. This can still occur in rural areas, but it is a separate issue related to the geography of development.

The trade terms of agriculture play several roles, some of them backstage. The flow of resources to agriculture depends on the relative profitability of agriculture, and this in turn depends on real product price. Similarly, the choice of new techniques is sometimes justified only in a good price environment, which helps to offset initial setup costs, as well as risk. The real price is determined by input prices and also by prices of non-agricultural products. Such prices are determined in the economy at large, which generates the economic environment within which agriculture operates. Even though the macro environment is not part of agricultural policy, it can still hurt agriculture. Finally, world agricultural prices affect domestic

prices and thereby the profitability of agriculture. The challenge here is for the countries under study to form an economic environment that will allow them to make the same progress that has led to declining prices in the rest of the world.

AGRICULTURAL PRODUCTIVITY THAILAND

Background

This short summary of events is based on Shigetomi (Chapter 8, this volume), Siamwalla (1996), and Coxhead and Plangpraphan (1998), among others.

Agriculture. Thailand experienced agriculture-led growth at a fast rate from the 1950s through the 1970s, and at a slower rate thereafter. In the process, the share of agriculture in GDP declined from about 38 per cent in 1951 to about 10 per cent in 1995. Over the same time period, the share of manufacturing rose from 13 per cent to 32 per cent. The growth of agricultural production outpaced that of demand. This expansion facilitated the growing domestic supply of food at relatively low prices and growing exports of agricultural products that served as an important source of foreign exchange. In addition, agriculture contributed the labour needed to develop the non-agricultural sector.

In the 1970s and 1980s, agricultural employment increased; in 1989 it started to decline. Its share in the labour force, however, has declined all along, a trend accompanied by growing migration from agriculture to the cities. The share of the total active population in agriculture declined from 83 per cent in 1961 to 57 per cent in 1999. The economic boom caused a rise in wages in both agriculture and in non-agriculture.

Agricultural policy underwent some major changes over the years. Until the mid 1970s, agriculture was taxed. This policy changed in the mid 1970s to income taxes and price supports, and agribusiness promotion. Starting in the early 1980s, policies shifted to agricultural protection, production diversification, and control.

The economy. Prior to the 1960s, Thai agriculture relied largely on rice and rubber production. The 1960s and 1970s were a period of high economic growth. Modern rice varieties were introduced in the late 1960s and started to gain in relative importance in the 1970s. During the 1970s, agriculture benefited from the economic growth and favourable world prices for agricultural products that were a feature of the decade. Exports expanded,

as did cultivated land. This expansion was associated with crop diversification, including the expanded production of export-oriented upland crops. The share of exports in total agricultural output rose from 31 per cent in 1971 to 58 per cent in 1982, and thereafter fluctuated at around 50 per cent. The early 1980s were painful for the economy as a whole, with a recession lasting until 1986. This period was followed by an industrial boom and accelerated economic growth, culminating in the economic crisis of 1997. Demand. Per capita rice consumption declined from about 145kg in 1971–75 to about 105kg in 1995–97. Output increased at a faster rate than consumption, and the surplus grew from roughly 2 million tonnes in 1961–75 to 6 million tonnes in 1996–97. In view of the impressive growth of exports, it is tempting to assert that demand is not a constraint to agricultural production (Martin and Warr 1993; Punyasavatust and Coxhead 2001). This assertion ignores the fact that global demand is a constraint to global agricultural output, and that when supply growth exceeds demand growth, prices decline, as has been the case for the past few decades. In fact, for some time Thailand tried to use its marketing power and export taxes to control exports in order to prevent world prices from falling. Still, falling prices do not prevent countries from exploiting their comparative advantage by exporting certain products so as to alleviate the constraints of domestic demand. Even then, output growth in most cases does not deviate much from growth in demand. We can see this if we estimate a pseudo-Engel curve by regressing per capita agricultural output on per capita total output. The values for the resulting elasticity are 0.3 for 1961–95, 0.26 for 1971–95, 0.51 for 1961–71, 0.28 for 1971–81, and 0.25 for 1981–95. This elasticity expresses the proportional growth in per capita agricultural output associated with a proportional growth in per capita total output. Output here is GDP, which is a good proxy for income. These values are not unreasonable.

As indicated by Honma and Hagino (Chapter 10, this volume), Thailand's export growth rate for agricultural products averaged 9.7 per cent per year from 1961–63 to 1995–97. The growth rate during the commodity boom of the 1970s was particularly impressive—20 per cent per year in US dollars and 10 per cent per year in volume. Thailand maintained this export expansion until the currency crisis in 1997. The main export crops are rice, rubber, cassava, sugar and maize. The export of maize and cassava was important in the 1970s, but waned later when the targeting quotas of Japan and the European Economic Community were

terminated. This suggests that such exports were not a pure manifestation of comparative advantage and that the implicit social price received was not identical with the actual price. Export levels were sustained by expansion of natural rubber and sugar exports.

Estimation. The reader interested only in the final results is invited to skip this discussion and move directly to Tables 11.8 and 11.9. The purpose of the discussion leading up to Table 11.8 is to explain considerations leading to the final results. The main issues are the choice of the principal component estimator to overcome the strong multicollinearity, the role of public inputs as carriers of technology, and the role of prices.

We begin the estimation of the Cobb-Douglas production function with inputs alone. This is followed with a gradual introduction of state variables, starting with public capital (human and physical), and incentives. In the search we inspect sum input elasticities, DW statistics, and of course the sign of the coefficients.

Table 11.6 presents a production function with inputs only. The statistical rank of the principal components estimation is 2, reflecting the high correlation among inputs. The sum elasticities are high, at 1.47 and 1.68 for the OLS and principal components estimates respectively. This reflects a rise in inputs that confounds the technical change and other state variables. The last column contains the normalised principal components elasticities, obtained as the ratio of the individual elasticities to their sum. As we will see below, these values are close to the final results of the analysis. In what follows, we present only the principal components results.

Table 11.6 Restricted production function: Thailand, 1971–95, without state variables

	b OLS	t OLS	Normalised	b PC	t PC	Normalised
Constant	-3.461	-0.4		-7.924	-8.3	
Irrigated land	0.319	2.6	0.217	0.219	43.9	0.130
Rain-fed land	0.399	1.2	0.272	0.664	9.1	0.394
Fertiliser	0.070	1.4	0.048	0.083	35.3	0.049
Capital	0.438	2.8	0.298	0.485	12.2	0.288
Labour	0.243	2.2	0.165	0.233	12.5	0.139
Sum	1.469		1.000	1.683		1.000
Rank				2		
DW	2.148			2.175		
R ²	0.989			0.989		

Source: Authors' calculations.

The next move (Table 11.7) is to introduce the infrastructure variables, or public goods. Because this group is highly intercorrelated, the size of the group was reduced. For schooling we use the measure of no schooling because it displays more variability around the trend line than the average level of schooling. The degree of infant mortality is chosen to represent the level of health, and road length represents physical infrastructure.

The introduction of these three state variables does not change the statistical rank, and two principal components still summarise all the information contained in the regressors. The allocation of the explanation, however, is different, and the sum elasticities are now close to 1. This is consistent with the assumption that the level of public inputs is correlated with changes in the implemented technology. The last column presents the normalised elasticities.

In Table 11.8 we present the results with two price measures added to the regression—the real farm price of rice and the inflation rate.¹⁵ The statistical rank is still 2, even though the prices are not highly correlated with the other regressors. The signs of the respective coefficients are in line with conventional expectations, even though this expectation stands on weaker ground within the choice of techniques framework. The impact of the introduction of incentives on the input elasticities is rather weak, but sufficient to reduce the sum elasticities to 0.91. The weakness of the impact

Table 11.7 Production function: Thailand, 1971–95, with state variables

	b PC	t PC	Normalised
Constant	5.175	8.1	
Irrigated land	0.137	39.3	0.146
Rain-fed land	0.255	3.7	0.271
Fertiliser	0.055	24.3	0.058
Capital	0.388	9.3	0.413
Labour	0.105	5.9	0.111
Sum	0.940		1.000
No schooling	-0.009	-24.0	
Roads	0.102	31.1	
Infant mortality	-0.004	-23.1	
Rank	2		
DW	1.851		
R ²	0.987		

Source: Authors' calculations.

may reflect the fact that the variability in the incentives is rather low compared to the big trend changes in the other regressors and the output. The low marginal contribution of the incentives also occurs in other combinations of the incentives. This outcome is very different to that obtained for the Philippines where the price variability was larger and the trend of the regressors was weaker.

The normalised elasticities of this regression are presented in the last column. There is a great deal of resemblance among the orders of magnitude of the normalised elasticities in the three tables. As indicated above, this is interpreted to mean that the state variables are strongly correlated with the technology carriers. This is not to claim that the public inputs included are identical with the technology variables. It simply indicates that, because of the strong correlation between the public inputs and the changes in the implemented technology, a subset of these variables can represent the disturbances that caused the sum elasticities in the naked regression to exceed 1.

In the discussion that follows, we concentrate on the normalised elasticities in Table 11.8. The sum elasticities of the irrigated and rain-fed land are 0.38. It is convenient to identify the estimated elasticities with factor shares. In that case, we can say that land accounted for about 38 per cent of output. The share of rain-fed land was about twice that of irrigated land.

Table 11.8 Production function: Thailand, 1971–95, base model

	b PC	t PC	Normalised
Constant	5.830	9.2	
Irrigated land	0.120	31.0	0.132
Rain-fed land	0.225	2.7	0.248
Fertiliser	0.056	16.2	0.061
Capital	0.377	7.5	0.415
Labour	0.131	10.0	0.144
Sum	0.908		1.000
Price	0.034	1.1	
Inflation	-0.323	-14.5	
No schooling	-0.009	-32.9	
Roads	0.096	27.5	
Infant mortality	-0.004	-16.5	
Rank	2		
DW	1.748		
R ²	0.982		

Source: Authors' calculations.

The fertiliser elasticity is 0.06, which is in line with the value obtained and discussed for the two other countries, and in other studies of Thailand (Mundlak 1993). To judge the reasonableness of this value, we note that the proportion of fertiliser and lime in total farm household income in Thailand in selected years was 2 per cent in 1963, 5 per cent in 1970, 1977 and 1981, 4 per cent in 1971, and 6 per cent in 1983 (Mundlak 1993). The elasticity of capital is 0.41, which is quite high, and that of labour is 0.14, which is quite low. These values are consistent with the hypothesis that new techniques are capital-intensive and that capital was scarce.

Shadow prices

We now move directly to the results in Table 11.9 and Figures 11.5–11.9. The ratio of the marginal productivity of irrigated land was roughly 2.5 times that of rain-fed. This ratio declines from 3.5 at the beginning of the

Table 11.9 Thailand: productivity, prices and shadow prices

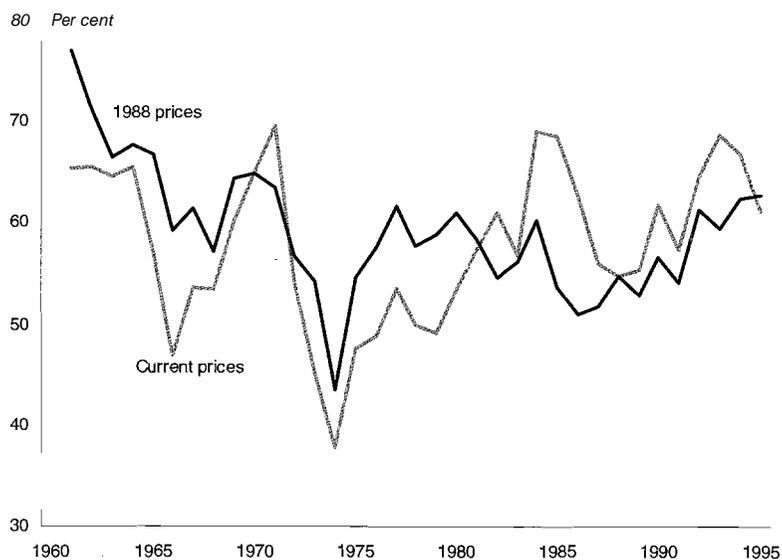
		1971–95		1971–81		1981–91	
A. Productivity (1993 US\$)	Elasticity	Avg.	Marginal	Avg.	Marginal	Avg.	Marginal
Irrigated land (\$/ha)	0.132	2,670	352	2,745	362	2,611	344
Rain-fed land (\$/ha)	0.248	559	138	456	113	632	156
Fertiliser (\$/mt)	0.061	8,760	538	12,749	783	5,869	361
Capital (rate of return)	0.415	0.47	0.20	0.42	0.17	0.52	0.22
Labour (\$/year)	0.144	548	79	502	72	576	83
B. Reported prices (1993 US\$)							
Wage rate (\$/year)			311		285		328
Fertiliser price (\$/mt)			873		1,128		696
Fertiliser, distortion rate			0.62		0.69		0.52
C. Marginal rates of substitution							
Irrigated for rain-fed land			2.54		3.21		2.20
Irrigated land for labour			4.47		5.01		4.15
Irrigated land for wages			1.13		1.27		1.05
Irrigated land for labour adjusted			1.55		1.74		1.44
Irrigated land for capital			1,784		2,095		1,599
D. Derived prices (1993 US\$)							
Irrigated land (\$/ha)			2,346		2,411		2,294
Irrigated land-capital base (\$/ha)			2,373		2,787		2,127

Source: Authors' calculations.

period to 2.2 at the end of the period. The decline reflects an increase in the productivity of rain-fed land, probably as a result of the introduction of new crops and overall practices. On the other hand, expansion of irrigated land might have caused a decline in its productivity on the margin, since new land brought under irrigation may be of lower quality than prevailing irrigated land. Similarly, expansion due to an increase in irrigated land may lead to lower-value crops. The productivity differential of the two types of land in Thailand is similar to that in the Philippines, but much smaller than that in Indonesia.

There is a considerable discrepancy between estimated labour elasticity and labour share. This discrepancy points to a profound data problem. The labour share was computed by multiplying the daily wage by the labour data, assuming 150 working days per year. The agricultural labour share, calculated in current prices, fluctuated between 0.4 and 0.7, with an average of 0.58 (Figure 11.11). This is roughly four times the estimated labour elasticity. More striking, however, is the low value of the labour share in

Figure 11.11 Labour share of agricultural GDP in Thailand

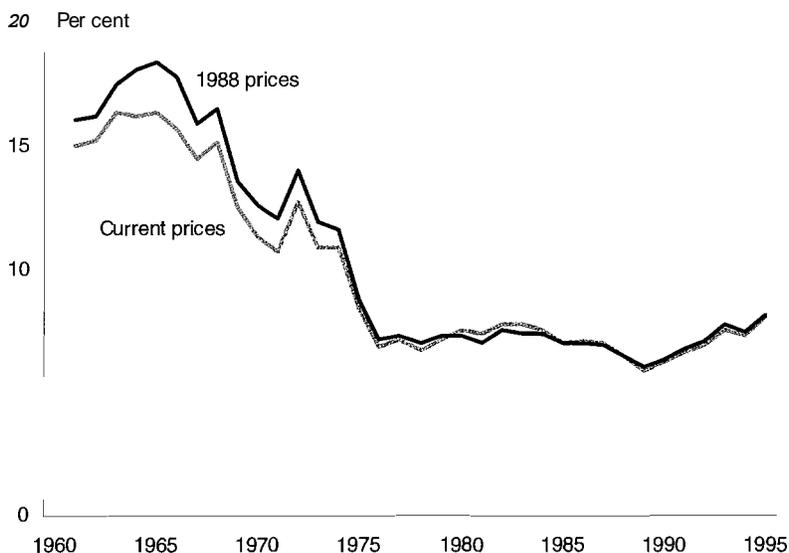


Source: See Mundlak, Y; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

non-agriculture (Figure 11.12), which declined from a level of 0.16 in the early 1960s to a level of 0.06 in the late 1980s, with an average of 0.098. It is very likely that the sectoral composition of the labour data exaggerates labour in agriculture and understates labour in non-agriculture. For non-agriculture, doubling the working days per year would give a more realistic labour share, but we have no basis on which to change the data and will therefore continue using the data we have, keeping in mind the limitation.

The ratio of marginal productivity of irrigated land to labour declined from nearly 1.74 labour years in 1971–81 to 1.44 in 1981–95 (line C4, Table 11.9). This decline may reflect a decrease in the productivity of irrigated land or a rise in labour productivity. The average for the whole period is 1.55 years. Capitalising this by a discount rate of 0.15, it would require nearly 10 years of work to acquire one hectare of irrigated land. The value was higher in the 1970s and declined in the later period. Multiplying the value by the annual wage of \$311 (in 1993 dollars), the derived value of one hectare of irrigated land varied from \$3,306 in the first period to

Figure 11.12 Labour share of non-agricultural GDP in Thailand



Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

\$3,145 in the later period, with an average of \$3,214 for the whole period (these values are not reported in Table 11.9). Alternatively, the value of irrigated land can be derived by discounting the marginal value product of land by 15 per cent. These values are reported in line D1 of Table 11.9 and are lower than the wage-based values.

The marginal productivity of irrigated land in terms of capital ranged from \$2,095/ha during the first period to \$1,599/ha in the later period (line C5). This is the ratio of rent to user cost of capital. Assuming that the depreciation rate accounts for one-third of the interest rate, we obtain capitalised value of land that varied across the two periods from \$2,787 to \$2,127 (line D2).

The ratio of the marginal productivity of labour to capital is about \$400 for the whole period. This is the estimate of the ratio of the wage to the user cost of capital. The agricultural wage rate was \$311, from which we can solve for the user cost of capital, which is quite high at 78 per cent for the whole period with small variations over time. This is a result of either a high marginal productivity of capital or—what is more likely—a low marginal productivity of labour, which in turn may be related to ambiguity in the content of the labour data. To evaluate this impact, we can assume, for instance, that the reported labour force in agriculture is twice as high as the actual force. A correction for this would reduce the labour–capital ratio, double the shadow price of labour, and reduce the shadow interest rate without changing the elasticities. A reduction of the elasticity of capital compensated by the elasticity of labour would also reduce the shadow interest rate. Such calculations highlight the fact that our conclusions are sensitive to the assumption relating to the labour force.

Growth accounting

Table 11.5 presents calculations of TFP for the period as a whole and for the two sub-periods, 1971–81 and 1981–95. For the whole period, output grew at an average rate of 3.4 per cent, of which 67.6 per cent was due to the growth in total factor and the remaining 32.4 per cent to TFP. In the earlier period, output grew at an average rate of 3.8 per cent, and the division to total factor and TFP was similar to that of the whole period. In the later period, the output growth rate was 3.2 per cent, of which 73 per cent was due to growth in total factor and only 27 per cent to TFP. In other words, the growth rate of TFP declined from 1.3 per cent in the first period to

0.87 per cent in the second period, a decline of nearly 50 per cent. At the same time, total factor growth changed only slightly. This movement is consistent with changes that take place during the transition to more advanced techniques that are intensive in scarce resources. The growth rate of capital in the second period was 3.2 per cent, compared to 1.0 per cent in the first period. Meanwhile, the growth rate of fertiliser was quite high in both periods.

In terms of the contribution of individual inputs to growth, labour contributed 14.3 per cent in the first period, only 1.9 per cent in the later period, and 8.6 per cent for the period as a whole. This rather small contribution is consistent with the fact that the initial endowment of rural labour exceeded the need, and that output growth was not in labour-intensive techniques. Fertiliser accounted for 19 per cent of growth, which is indeed substantial, but also alarming, since this source of growth cannot go on forever. The contribution of irrigated land declined from 13.3 per cent in the early period to 10.7 per cent in the subsequent period. At the same time, the contribution of rain-fed land declined from 8.9 per cent to a mere 0.7 per cent. This means that the contribution of total land expansion was practically coming entirely from the expansion in irrigated land. Finally, the contribution of capital was substantive, and increased drastically from 11 per cent to 40.6 per cent.

Turning to state variables, they accounted for 37.5 per cent of output growth for the whole period, compared to 32.4 per cent for TFI? For the period as a whole, the weight given to state variables slightly exaggerated their importance as carriers of the implemented technology. For the sub-periods, the situation was reversed. As already stated, the elasticities used in the calculations are the same for the whole period, and it is therefore natural that there will be over and undershooting for shorter sub-periods. Most of the contribution of state variables is due to roads (physical infrastructure), education (a decline in the percentage of agricultural workers with no schooling), and health (a decline of infant mortality rates). To support the statement that roads are representative of physical infrastructure in general, we ran the regression in Table 11.8 again with electricity added (Table 11.10). The various coefficients changed very little, except for roads, which declined to 0.08, while electricity was 0.045. The growth rate of electricity was about twice that of roads, hence their contribution to growth was nearly the same (Mundlak et al. 2002).

Discussion

There are claims in the literature that agricultural production in Thailand increased largely because of land expansion. This might have been the case in the earlier years, but not in the study period, when land expanded at an average annual rate of 1.1 per cent while other inputs expanded at higher rates. Specifically, fertiliser increased at an average annual rate of 10 per cent, whereas irrigated land and capital increased at average annual rates of 3.5 and 1.8 per cent respectively. Consequently, total factor accounts for 67.6 per cent of output growth. When the contribution of rain-fed land (4.5 per cent) is subtracted, total factor contributed to 62 per cent of growth. This is similar to the experience of other Asian countries, and consistent with the proposition that, in general, shocks that improve profitability cause land expansion and a positive change in the intensive margins (Mundlak 2000). The rise in TFP reflects improved crop varieties and changes in output composition. Output growth was also influenced by growth of livestock production, which automatically increased output per hectare.

The growth of agricultural production was associated with a remarkable growth in public goods—roads, electricity, health and education, **all** essential

Table 11.10 Production function: Thailand, 1971–95, augmented base model

	b OLS	t OLS	b PC	t PC	Normalised
Constant	12.545	0.9	7.486	12.7	
Irrigated land	0.238	0.8	0.103	27.3	0.129
Rain-fed land	-0.025	-0.1	0.229	3.1	0.286
Fertiliser	-0.053	-0.6	0.047	17.9	0.059
Capital	-0.012	-0.0	0.301	7.4	0.377
Labour	0.293	1.5	0.119	10.1	0.149
Sum	0.442		0.799		1.000
Price	0.022	0.3	0.023	0.8	
Inflation	-0.003	-0.0	-0.295	-11.3	
No schooling	-0.003	-0.4	-0.008	-29.5	
Roads	-0.105	-0.5	0.081	34.0	
Electricity	0.297	1.6	0.045	16.0	
Infant mortality	0.003	0.8	-0.003	-13.8	
Rank			2		
DW	2.267		1.883		
R ²	0.993		0.985		

Source: Authors' calculations.

for the effective implementation of improvements in available technology taking place in Thailand as well as other Asian countries.

Finally, incentives did not play an important role in the estimated production function, which indicates that growth conditions were generally favourable and not seriously damaged by declining prices. Note, however, that this analysis does not cover the macro shocks associated with the 1997 financial crisis.

AGRICULTURAL PRODUCTIVITY INDONESIA

Estimation

The reader interested only in the final results is invited to skip the current discussion and move directly to Tables 11.14–11.16. The purpose of the discussion leading up to Table 11.14 is to explain considerations leading to the final results. The main issues are choice of the principal components estimator to overcome the strong multicollinearity, the role of public inputs as carriers of the technology, and the role of prices. We have analysed data for three periods, 1961–98, 1971–98 and 1980–98. To avoid long technical discussions, however, we discuss only the last two periods.

We begin estimation of the Cobb-Douglas production function with inputs alone. Next, we introduce public capital (human and physical), followed by incentives. In the search, we examine the sum input elasticities, DW statistics, and of course the sign of the coefficients. The tables contain the principal components estimates obtained at the 5 per cent significance level. Table 11.11 also presents the OLS estimates as a background to

Table 11.11 Production function: Indonesia, without state variables

	1971–98				1980–98			
	b OLS	t OLS	b PC	t PC	b OLS	t OLS	b PC	t PC
Constant	-16.057	-2.2	-5.743	-1.5	-29.255	-4.5	-35.817	-5.7
Irrigated land	0.403	1.4	0.171	0.7	0.868	3.0	1.389	9.2
Rain-fed land	-0.163	-1.3	-0.194	-1.6	0.029	0.3	0.115	1.4
Fertiliser	0.078	4.8	0.095	45.3	0.028	0.6	0.108	2.9
Capital	0.011	0.2	0.103	11.8	-0.060	-1.3	-0.088	-1.8
Labour	1.258	3.9	0.727	9.3	1.580	5.2	1.398	4.4
Sum			0.903				2.923	
Rank			3				4	
DW	1.844		1.830		1.957		1.850	
R ²	0.996		0.995		0.996		0.995	

Source: Authors' calculations.

illustrate the impact of strong multicollinearity. In general, the DW statistics do not flag serial correlation. The R^2 is high in **all** cases, but this does not mean much in view of the strong trend in the variables.

Table 11.11 presents a production function with inputs alone. The statistical rank is 3 for the whole period and 4 for the shorter period. The order of magnitude of the estimates is not sensible, and the sum elasticities for the shorter period are excessively high, reflecting a rise in inputs that confounds the technical change and other state variables.

The next step is to introduce infrastructure variables, or public goods (Table 11.12). From here on we present only the principal components estimates. The initial set of public goods includes no schooling, infant mortality, and length of roads. We prefer the use of no schooling because it displays more variability around the trend line than the average level of schooling. The degree of infant mortality is chosen to represent the level of health, and road length represents physical infrastructure. The introduction of these three variables to the initial set of Table 11.11 reduces the statistical rank to 2, which means that two principal components summarise **all** the information contained in the regressors. The estimates, however, are quite different from those in Table 11.11, and the sum elasticities are now close to 1. This is consistent with the assumption that the level of public inputs is correlated with changes in the implemented technology. The last column in each block presents elasticities that are normalised so that they sum to 1.

Table 11.12 Production function: Indonesia, with state variables

	1971–98			1980–98		
	b PC	t PC	Normalised	b PC	t PC	Normalised
Constant	-7.482	-7.9		-8.380	-22.2	
Irrigated land	0.662	27.8	0.624	0.729	14.5	0.647
Rain-fed land	0.059	0.8	0.056	0.057	1.3	0.050
Fertiliser	0.056	42.7	0.053	0.076	16.8	0.067
Capital	0.040	78.7	0.037	0.037	40.1	0.033
Labour	0.244	78.3	0.230	0.228	50.6	0.202
Sum	1.061		1.000	1.127		1.000
No schooling	-0.004	-78.0		-0.003	-39.0	
Roads	0.083	70.1		0.083	51.3	
Infant mortality	-0.002	-45.3		-0.002	-30.0	
Rank	2			2		
DW	1.797			1.781		
R^2	0.996			0.994		

Source: Authors' calculations.

In Table 11.13 we present the results with two price measures added to the regression—the real price of agriculture lagged one year, taken as the wholesale price ratio, and its spread. The main impact of the introduction of prices is to change the statistical rank to 4 for the longer period and to 1 for the shorter period. There is some similarity, however, in the order of magnitude of the estimates for the two periods.

Compared to Table 11.12, the change in coefficients caused by price variables is not substantial. There are two possible explanations for this. First, price does not matter at all. This explanation is doubtful since the simple correlation between output and wholesale price is 0.73 (reported in Mundlak et al. 2002). Input prices are also highly correlated with price. It is therefore likely that much of the contribution of prices is channelled through inputs, and it is the *net* direct effect of price that is weak.

The main outstanding result in Tables 11.12 and 11.13 is the very high elasticity for land, particularly irrigated land. The sum elasticities of irrigated and rain-fed land are 0.7, meaning that the two categories of land account for roughly 70 per cent of output. A possible explanation for this is that common shocks affect output and irrigated land. To test this hypothesis and overcome its consequences, we estimated the average irrigated land productivity function where output and inputs were expressed as ratios to

Table 11.13 Production function: Indonesia, base model

	Model A 1971–98		Model B 1980–98		Normalised
	b PC	t PC	b PC	t PC	
Constant	-6.344	-6.3	-6.747	-15.6	
Irrigated land	0.583	27.4	0.463	40.8	0.457
Rain-fed land	0.080	1.1	0.233	40.8	0.230
Fertiliser	0.066	16.4	0.085	40.8	0.084
Capital	0.035	40.0	0.031	40.8	0.031
Labour	0.227	59.2	0.201	40.8	0.198
Sum	0.990		1.012		1.000
Wholesale price ratio	0.057	1.7	0.127	40.8	
Price spread	0.069	0.5	0.161	40.8	
No schooling	-0.003	-55.0	-0.003	-40.8	
Roads	0.084	43.6	0.073	40.8	
Infant mortality	-0.002	-39.3	-0.002	-40.8	
Rank	4		1		
DW	1.883		1.253		
R ²	0.996		0.990		

Source: Authors' calculations.

irrigated land. In this equation output and inputs (in logarithms) are expressed as differences from irrigated land, thus the common shocks are likely to disappear (Table 11.14).

The table presents two regressions, without and with prices. The estimates in the 'irrigated land' row are values needed to bring the sum input elasticities to one. In both regressions, the sum land elasticities are roughly 0.5. This reduction is consistent with the above hypothesis. The reduction in land elasticities is compensated by an increase in labour elasticity. The correlation coefficient of labour with irrigated land and with capital is high, which may cause the variability in the estimates (also reported in Mundlak et al. 2002). Another striking difference from the results for the other two countries is the low capital elasticity. The fertiliser elasticity is 0.05, which is in line with the value discussed for the Philippines and Thailand. The sign of price elasticity is positive and negative for price-spread.

Shadow prices

The magnitude of new opportunities from the Green Revolution in Indonesia is illustrated by the change in paddy yield from 1.76 metric tonnes/ha in 1965 to about 4.5 metric tonnes/ha in 1996 (Kawagoe, Chapter 6, this

Table 11.14 Production function: Indonesia, 1971–98, alternative specifications for land

	Model C		Model D	
	b PC	t PC	b PC	t PC
Constant	-6.729	-46.0	-6.624	-66.5
Irrigated land ^a	0.518		0.524	
Rain-fed land	-0.018	-0.3	-0.003	-0.1
Fertiliser	0.051	63.0	0.050	46.4
Capital	0.041	61.2	0.038	53.2
Labour	0.408	35.9	0.391	35.8
Price			0.123	14.3
Price spread			-0.198	-2.4
No schooling	-0.003	-57.9	-0.003	-48.7
Roads	0.077	63.3	0.073	49.8
Infant mortality	-0.002	-58.1	-0.001	-54.9
Rank	2		2	
DW	1.861		1.396	
R ²	0.994		0.992	

^a Calculated from homogeneity constraint.

Source: Authors' calculations.

volume, Table 6.5). This change is reflected in the rise in marginal productivity of irrigated land, as well other factors (Figures 11.5–11.9, Table 11.15). There was a continuous dramatic increase in the marginal productivity of irrigated land, measured in 1993 dollars per hectare, from \$1,200 in 1961 to nearly \$3,000 at the end of the 1990s. This is high relative to the level in the other countries, but no less impressive is the fact that growth continued relentlessly at a high pace.

The new technology used fertiliser intensively, and its introduction generated a big jump in demand. Instead of importing fertiliser to meet this new demand, Indonesia relied on home production, which was far from adequate. As shown by Kawagoe (Chapter 6, this volume, Table 6.9), fertiliser production started to gain momentum in the late 1970s, but it was not until around 1985 that production reached one-half its 1995 level.¹⁶ Consequently, excess demand arose, reflected in a gap between the marginal productivity of fertiliser and its official price used in the national accounts

Table 11.15 Indonesia: productivity, prices and shadow prices

		1971–98		1971–81		1981–98	
Productivity (1993 US\$)	Elasticity	Avg.	Marginal	Avg.	Marginal	Avg.	Marginal
Irrigated land (\$/ha)	0.457	5,004	2,288	3,903	1,785	5,644	2,581
Rain-fed land (\$/ha)	0.230	602	138	460	106	686	158
Fertiliser (\$/mt)	0.084	17,793	1,493	27,591	2,314	11,544	968
Capital (rate of return)	0.031	3.07	0.09	5.01	0.15	1.91	0.06
Labour (\$/year)	0.198	544	108	474	94	586	116
Reported prices (1993 US\$)							
Wage rate (\$/year)			493		328		592
Fertiliser price (\$/mt)			743		943		606
Fertiliser, distortion rate			2.01		2.45		1.60
Marginal rates of substitution							
Irrigated for rain-fed land			16.54		16.89		16.36
Irrigated land for labour			21.21		18.97		22.21
Irrigated land for wages			4.64		5.45		4.36
Irrigated land for labour adjusted			4.88		4.37		5.11
Irrigated land for capital			24,353		11,629		44,013
Irrigated land for capital adjusted			5,606		2,677		10,131
Derived prices (1993 US\$)							
Irrigated land (\$/ha)			15,253		11,898		17,205
Irrigated land-capital base (\$/ha)			32,390		15,466		58,538

Source: Authors' calculations.

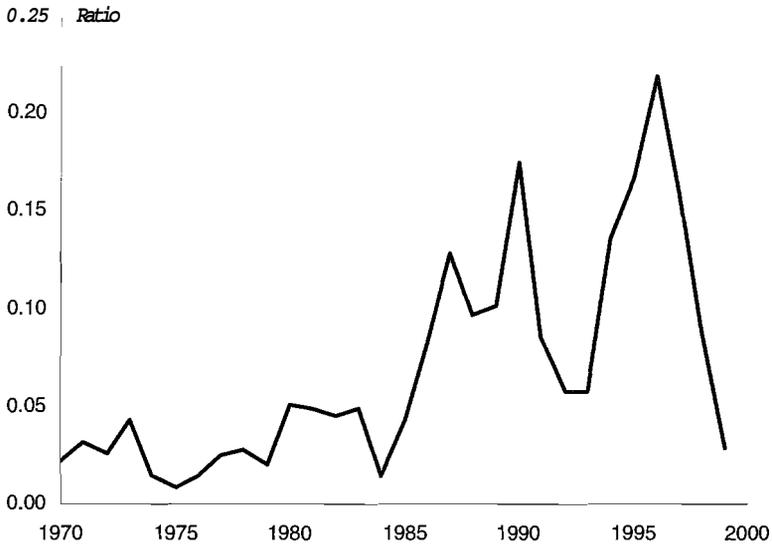
to compute value added. This was reflected in actual domestic prices, and as a result fertiliser had to be heavily subsidised (Kawagoe, Chapter 6, this volume, Figure 6.12). The gap, measured in 1993 dollars per metric tonne, was very high in the early 1960s, at the beginning of the Green Revolution, and even rose to a peak exceeding \$9,000 in 1965 (Figure 11.5). From then on, it declined, falling to about \$1,000 in the mid 1980s and remaining there for the rest of the study period. The distortion rate declined from a value of 4 in 1971 to about 1.5 in 1998. It can only be expected that under such a situation there were opportunities to gain from privileges granted under various government programs. There is no question that reliance on home production of fertiliser to meet the new demand was very costly in terms of agricultural output and farmer income.

The marginal productivity of rain-fed land also increased over the same period by a factor of 3 (Figure 11.9), but its level was only around 6–7 per cent of that of irrigated land (cf. Figure 11.6). This rise is due to the improvement and expansion of non-rice food crops and export crops, as described by Kawagoe (Chapter 6, this volume).

The new technology was capital-intensive at the farm level as well as in terms of infrastructure requirements. We detected the importance of the infrastructure—physical and human—in our estimates of the production function. Initially, the capital level was low and the rate of return was very high. It was only as late as 1985 that the ratio of investment to agricultural output started to rise above the 5 per cent level (Figure 11.13). The rise in this share can be seen as a response to the high rate of return. This rise in investment led to a subsequent decline in the rate of return and an increase in the rent of land. Public programs such as *Bimas* financed some of the capital flowing to agriculture. Whether knowingly or not, the same forces that determined the high shadow interest rate might have also affected these programs. In any case, the flow was rationed and costly to obtain. Plantations also sometimes benefited from subsidised credit. In reality, then, some investments were made with subsidised credit, which may bias downward our calculation of the shadow rate of return.

The changes in technology are clearly reflected in the shadow prices of land, which are obtained by capitalising the shadow rent (Figures 11.6 and 11.9) by a discounting factor of 15 per cent. Using 1993 dollars, the value of rain-fed land increased from roughly \$440/ha in 1961 to over \$1,300 in 1998. At the same time, the shadow price of irrigated land increased from \$7,800/ha to nearly \$20,000/ha.

Figure 11.13 Ratio of approved investment to agricultural GDP in Indonesia



Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

Growth accounting

The growth accounting presented in Table 11.5 shows that in the period 1971–98 factor accumulation accounted for 56 per cent of total growth, leaving 44 per cent for changes in TFP. Because the various alternative regressions differ in estimated elasticities, it is desirable to check how sensitive growth accounting is to the choice of regression. Table 11.16 presents calculations for two alternative elasticities taken from Tables 11.13 and 11.14. The main difference between them is the order of magnitude of the land and labour elasticities. The results are fairly similar, with factor accumulation accounting for 59 per cent and 55 per cent of total output growth. The contribution of state variables practically exhausts TFP growth, supporting the conclusion that state variables serve well as carriers of technology shocks. The relative contribution to output was about 12–13 per cent for each of the three public goods—schooling, roads, and health—and 5 per cent for prices. The contribution of the price spread was negligible.

Table 11.16 Sources of growth for Indonesia

	1971–98 Change (%/year)	Model A (1971–98) ^a		Model B (1980–98) normalised ^a		Model D (1971–98) ^b	
		Elasticity	Share of growth (%)	Elasticity	Share of growth (%)	Elasticity	Share of growth (%)
Output	3.39						
Inputs							
Irrigated land	0.80	0.583	13.8	0.457	10.9	0.524	12.4
Rain-fedland	0.52	0.080	1.2	0.230	3.5	-0.003	-0.0
Fertiliser	8.18	0.066	15.8	0.084	20.3	0.050	12.0
Capital	11.59	0.035	11.9	0.031	10.5	0.038	13.0
Labour	1.88	0.227	12.6	0.198	11.0	0.391	21.8
State variables							
Price	1.36	0.057	2.3	0.127	5.1	0.123	4.9
Price spread	0.10	0.069	0.2	0.161	0.5	-0.198	-0.6
Noschooling	-1.30	-0.003	13.1	-0.003	11.5	-0.003	12.3
Roads	5.71	0.084	14.2	0.073	12.4	0.073	12.4
Infantmortality	-2.79	-0.002	14.8	-0.002	13.2	-0.001	11.5
Factor accumulation			55.4		56.1		59.1
Total factor productivity			44.6		43.9		40.9
State variables			44.6		42.6		40.6
Portion of TFP due to state variables			100.0		97.1		99.2

^a Models A and B are from Table 11.13.

^b Model D is from Table 11.14.

Source: Authors' calculations.

Discussion

Indonesian agriculture is dichotomous—there are both many smallholders and big plantations. The backbone of small farms is rice farming, but there are smallholders of tree crops as well. On the whole, rice farms are small and do not provide full employment for the family, which forces families to seek off-farm work. The ease of finding such opportunities varies geographically. Off-farm employment is relatively easy to find in Bali, a small island with a highly developed tourist industry, where some complain that tourism competes with agriculture. In other areas, limited on-farm and non-farm opportunities result in relatively low wages. Rural poverty is

of concern, and has influenced policies aimed at improving the profitability of rice production. Because rice provides only a fraction of family income, however, this measure by itself is not an efficient way to overcome rural poverty. In the long run, if and when labour demand from non-agriculture expands, labour will leave agriculture. When farmers are asked about career priorities for their children, the universal answer is non-agriculture if possible. This is revealed by the fast and pervasive growth of schooling.

Farmers are poor, but is that an indication of the welfare of agriculture? The answer is no if we look at land prices. The ratio of land price to wage rate is very high by international standards. This *can* be easily seen by dividing the price of land by the wage rate in other countries, specifically in the big grain-exporting countries. This is also reflected in the factor share of land in contractual arrangements—50 per cent of rice in crop sharing. In part, agriculture is profitable because labour costs are low. For this reason, we *can* think of the labour cost of land as a good indicator of the future evolution of the sector: it will decline when other employment alternatives develop and wages rise.

The question still looms—why are land prices so high? And, not independently, why are farmers willing to tie their capital to land? Again, the answer is lack of alternatives. If a farmer sells his 0.2 hectares of land, what can he do with the money? Move to the city and seek shelter and work, with all the risks involved? A better strategy is for family members to shift to non-farm work in the city while maintaining family roots in the village. Eventually the family may sell out of the village, but only after establishing roots in the city. This is the reason only a small fraction of the labour force leaves agriculture in any given year, a universal finding. Farming provides shelter and community, as reflected in the phrase 'farming is a way of life'. This attribute is built into land prices, and is applicable more to established farms than to frontier land or land for planting trees such as palm, coffee, cacao and rubber. In the case of frontier land, labour is scarce and the pace of development is determined by labour supply. This implies a shadow price for labour higher than the wage rate in labour-scarce areas, and consequently lower land prices. Also, land price is strongly affected by proximity to roads and cities, reflecting lower transportation costs, but more so proximity to employment opportunities.

Non-rice agriculture

The tree crop sector has expanded rapidly because it is profitable. It responded favourably to changes in the real exchange rate, generating a boom in products priced by the world market such as cacao and palm oil. The sector includes

smallholders as well as big plantations run by corporations; some big plantations are owned by the government. This coexistence of small and big holdings raises the interesting question of economies of scale. All major tree crops (oil palm, rubber, coffee, cacao, coconut and tea) are harvested by hand and require continuous harvesting at frequent intervals almost year-round. Because harvest labour is such an important cost, the scope for scale economy is limited. Furthermore, the difficulty of monitoring large groups of hired harvest labour produces negative economies, which plantations try to minimise by innovations in their approach to labour management. Positive economies of scale are derived from processing plants, which are not divisible and require a continuous product supply, which is achieved by joint ownership of plantations and processing plants. Beyond this, there seem to be economies of scale in acquisition and development of new land and the finances allocated to these activities.

Resource constraints

Evidence suggests a serious capital constraint on agricultural development, which is consistent with a relatively high shadow value for the user cost of capital. The level of capital was relatively low in the 1960s but subsequently grew rapidly. This is consistent with the revealed high shadow price. Still, in spite of this growth, the capital—output ratio was relatively low for most of the period, as reflected in the low factor share of capital.

Credit markets are not well developed; in fact, they hardly exist for long-run investment in agriculture and are also poorly developed for short-term loans. This *can* be judged by the barter arrangements made between fertiliser suppliers and farmers, implying a relatively high interest rate, which results in under-utilisation of fertiliser. The cacao yield of smallholder farms in Sulawesi, for example, could be increased considerably if the fertiliser rate was increased.

To sum up, considerable growth *can* take place in agriculture with the expansion of conventional factors. This is consistent with past performance, where our calculations show that total factor growth contributed 55-60 per cent of agricultural growth.

AGRICULTURAL PRODUCTIVITY: THE PHILIPPINES

Background

According to Balisacan, Fuwa and Debuque (Chapter 7, this volume), the study period can be divided into two distinct periods—the 1960s and

1970s, a period of good economic and agricultural performance, and the 1980s and 1990s, a period of volatility characterised by recessions, inflation, and political instability and changing policy measures. The difference between the two periods is reflected in the fact that per capita income in 1996 was roughly the same as in 1981, indicating a waste of two decades of potential growth.

In the 1980s and early 1990s, production growth rates for virtually all crops decelerated. This deceleration can be attributed to a decline in the expansion of cultivated area, a drop in world commodity prices, a series of natural calamities and droughts, the virtual completion of the Green Revolution in the early 1980s, and policy-related factors, including uncertainty about the Comprehensive Agrarian Reform Program (CARP), and a sharp decline in public investments in agriculture.

Most growth in rice production is due to yield increases, which tapered off in 1980–97. This decline can be attributed to a drop in the world price of rice, stagnation in public investment in irrigation, exhaustion of the productivity potential of modern rice varieties, and soil erosion. From the mid 1960s to the early 1990s, the share of rice area harvested under irrigation expanded at 2.6 per cent per annum. Irrigated rice grew from 33 per cent of rice area in 1965 to 61 per cent at the start of the 1990s. In contrast to the weak performance of crop agriculture in the second period, poultry and other livestock showed a robust growth of 5.6 per cent per annum.

Estimation

Table 11.17 presents the production function estimates with inputs alone. Irrigated land is represented here as a ratio to total land. The OLS estimates do not make sense. The signs of the principal components results are fine, but not the magnitude, and the DW statistics are low. For further reference, the last column shows normalised values of the elasticities derived by the principal components estimates. The elasticity of the share of irrigated land (0.092) is derived at the average value of this share (0.117). We explain this procedure below.

Table 11.18 presents the principal components estimates with the state variables retained in the analysis. The addition of state variables does not significantly improve the DW statistics, and the estimate for the labour coefficient has the wrong sign. To overcome the low DW statistics, we compute autoregressive regression, from which we obtain the autoregressive coefficient (ρ) of 0.43. We then use this estimate to filter the variables by $[x(t) - \rho x(t-1)]$, and rerun the regression (Table 11.19). The coefficients of the principal components regression all have the right sign. This result is

Table 11.17 Production function: the Philippines, 1961–98, without state variables

	b OLS	t OLS	b PC	t PC	Normalised
Constant	6.722	1.9	11.746	24.6	
Irrigated land ratio	-1.643	-0.7	0.790	1.4	0.103
Land	0.636	2.6	0.383	29.6	0.427
Fertiliser	0.129	3.8	0.151	6.6	0.168
Capital, machines	0.120	3.2	0.131	7.0	0.146
Capital, agricultural origin	0.194	1.7	0.057	2.9	0.063
Labour	-0.022	-0.1	0.083	2.2	0.092
sum	1.056		0.897		1.000
Rank			2		
DW	1.007		1.082		
R ²	0.979		0.977		

Source: Authors' calculations.

Table 11.18 Production function: the Philippines, 1961–98, with state variables

	b PC	t PC
Constant	11.020	12.9
Irrigated land ratio	1.775	10.8
Land	0.565	8.4
Fertiliser	0.008	0.4
Capital, machines	0.055	4.0
Capital, agricultural origin	0.235	4.9
Labour	-0.178	-1.6
Education	0.474	5.5
Inflation	-0.148	-2.6
Price	0.624	7.4
Price spread	-0.759	-2.5
Rank	5	
DW for OLS	1.646	
R ² for OLS	0.992	
DW for PC	1.157	
R ² for PC	0.989	

Source: Authors' calculations.

obtained only after the introduction of the state variables, which serve as carriers of the implemented technology.

The elasticity for the irrigated land ratio (this variable is not logged) is the product of the ratio and its coefficient. The ratio varied approximately between 0.09 at the beginning of the period and 0.14 toward the end. The

mean value is 0.117, and at the mean the elasticity is 0.26. Note that the coefficient of the ratio is partial, indicating the marginal impact of increasing the share of irrigated land when other variables, specifically total land, are constant. Thus the elasticity of the ratio indicates the premium of converting a unit of land to irrigated land. The sum elasticities of the other inputs is 0.695 and, adding the elasticity of irrigated land evaluated at the mean, the sum is 0.955. When the ratio equals 0.14, the sum becomes exactly 1, whereas at 0.09, the sum is closer to 0.9. The sum elasticities of the two types of land is over 0.5, meaning that over one-half of the value added can be attributed to land and irrigation.

The elasticity of fertiliser is around 0.07, in line with that obtained in the other countries. The elasticity of machines is 0.054, and that of capital of agricultural origin (livestock and trees) is 0.093. For the period as a whole, capital showed the fastest growth after fertiliser. The growth of capital of agricultural origin extended over the whole period, whereas that of machines almost disappeared in the period 1980–98.

The elasticity of labour is 0.165, but it is difficult to judge the realism of this figure. For part of the period we have daily wages. To compute the total wage bill in agriculture on the basis of this information, it is necessary to assume the number of working days in agriculture per year. To get some

Table 11.19 Production function: Philippines, 1961–98, with filtered data

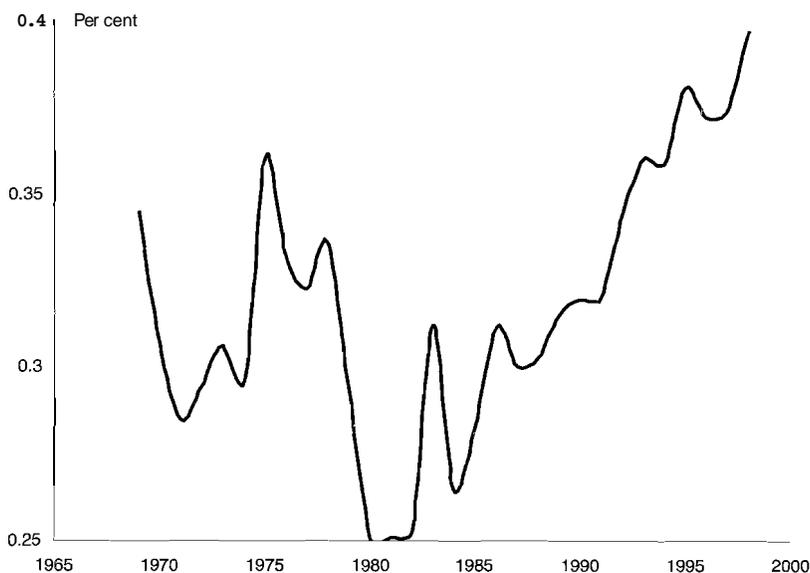
	Filtered variables, $\rho = 0.43$			
	b OLS	t OLS	b PC	t PC
Constant	5.024	0.8	7.311	27.1
Irrigated land ratio	-0.549	-0.2	2.212	27.1
Land	0.414	1.5	0.312	25.4
Fertiliser	0.024	1.0	0.073	9.1
Capital, machines	0.101	2.3	0.054	16.3
Capital, agricultural origin	0.351	0.9	0.093	21.1
Labour	-0.093	-0.7	0.165	27.2
Education	0.197	0.3	0.207	21.4
Price spread	-0.786	-2.2	-0.657	-2.5
Inflation	-0.137	-2.1	-0.037	-0.6
Price	0.451	3.5	0.196	2.5
Rank			3	
DW	2.003		1.678	
R ²	0.973		0.958	

Source: Authors' calculations.

idea of the share of labour in value added we assumed 150 working days per year and multiplied the daily wage by 150 and the labour figure used in the regression. The product is divided by the value added to yield the labour share (Figure 11.14), which fluctuated greatly, from a minimum of roughly 0.25 in the early 1980s to a maximum of almost 0.4 in 1998. For the share to equal the elasticity, the number of working days would have to be cut by about one-half. Including the efficiency or schooling of labour in the estimation seemed to offer a possible solution. To do this we defined efficiency labour as the cross-product of labour and education. However, running the regression with this variable, without education as a separate variable, did not help to resolve the issue of the difference between labour share and estimated elasticity.

The price elasticity is positive and sizable considering the fact that this is a net direct response with inputs held constant, that is, it does not represent the effect of the price on inputs. The spread has a negative effect, as does inflation. These results are fairly robust. This is extremely interesting, not

Figure 11.14 Labour share of agricultural GDP in the Philippines



Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

only because of the theory but also because these variables represent the non-trended part of the data while output is trended upward. The results for Thailand and Indonesia are weaker. The main difference between the countries is that there was much larger price and inflation variability in the Philippines, making it possible to capture the price effect with greater precision.

Although the regression we have just discussed is reasonable, it is not identical to the regression used for the other two countries in the treatment of irrigation and the filtering of the variables. To compare with Thailand and Indonesia, Table 11.20 shows two additional regressions. We present only the principal components results, but also include the DW and R^2 statistics for the OLS regressions. In both regressions, the price is lagged one year and the period of analysis is reduced by one year to 1962–98. In the first regression, the log of the irrigated land ratio replaces the irrigated land ratio in order to obtain the partial elasticity of irrigated land (note that the total land is held constant). The resulting elasticity is 0.239, compared with a value of 0.26 obtained at the mean of the ratio from the value in Table 11.19. The second regression separates between irrigated and rain-fed land. The sum of the normalised elasticities of the two types of land is 0.58, which is similar to the sum of irrigated land and agricultural land obtained in the other two regressions. The main difference is that the regression with irrigated and rain-fed lands completely separated (Model B) gives a lower elasticity to the irrigated land. The elasticities of all the other variables are very close in all three regressions. Note that the regressions in Table 11.20 are in actual values, and this shows that the results in Table 11.19 are not a direct outcome of the filtering. The DW statistics in the OLS regressions do not flag serial correlation. On the other hand, the constraints imposed by the principal components estimator cause a low DW statistic. Nevertheless, as indicated above, the elasticities are similar to those obtained in the filtered version and therefore provide a reasonable basis for the substantive discussion.

Shadow prices

Paddy yields in the Philippines roughly doubled between the early 1960s and the 1990s (Kawagoe, Chapter 6, this volume, Figure 6.5), indicating that the impact of the Green Revolution was less dramatic than in Indonesia. This might be related to the behaviour of the marginal productivity of irrigated land in the Philippines — it was lower than in Indonesia, and did not change

Table 11.20 Production function: Philippines, 1962–98, alternative specifications

	Model A			Model B		
	b PC	t PC	Normalised	b PC	t PC	Normalised
Constant	13.194	46.7		9.974	28.2	
Irrigated land	0.239	40.8	0.249	0.141	45.8	0.155
Land	0.331	30.8	0.345			
Rain-fed land				0.386	27.7	0.425
Fertiliser	0.073	28.2	0.076	0.070	31.1	0.077
Capital, machines	0.057	41.4	0.059	0.057	39.1	0.062
Capital, agricultural origin	0.093	36.2	0.097	0.092	32.9	0.101
Labour	0.167	45.8	0.174	0.165	44.6	0.181
Sum	0.959		1.000	0.910		1.000
Education	0.215	42.6		0.213	39.6	
Price	0.354	5.8		0.320	5.3	
Price spread	-0.862	-3.0		-0.696	-2.4	
Inflation	-0.127	-2.8		-0.104	-2.3	
Rank		2			2	
DW for OLS		1.844			1.860	
R ² for OLS		0.990			0.991	
DW for PC		1.146			1.078	
R ² for PC		0.984			0.984	

Note: 'Irrigated land' is expressed as the log of the ratio of irrigated land to total land in Model A and as hectares in Model B.

Source: Authors' calculations.

much over the years (Figure 11.6). Average levels are given in Table 11.21. The level is affected by the choice of elasticity (we use Model B from Table 11.20). Had we used the value in Table 11.19, the level would have been higher but still below that of Indonesia, and the time pattern would have remained the same. On the other hand, the marginal productivity of rain-fed land is higher than in the other countries and also showed the fastest growth (Figure 11.9). Consequently, the ratio of marginal productivity of irrigated to rain-fed land declined from 3.7 in 1961 to 2.3 in 1998. As for Thailand, the decline is likely to reflect an increase in the productivity of rain-fed land caused by the introduction of new crops and overall practices. On the other hand, the expansion of irrigated land might have caused a decline in its productivity on the margin because new land brought under irrigation may be of lower quality than existing irrigated land. Similarly, expansion due to the increase in irrigated land may lead to lower-value crops.

Table 11.21 Philippines: productivity, prices and shadow prices

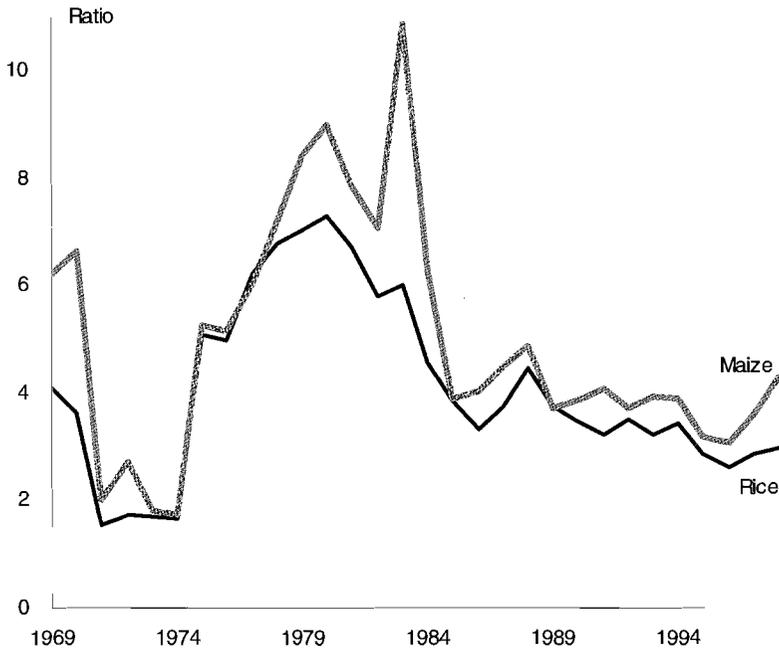
		1961-98		1961-80		1980-98	
	Elasticity	Avg. Marginal		Avg. Marginal		Avg. Marginal	
Productivity (1993 US\$)							
Irrigated land (\$/ha)	0.155	6,448	1,001	6,617	1,027	6,292	977
Rain-fed land (\$/ha)	0.425	856	363	749	318	970	412
Fertiliser (\$/mt)	0.077	10,985	842	13,556	1,040	8,238	632
Capital (rate of return)	0.101	1.53	0.15	1.72	0.17	1.34	0.13
Labour (\$/year)	0.181	883	160	867	157	905	164
Machines (rate of return)	0.062	92.02	5.72	120.18	7.47	60.74	3.78
Reported prices (1993 US\$)							
Wage rate (\$/year)		349		357		339	
Fertiliser price (\$/mt)		921		1,053		814	
Fertiliser, distortion rate		0.91		0.99		0.78	
Marginal rates of substitution							
Irrigated for rain-fed land		2.75		3.23		2.37	
Irrigated land for labour		6.27		6.56		5.97	
Irrigated land for wages		2.87		2.88		2.88	
Irrigated land for labour adjusted		1.59		1.66		1.51	
Irrigated land for capital		6,516		5,950		7,248	
Irrigated land for capital adjusted		1,651		1,507		1,836	
Derived prices (1993 US\$)							
Irrigated land (\$/ha)		6,673		6,849		6,511	
Irrigated land-capital base (\$/ha)		8,667		7,914		9,640	

Note: The data distinguish between capital of agricultural origin (livestock and orchards) and machines. In this table, 'capital' is referring to capital of agricultural origin.

Source: Authors' calculations.

The gap between the marginal productivity of fertiliser and its official price, or the distortion, was high in the early 1960s and declined gradually thereafter (Figure 11.5). The distortion is lower than in Indonesia but higher than in Thailand from 1971 on. Distortion is related to excess demand evaluated at official prices. The decline in distortion is probably the result of a high growth rate of fertiliser use, which considerably exceeded the growth rates of other inputs. The pattern of fertiliser use would have looked completely different under a perfectly elastic supply of fertiliser throughout the sample period. An inspection of the relationship between the real price of fertiliser and the price of maize or rice supports this view. The behaviour of this price ratio is shown in Figure 11.15. The fertiliser is ammonium sulphate, the maize is white maize, and the rice is the special variety. It

Figure 11.15 Price ratio of fertiliser to crops in the Philippines



Source: See Mundlak, Y.; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

turns out that while prices fluctuated, the supply continuously moved upward. Furthermore, fertiliser use climbed as the real price rose. A logarithmic regression of fertiliser use on the real price of fertiliser (maize as a numeraire) gives a positive elasticity of 0.5 with an R^2 of 0.78. This result is consistent with a continuous excess demand for fertiliser. The decline in the price of fertiliser in the 1980s resulted in a rise in the distortion rate.

The marginal productivity of capital of agricultural origin was in the 0.16–0.18 range in 1961–81, then it gradually declined to 0.11 in 1998. Assuming a depreciation rate of 5 per cent, the shadow value of the interest rate declined from 13 per cent to 6 per cent. This decline may be attributed to a continuous rise in the capital stock at a high rate and a deterioration in the performance of agriculture after 1981.

A similar calculation for the user cost of capital in machines gives a very high value, which does not make sense. The problem can be detected by

computing the marginal productivity of the two kinds of capital, which indicates that the marginal productivity of a peso invested in machines was 29 times higher than that invested in capital of agricultural origin. We currently have no explanation for this result.

Growth accounting

The calculations in Table 11.5 of the TFP are based on Model B estimates in Table 11.20. For the period 1961–98, total factor growth accounted for 90 per cent of growth in output, leaving 10 per cent for TFP. The contribution of the individual inputs is similar at around 15–16 per cent each except for machines, which contributed about 11 per cent. The contribution of state variables exceeded the growth of TFP, mainly because of schooling in the latter period. A broader interpretation can attribute some of this impact to changes in physical infrastructure, such as electricity and roads, which were highly correlated with education and were not supported by the regression. The price variables contribute to annual variability in output, but because their average growth rate is nearly zero, their direct contribution in the period as a whole is basically negligible.

A different picture is obtained when the exercise is conducted for the two sub-periods. The growth rate of output in the first sub-period is 3.8 per cent, of which 74 per cent was accounted for by total factor growth and 26 per cent by TFP growth. The main contributors to growth were rain-fed land (16 per cent), fertiliser (15 per cent), and irrigated land (13 per cent). The contribution of other inputs was in the neighbourhood of 10 per cent. In the second sub-period, output grew at an average rate of only 1.4 per cent, 91 per cent of which was due to total factor growth. The contribution came from almost all the inputs, with the exception of machines. Clearly, the second sub-period is inferior in growth of total factor and output.

There is a considerable difference between the two periods in the effect of the state variables, particularly price. In the first sub-period, the favourable price accounted for about 15 per cent of growth in output, more than the 8 per cent of which was due to schooling. In addition, price volatility had a negative effect, which amounted to 2.6 per cent of output growth. In the second sub-period, the declining price subtracted around 16 per cent of the output, thus neutralising the positive effect of price in the first sub-period. This is the reason that for the period as a whole the price effect was negligible. This demonstrates the potential positive direct effect on output

of a favourable price environment. In addition, there is the indirect contribution made through the choice of durable inputs as well as the ratchet effect of the technique choice. The absolute effect of education was similar throughout, but its relative effect dominated the second sub-period because of low TFP growth. As a result, the state variables overestimate TFP growth in the second period, while they underestimate it in the first period. This indicates that education alone only poorly represents the role of public goods as carriers of implemented technology. The regression did not sustain more variables of this group.

The most striking result is the decline of the TFP growth rate from 0.98 per cent in the first period to only 0.13 per cent in the second one. The crucial questions concern the sensitivity of the results to the choice of elasticities used for the calculations. To answer this, we present in Table 11.22 results based on elasticities from Model A in Table 11.20. The main

Table 11.22 Philippines: sources of growth using alternative parameters

	Elasticity	Change (%/year)			Share of growth (%)		
		1961	1961	1980	1961	1961	1980
		-98	-80	-98	-98	-80	-98
Output		2.55	3.82	1.38			
Inputs							
Irrigated land share	0.249	1.44	1.60	0.84	14.1	10.4	15.1
Land	0.345	1.19	1.60	0.31	16.1	14.5	7.7
Fertiliser	0.076	5.36	7.35	4.90	15.9	14.6	26.9
Capital, agricultural origin	0.097	3.75	3.47	3.35	14.2	8.8	23.5
Labour	0.174	2.17	2.30	1.50	14.7	10.5	18.9
Capital, machines	0.059	4.55	6.64	0.28	10.5	10.3	1.2
State variables							
Price	0.354	0.00	1.75	-0.70	0.0	16.2	-17.9
Price spread	-0.862	0.03	0.14	-0.01	-1.0	-3.2	0.6
Inflation rate	-0.104	0.11	0.67	-0.64	-0.5	-1.8	4.8
Education	0.215	1.65	1.46	1.60	13.9	8.2	24.9
Factor accumulation		2.19	2.64	1.10	85.6	69.1	93.3
Total factor productivity		0.37	1.18	0.28	14.4	30.9	6.7
State variables					12.4	19.4	12.4
Portion of TFP due to state variables					0.9	0.6	1.8

Source: Authors' calculations.

difference is in the weights of rain-fed and irrigated land. The elasticities from Model A give more weight to irrigated land and less to rain-fed land. The main difference in the overall results is that TFP now accounts for 14.4 per cent, rather than 10 per cent, of output growth in the period as a whole, 31 per cent rather than 26 per cent in the first sub-period, and 6.7 per cent rather than 9.1 per cent in the second sub-period. The overall picture—specifically, the contribution to the slowdown of growth in the second period—remains the same. There are several possible reasons for this slowdown. To a large degree, this might be a reflection of the declining impact of new varieties, and the declining profitability as measured by real agricultural price.

Because new varieties are intensive users of fertiliser and irrigation, these inputs immediately became scarce, in the sense that their shadow price exceeded the quoted market price. The inputs' scarcity generated an increase in their supply, so they expanded much faster in the first period than in the second. Fertiliser continued to grow at a fast rate in the second period, but less rapidly than in the first period. Exceptions were capital of agricultural origin and labour. The rise of capital of agricultural origin reflects a continuous rise in the demand for livestock products. The rise in the labour force reflects a growth in the labour force associated with the rate of population growth, and the failure of the non-agricultural sector to absorb the growing labour supply. If this is indeed the explanation, the question is, then, why does TFP account for only 26 per cent (Table 11.5) or 31 per cent (Table 11.22) of output growth in the first period? The answer is that part of the impact of the technical change generated by the new varieties is reflected in the shadow price of scarce inputs, and this contributes to growth of total factor and not of total factor productivity.

Other possible effects

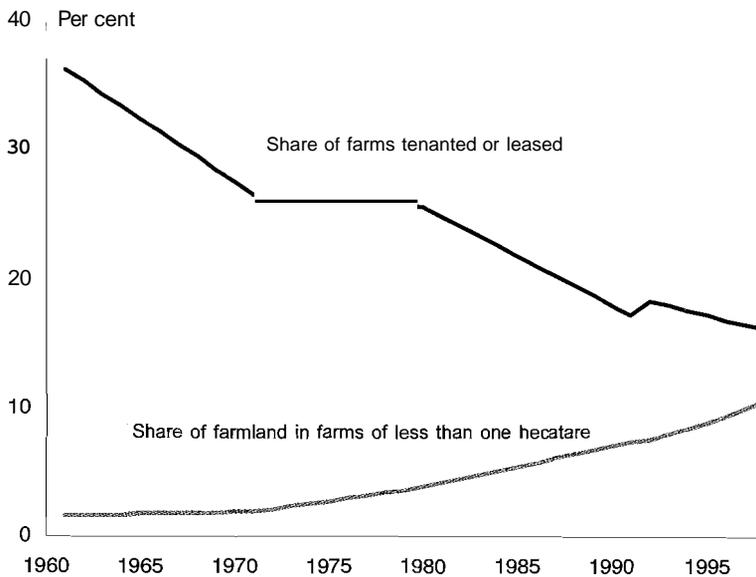
Demand and export. In a closed economy, output is affected by domestic demand. In an open economy, the world market constitutes another demand component. A plot of the export share in per capita production shows that early in the study period exports reached high values. Later on, this ratio shows a declining trend, converging to 10 per cent.

To trace the behaviour of domestic demand, we ran a regression of per capita output in agriculture on total per capita output expressed in logs. The estimated elasticity is 0.6. Allowance for export had a negligible effect. This elasticity is the pseudo-income elasticity. This equation summarises

the population and income effect on demand for the agricultural product. Adding the price ratio to the regression had little effect. Food is not identical with the agricultural product, though it accounts for most of it. Thus, the elasticity is a rough estimate for the income elasticity for food. The point is that if production is oriented largely to the domestic market, then demand has an effect on production.

Land tenancy. Census data point to two pertinent developments in the farm operation that may affect productivity (Figure 11.16). It appears that the proportion of farms operated by non-owners (tenanted or leased) declined during the study period from over 35 per cent to about 15 per cent. At the same time, there was a considerable decline in farm size. It is basically impossible to measure the impact of these changes within the empirical framework used above with any reasonable precision. Tenanted farms are sometimes believed to be less efficient, but if this is the case, productivity should have been higher in the second sub-period. This is not the case. The impact of farm size might be a partial explanation. Since

Figure 11.16 Small farms and leased farms in the Philippines



Source: See Mundlak, Y; Larson, D.F. and Butzer, R., 2002. *Determinants of Agricultural Growth in Indonesia, the Philippines, and Thailand*, Policy Research Working Paper No. 2803, World Bank, Washington, DC. for discussion of data sources.

much of the production takes place on small farms that are subject to increasing returns to scale, the increase in production concentration on small farms might have contributed to declining productivity.

ACKNOWLEDGMENT

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NOTES

- ¹ The actual period analysed was determined by data availability. For a more detailed description of data and sources, see Mundlak et al. (2002).
- ² For a discussion of country differences in physical environment and political history, see Hayami (Chapter 2, this volume); for a comparison of trade protection rates see Akiyama and Kajisa (Chapter 9, this volume).
- ³ Rain-fed land is calculated as the difference between agricultural land and irrigated land.
- ⁴ The coverage of fixed capital data is not well defined. For some comments on this subject, see Larson et al. (2000).
- ⁵ The value data are reported in local currency in constant prices—1985 for the Philippines, 1988 for Thailand, and 1993 for Indonesia. They are converted to US dollars using the exchange rates for these years: 18.607, 25.34, and 2087 for the three countries, respectively. The result is then adjusted to 1993 values using the US GDP deflator: 1985 = 0.784, 1988 = 0.853, and 1993 = 1.00. All references to dollars in this paper are US dollars.
- ⁶ A good example is the use of mechanical threshers that make possible a third crop for rice in some areas of the Philippines (Cuddihy 2002, personal communication).
- ⁷ Nominal wage rates were deflated by the consumer price index to obtain real wage rates. These were converted to 1993 dollars following the procedure described in endnote 5.
- ⁸ For Indonesia we deflated the nominal wages by the GDP deflator.
- ⁹ It is well recognised that rural households often diversify their labour among several activities, some of which are off-farm. See Lanjouw and Lanjouw (1995).
- ¹⁰ Using household survey data from the Bicol region of the Philippines, Larson and Plessmann (2002) estimate an elasticity of 0.09 for fertiliser and find the estimate robust under alternative model specifications.
- ¹¹ This is considered here to be the main reason, but there may be others, such as a difference between the price of fertiliser used in the national accounts and the farm gate cost.
- ¹² See Butzer, Mundlak and Larson (Chapter 12, this volume).
- ¹³ Note on the calculations in Table 11.5. Let ϵ represent elasticities and g growth rates and the subscripts z , s , and y represent respectively, inputs, state variables and output. Then

factor accumulation, in percentage terms, is given by $G_i = \sum_i \varepsilon_i g_i$, where input elasticities have been normalised so that $\sum_i \varepsilon_i = 1$. Growth in state variables is given by $G_i = \sum_i \varepsilon_i g_i$. Shares of growth due to factor accumulation, P_p and due to changes in the state variables, P_s , are given by $P_i = G_i / g_p$ and $P_i = G_i / g_s$. The share of output growth due to total factor productivity (TFP) is $1 - P_i$, and the portion of productivity due to changes in the state variables (SP) is P_i / TFP . Growth rates used in the calculations are mostly obtained from trend regressions of the type $\ln x = c + b * \text{time}$, where $g = b * 100$. Exceptions are made for variables already represented as ratios: inflation, price spread, no schooling and infant mortality, where the regression $x = c + b * \text{time}$ is used.

¹⁴ See Warr (2000) for actual data on poverty rates in Indonesia, Thailand and the Philippines.

¹⁵ The consumer price index was used in the calculation of these variables.

¹⁶ Other countries also relied on domestic production. McGuirk and Mundlak (1991) discuss this issue for India.

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12

INTERSECTORAL MIGRATION IN SOUTHEAST ASIA — EVIDENCE FROM INDONESIA, THAILAND AND THE PHILIPPINES

Rita Butzer, Yair Mundlak and Donald F. Larson

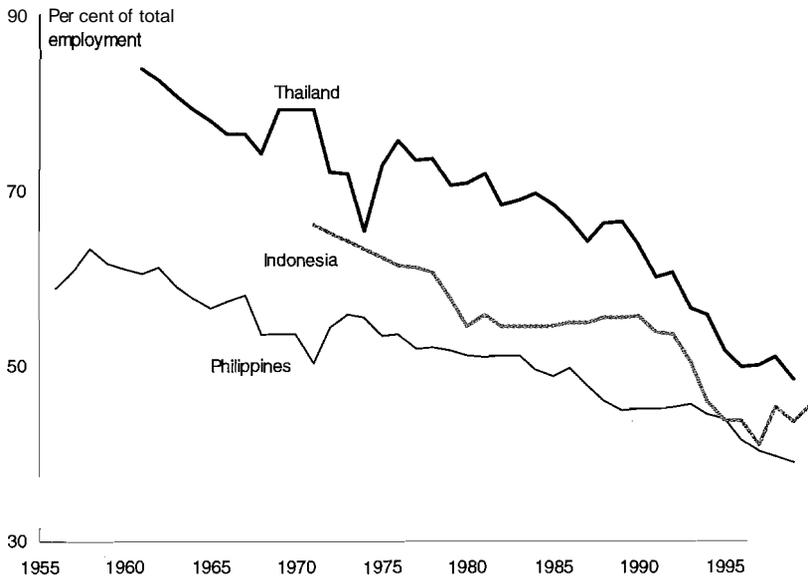
Beginning with Lewis (1954), the flow of labour resources from agriculture has been an important consideration in models of economic development, and well-formulated models have been available to guide empirical measurement of sectoral migration since Todaro (1969). In practice, rates of migration and rates of natural population growth tend to be similar, thus the accumulated effects of migration only occur over decades. Long time-series measurements of sectoral migration pose special difficulties for researchers, however, since certain explanatory variables are trended and intercorrelated. Omitting correlated variables runs the risk of specification error, a problem formulated by Theil (1957). In this chapter, we describe the flow of labour resources from agriculture to other sectors of the economy in Indonesia, Thailand and the Philippines over three decades, and examine factors that determine the rate of such migration. To mitigate the problems associated with intercorrelated variables, we employ principal components, using the algorithm given in Mundlak (1981), which imposes parameter restrictions as a substitute for the elimination of specific variables.

The three study countries are geographically close and share similar climate and other characteristics; their economic growth experiences, however, have differed. In Chapter 11 (Mundlak et al., this volume), we discuss sources of growth and productivity in the three countries, where economic growth

and growth in agricultural income have been associated with out-migration of labour from agriculture. As with growth, however, country experiences differ in key ways.

Figure 12.1 shows the share of agriculture in total employment in each of the three countries. In the 1960s and 1970s, shares were very high (over 50 per cent for Indonesia and the Philippines and over 70 per cent for Thailand); gradually, however, they fell. Nonetheless, even in the late 1990s, the agricultural sector still employed nearly 40 per cent of workers in the Philippines and Indonesia and 50 per cent in Thailand. In developed economies, these shares level off at 2–3 per cent (Larson and Mundlak 1997). While the shares in Indonesia, Thailand and the Philippines have decreased steadily over the past three decades, the pace of the reallocation of labour resources from agriculture to other sectors of the economy has been relatively slow, with indications of acceleration occurring only in the past decade. We examine the process of the reallocation of labour below.

Figure 12.1 Agriculture's share of total employment



Source: Authors' calculations. See appendix for a discussion of data sources.

MIGRATION FROM AGRICULTURE

Framework

Change in the sectoral composition of the labour force can be regarded as the outcome of migration from agriculture conditioned by births and mortality rates. Below, we describe the analysis of this process, using the framework created by Larson and Mundlak (1997) and Mundlak (1979), who also provide a review of the literature relevant to the approach we take here, as summarised below. Intersectoral labour allocation is analysed within the framework of occupational choice. The postulation is that individuals tend to maximise their remaining-life utility by, among other things, choosing their occupation from a feasible set of occupations, as determined by the intersecting trajectories of income and uncertainty. Here, we concentrate on the binary choice between agricultural and non-agricultural work. The two sectors are not homogeneous; in most of this discussion, however, we ignore this fact. Because non-agricultural employment often requires migration to other areas, it involves other costs in addition to those attached to change of occupation alone.

Data on off-farm migration in Indonesia, Thailand and the Philippines are not available, thus we must infer them from changes in intersectoral allocations of labour. We assume that, without migration, agricultural labour would grow at the same rate as total labour, thus we attribute deviations from this rate to migration. Migration was calculated as

$$M_t = (L_{At-1} * (1 + n_t)) - L_{At} \quad (12.1)$$

$$m_t = M_t / L_{At-1}$$

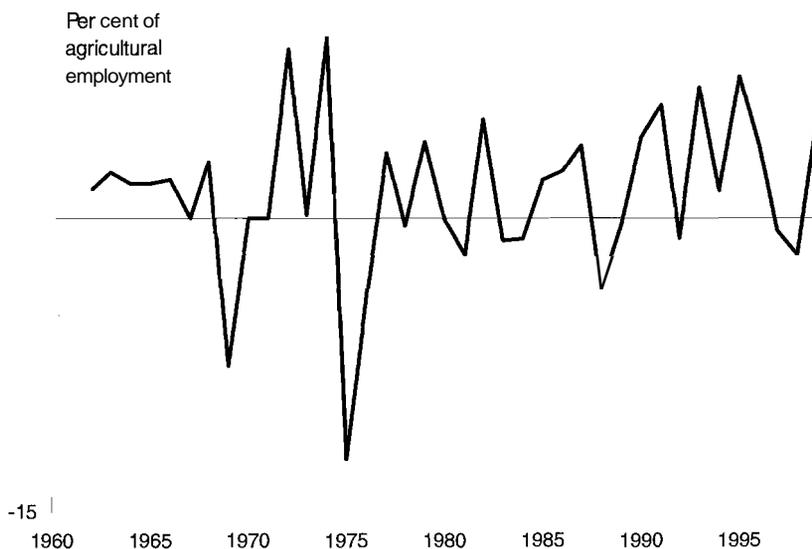
where M is the number of migrants (outflow of workers from agriculture to non-agriculture), L_A is agricultural labour, n is the rate of growth of the total labour force, and m is the ratio of migrants to agricultural labour. In practice, we calculate n from $n_t = (L_t - L_{t-1}) / L_{t-1}$, where L is total labour. Similarly, we define the growth rate of the agricultural labour force as $n_{At} = (L_{At} - L_{At-1}) / L_{At-1}$, then $m = n - n_A$. Thus, the rate of migration out of agriculture is the difference between the growth rates of the total labour force and agricultural labour.

Ideally, we would like to use data on labour to calculate migration rates as shown above. However, the country sources report data not on agricultural

labour, but rather on agricultural employment. Annual sectoral labour data are available from the Food and Agriculture Organization (FAO) and the World Development Indicators (WDI) of the World Bank, which are constructed from census data. Such data, however, are collected every 10 years, and the annual series are obtained by interpolating. Thus, migration rates calculated from these data do not actually measure the annual variation that we hope to explain. We have therefore chosen to use employment data from the country sources to calculate migration rates. This choice is the outcome of the data limitation, but it is not an ideal one.

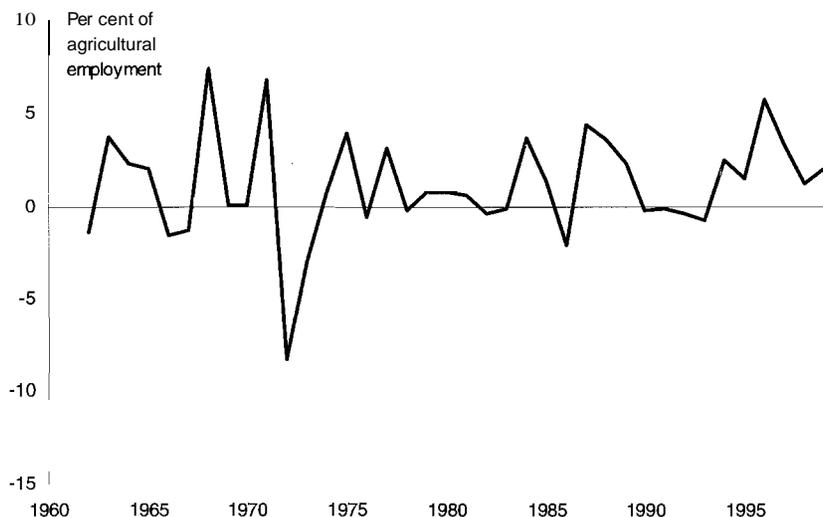
The constructed migration series are plotted in Figures 12.2–12.4. The migration rates are volatile to the point where it is difficult to discern any trends. It should be noted, however, that most of the observations are in the positive part of the graphs, which indicate positive migration over the entire period. The volatility is from two sources: first, the use of data on employment rather than data on labour brings the demand for workers (and hence shocks to that demand) into the constructed migration series; second, annual data tend to be more erratic. Nevertheless, the trend still prevails. This is seen in Table 12.1, which presents decade averages of the migration rates. The

Figure 12.2 Migration from agriculture in Thailand



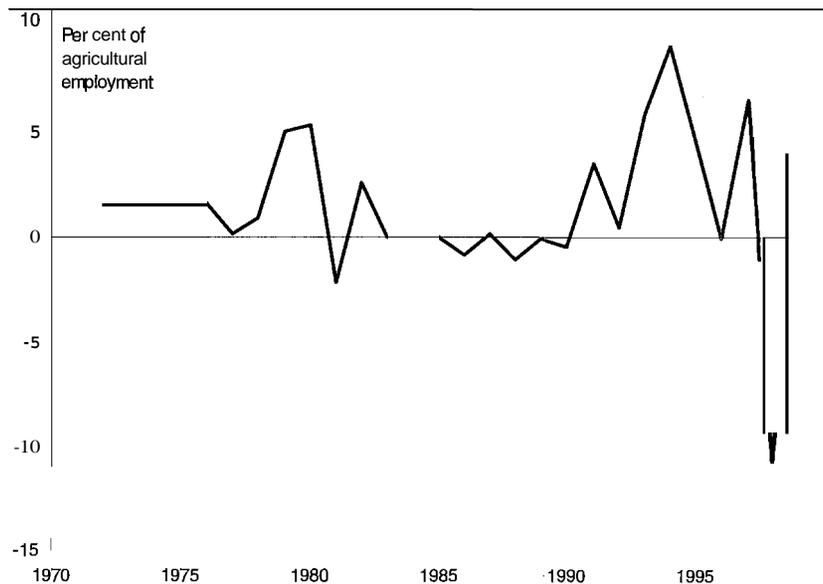
Source: Authors' calculations. See appendix for a discussion of data sources.

Figure 12.3 Migration from agriculture in the Philippines



Source: Authors' calculations. See appendix for a discussion of data sources.

Figure 12.4 Migration from agriculture in Indonesia



Source: Authors' calculations. See appendix for a discussion of data sources.

Table 12.1 Average migration rates for selected periods
(per cent per annum)

	Decade averages				Period of analysis	Period averages
	1960s	1970s	1980s	1990s		
Thailand	0.61	0.89	0.55	3.09	1962–99	1.32
Philippines	1.32	0.35	1.39	1.45	1962–98	1.11
Indonesia	..	1.72	0.39	2.27	1972–99	1.44
Asia	1.07	1.40	1.80	n.a.		

Source: Asia decade averages taken from Larson, D. and Mundlak, Y., 1997. 'On the intersectoral migration of agricultural labour', *Economic Development and Cultural Change*, 45(2):295–319.

migration rates are relatively low by international standards and are consistent with the slow change in the share of agriculture in employment discussed earlier and seen in Figure 12.1. The average migration rates are greater than 2 per cent in only two cases (Indonesia and Thailand in the 1990s).

Comparing these rates with those for Asian countries from the study by Larson and Mundlak (1997), we see that migration was somewhat slower in Indonesia, Thailand and the Philippines than in other Asian countries.' We should also note from this table the considerably lower migration rates in Thailand and Indonesia in the 1980s. We now turn to identification of the factors that determine these rates of migration.

Formulation

The analytic framework is summarised in the form of the migration equation

$$m_t = \beta_0 + \beta_1 \ln(RI_{t-1}) + \beta_2 \ln(RL_{t-1}) + \beta_3 S_{t-1} + \mu_t \quad (12.2)$$

where m is defined above, $RI = I_N/I_A$ is the income ratio (the ratio of GDP per worker in the non-agricultural sector to that in the agricultural sector), $RL = L_N/L_A$ is the ratio of employment in the non-agricultural sector to that in the agricultural sector, and S represents other attributes and exogenous state variables.

We isolate the income and labour ratios from the other variables for the following reasons. The income ratio is assumed to be the major incentive faced by the potential migrant. In applying the formulation to the market, we need to consider the size of the labour force in the two sectors. The

number of migrants depends on the size of the labour force in agriculture (the origin); the larger the labour force in agriculture, the more migrants can be expected in a given economic environment. The actual number may also depend on the ease of finding work in non-agriculture. In the absence of strong unemployment in non-agriculture, it is expected that the larger the labour force in the destination, the easier it will be to get a job. The formulation assumes that the migration rate depends only on the composition of the labour force (the ratio of labour in non-agriculture to agriculture), and not on the size of the total labour force. The variables covered by S are discussed below.

Variables and data

The decision to migrate or not migrate is strongly influenced by incentives, the main one being sectoral income. The basic idea is that labour, like other resources, flows from low to high-income occupations.² As such, this is a qualitative property, and to test it would require a comparison of data with and without a sectoral income gap. The data do not appear in this dichotomous form, and instead show variability. The empirical analysis, as formulated in Equation 12.2, is designed to examine the impact of such variability on the migration rate. It thus tests a much stronger proposition.

Proposition: The larger the income gap between the sectors, the stronger the migration rate. In other words, the income gap affects the pace of the resource allocation.

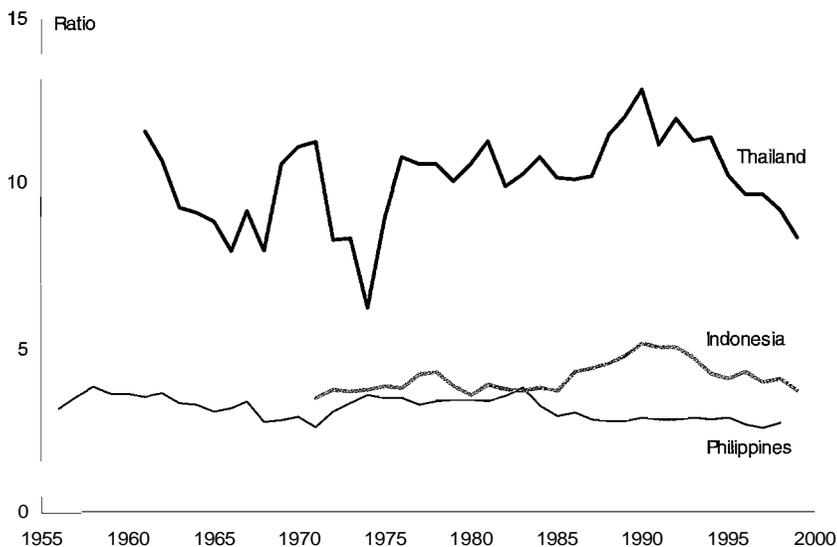
We measure the incentive by income and not by wages. When it comes to long-term decisions such as migration out of agriculture, income is thought to be a more informative measure of future prospects than wages. Wages tend to be the most important component of income, but they are not the only component. The non-wage component of income (for example, rent on land and returns to capital, both physical and human) may be influential in the migration decision. In addition, in our particular case there is a basic problem with the wage data. As indicated by Mundlak et al. (2002), the published wages are daily rates. To convert them to annual figures, it is necessary to know the number of working days for both sectors, but this information is not available.

The intersectoral income differential is measured by the ratio of income in non-agriculture to income in agriculture.³ Evidence from cross-country studies shows that, as countries develop, the income differential decreases.

'In middle and high income countries, the [income] ratio is almost equal to 1 and, as the data show, this statement was as true in 1950 as it is today' (Larson and Mundlak 1997). This finding summarises a long-run process whereby migration of labour from agriculture to non-agriculture will lessen the gap in productivity. As the supply of labour in agriculture decreases, the shadow price of agricultural labour will rise, leading to investment in labour-saving techniques in agriculture. Increased stocks of capital (human and physical) enhance the productivity of the labour remaining in agriculture.

Our current analysis deals with annual variations, and in this sense it differs from the cross-country analysis based on period averages, which are subject to less variability. Figure 12.5 shows that the productivity in non-agriculture has been much higher than in agriculture. In part this may reflect the problem of the labour data, which may overstate labour in agriculture and understate labour in non-agriculture (for details see Mundlak et al. 2002). We continue here to review the data, ignoring this possible problem. An increase in the income differential occurs when non-agricultural

Figure 12.5 Ratio of average income per worker, non-agriculture to agriculture



Source: Authors' calculations. See appendix for a discussion of data sources.

productivity grows at a faster rate than agricultural productivity. For most of the study period agricultural productivity increased, but at a slower pace than non-agricultural productivity. It is important to keep in mind that the productivity measure is an outcome of the effect of the economic environment on output and labour input. Because the economic environment varied across the three countries and over time, their income gap patterns were not uniform.

In Indonesia, the difference in the sectoral incomes actually increased throughout the 1970s and 1980s, peaking in 1990 before falling to the levels of the early 1980s, in spite of consistent positive growth in agricultural GDP. Agricultural productivity in Indonesia increased by 25 per cent between 1971 and 1980, but remained stagnant throughout the 1980s. Agricultural GDP increased, but at the same rate as agricultural employment. After 1985, non-agricultural sectors grew rapidly, widening the existing income differential. From 1990 onward the gap decreased, as agricultural productivity increased by over 40 per cent (due to decreases in agricultural employment), before the crisis in 1997.

The sectoral income gap in Thailand is extremely high and has remained so throughout the past three decades, although in the late 1990s it began to decline steadily. Agricultural productivity in Thailand increased by 17 per cent in the 1970s and only 12 per cent in the 1980s, as the commodity boom ended and prices stagnated. After the influx of foreign direct investment in the late 1980s, the non-agricultural sector grew rapidly. From 1990 to 1999, agricultural employment decreased, and agricultural productivity increased by over 55 per cent, contributing to the decline in sectoral income differentials.

In the Philippines, the income ratio increased over part of the study period (1975–84) and stayed above 2.5. Much of the movement in the income ratio was due to slow growth in non-agricultural productivity, particularly since the early–mid 1980s when the Philippines experienced a series of political and economic crises. Agricultural productivity in the Philippines has increased by 25 per cent over the past three decades, but most of this growth occurred in the 1960s as a result of the Green Revolution. In the early 1980s, agricultural GDP actually decreased. Agricultural employment increased continuously throughout the study period. Still, from 1983 onwards the gap declined.

To sum up, in more recent years there has been a tendency for the income gap in the three countries to decline. This was not sufficient to affect the

decade averages of the gap as shown in Table 12.2, but it is expected that these countries will follow the development that took place in other countries and the gap will eventually decrease substantially. We can compare these trends to the trends for Asian countries described by Larson and Mundlak (1997). The slow rate of migration from agriculture to non-agriculture plays a significant role in these trends. Migration has not yet been sufficient to close the income gap between the sectors. Conversely, given that the income gaps are still rather large, it is not surprising that migration rates have not decreased in the 1990s.

The vector S in Equation 12.2 consists of other variables that may affect the migration decision. We think of two groups, one related to incentives and the other including variables representing infrastructure, which may bear on the cost of migration. The latter group contains trended variables, whereas the migration rates show high variability. Thus, the onus of the explanation is on the former group. We therefore list several variables that might have affected migration, and leave it for the data to determine their relevance in our case.

As for the incentives, the income ratio may not fully summarise the opportunities and their stability. We therefore consider other variables that reflect the attractiveness of the two sectors. It is worth noting at the outset that several of the variables we consider have a direct role in determining agricultural income and productivity, which we attempt to measure in Mundlak et al. (2002). For reasons given below, however, we expect these factors to play an additional role in migration as well.

A natural variable is the terms of trade of agriculture as measured by the ratio of sectoral prices, agriculture to non-agriculture! The price ratio affects

Table 12.2 Decade average income ratios, per worker, non-agriculture to agriculture

	1960s	1970s	1980s	1990s
Thailand	9.47	9.63	10.69	10.57
Philippines	3.29	3.29	3.19	2.79
Indonesia		3.88	4.07	4.44
Asia	3.37	3.31	3.57	

Source: Asia decade averages taken from Larson, D. and Mundlak, Y., 1997. 'On the intersectoral migration of agricultural labour', *Economic Development and Cultural Change*, 45(2):295-319.

the relative profitability of agriculture, thus a decline in the price is expected to encourage migration. The condition of agriculture can also be viewed in the ability of the agricultural sector to support its expanding labour force. For this purpose we use the ratio of agricultural population to agricultural land as a measure of agricultural density. It is expected that the more densely populated the agricultural sector, the greater the incentive to migrate out of agriculture. This can be viewed as a measure of the push side.

On the pull side, we try several measures related to the prospect of finding work in non-agriculture. Unutilised capacity in non-agriculture is approximated by the difference between the peak of previous per capita output and current per capita output, divided by the peak value. If the current value exceeds the peak value, unutilised capacity is zero. An alternative measure is the growth rate of output in the non-agricultural sector. Periods of fast growth are presumably more attractive for migration. A more direct measure is the growth rate of the non-agricultural labour force. We also tried the difference between the growth rates of non-agricultural and agricultural output.

Turning to the second group of variables, the rate of migration is also affected by the cost of migration. This cost is negatively related to rural areas' degree of integration with labour markets, which depends on the state of the physical infrastructure, such as roads and telecommunications. Education may also reduce the cost of migration, probably through the ability to obtain and digest information, thus we expect a positive effect on migration. The education variable also reflects the demand preference for skilled labour. Labour and technology are not homogeneous, and changes in technology cause demand for skilled labour to increase; this supplements the effect of education on the migration cost.

Certain public health issues, such as the spread of infectious diseases, can be viewed in terms of the cost of migration and incentives to migrate. The prevalence of roads, telecommunications, education and health depends on investments in such activities. This investment originates mostly in the public sector, thus we refer to this group as the policy variables. The impact of public goods on the migration rate, however, might be ambiguous. On the one hand they reduce the migration cost, but on the other hand they increase labour productivity in agriculture, as well as in non-agriculture, and thereby might reduce the income gap. In that case, the net effect is uncertain. Moreover, the empirical scope for these variables in time-series

analysis of the migration equation is rather limited. Migration is subject to annual variations, whereas these explanatory variables are strongly trended and highly intercorrelated.

Regression results

The migration equation was estimated separately for each country (Tables 12.3–12.5). The time period varied depending on data availability. The explanatory variables were lagged one period and expressed in natural logs, except unutilised capacity, inflation, and variables measuring rates of growth. As we saw in earlier figures, migration rates for some years were negative, therefore the dependent variable is the migration rate (m). Recall that the migration rate was calculated from the employment data, rather than labour force data, and the resulting series are volatile.⁵ Since some of the explanatory variables are trended and intercorrelated, the explanatory power of the regressors is not high. The regression did not sustain all the contemplated variables and the exercise amounted to a search for the relevance of the various variables in explaining the data. We report results obtained by ordinary least squares (OLS), and by principal components. As mentioned

Table 12.3 Principal components regression results for Thailand, 1962–99

	Estimate	t-score	Estimate	t-score
Intercept	-28.59	-3.43	-34.17	-3.52
Income ratio	13.59	3.59	15.42	3.68
Employment ratio	1.64	3.59		
Unutilised capacity	-9.13	-3.59	-12.78	-0.52
R-square	0.26		0.30	
DW statistic	2.17		2.04	
Statistical rank			2	
Means				
Migration rate	1.322		1.322	
Unutilised capacity	0.009		0.009	
Elasticities				
Income ratio	10.28		11.67	
Employment ratio	1.24			
Unutilised capacity	-0.06		-0.09	

Note: Elasticities were calculated at mean migration rates and means of the variables which were not expressed in natural logs.

Source: Authors' calculations.

earlier, the latter were used to impose restrictions on the parameter as a substitute for the elimination of specific variables. Such a procedure reduces the specification error due to omission of regressors (Theil 1957). The statistical rank reported in the tables is obtained as the difference between the number of regressors and the number of restrictions imposed on the parameters.⁶ Throughout, the Durbin-Watson statistics did not flag a serial correlation problem.

The most important and robust result is the positive impact of the income ratio on the migration rate. The numerical value of the income-ratio

Table 12.4 Principal components and ordinary least squares regression results for the Philippines, 1962–98

Estimation method	Ordinary least squares		Ordinary least squares		Principal components	
	Estimate	t-score	Estimate	t-score	Estimate	t-score
Intercept	-4.45	-0.91	-18.21	-1.93	-17.20	-1.87
Income ratio	4.31	0.99	8.50	1.74	5.58	1.25
Ratio of GDP deflators	-2.84	-0.77	-5.32	-1.47	-6.79	-2.19
Growth rate of industrial employment	0.21	2.62	0.16	2.07	0.14	2.19
Mean years of schooling			4.69	1.69	6.01	2.36
Growth rate differential			0.22	1.71	0.17	2.54
R-square	0.22		0.35		0.30	
DW statistic	2.15		2.08		2.10	
Statistical rank					3	
Significance level					0.15	
Means						
Migration rate	1.112		1.112		1.112	
Growth rate of industrial employment	3.308		3.308		3.308	
Growth rate differential			1.338		1.338	
Elasticities						
Income ratio	3.88		7.64		5.02	
Ratio of GDP deflators	-2.55		-4.79		-6.11	
Growth rate of industrial employment	0.63		0.49		0.41	
Mean years of schooling			4.22		5.40	
Growth rate differential			0.27		0.20	

Note: Elasticities were calculated at mean migration rates and means of the variables which were not expressed in natural logs.

Source: Authors' calculations.

Table 12.5 Principal components and ordinary least squares regression results for Indonesia, 1972–99

Estimation method	Ordinary least squares		Ordinary least squares		Principal components	
	Estimate	t-score	Estimate	t-score	Estimate	t-score
Intercept	-13.78	-1.60	-11.55	-1.64	-18.42	-5.66
Income ratio	10.22	1.73	2.88	0.45	10.80	6.17
Unutilised capacity	-35.96	-2.46	-35.89	-2.69	-12.12	-2.18
Inflation rate	0.11	1.96	0.09	2.21	0.05	1.85
Mean years of schooling			3.88	1.61	0.90	2.60
Growth rate of non-agricultural employment			0.55	4.84	0.56	6.06
R-square	0.31		0.67		0.61	
DW statistic	2.04		2.38		2.54	
Statistical rank					2	
Means						
Migration rate	1.442		1.442		1.442	
Unutilised capacity	0.021		0.021		0.021	
Inflation rate	13.495		13.495		13.495	
Growth rate of non-agricultural employment			5.170		5.170	
Elasticities						
Income ratio	7.09		2.00		7.48	
Unutilised capacity	-0.52		-0.52		-0.17	
Inflation rate	1.03		0.85		0.42	
Mean years of schooling			2.69		0.62	
Growth rate of non-agricultural employment			1.96		2.01	

Note: Elasticities were calculated at mean migration rates and means of the variables which were not expressed in natural logs.

Source: Authors' calculations.

coefficient varied somewhat across the experiments, but on the whole the coefficient was significant. This is empirical validation of the proposition stated above and is consistent with other studies with a similar specification. The elasticity with respect to the income ratio (computed at the mean value of the migration rates) varied in the ranges of 10–12 in Thailand and 4–8 in the Philippines, and was 7 in Indonesia.⁷ These are high values, but it should be noted that the impact of a 10 per cent change in the migration rate on the sectoral employment is far smaller. We turn now to a review of the role of the other variables.

The labour ratio was practically irrelevant with a few exceptions, one of which is shown for Thailand. Even there, however, the importance is marginal. Instead, what seems to be important is the absorbing capacity of non-agriculture. This is revealed by several indicators. The unutilised capacity in non-agriculture was important in both Indonesia and Thailand. For most of the period, the measure of unutilised capacity was zero; as a result the mean value is low, even though in some years the unutilised capacity was quite high. The peak value for this variable in the study period was 0.12 in Thailand and 0.16 in Indonesia. The elasticities reported in the table are calculated for the mean values. In years of high-unutilised capacity in non-agriculture, the elasticities would be considerably higher. For the extreme values reported above for the study period, the elasticities would be ten times higher.

In the Philippines, the non-agricultural sector did not develop fast enough to attract and absorb labour from the agricultural sector, an issue raised by Balisacan et al. (Chapter 7, this volume). To take account of this fact, we used data on the growth rate of employment in the industrial sector. This variable has a strong positive effect on migration.⁸ We did not have a similar measure for the other countries. We therefore used the growth rate of non-agricultural employment. This variable enters the calculation of the migration rates, therefore its effect should be interpreted with caution. **This** was done for Indonesia, where the coefficient is positive and significant. Note, however, that its introduction did not significantly affect the coefficient of the income ratio, and its effect on the other coefficients is not substantive. Our interpretation is that the variable picked up some of the noise in m coming from the use of the employment data in the calculation of the migration rates. The results for Thailand were less meaningful. We also tried the difference between the growth rates of non-agricultural and agricultural output. This variable had a marginal positive effect only for the Philippines.

The terms of trade for agriculture, measured by the price ratio, were relevant in the Philippines, where the variable varied greatly over the study period, unlike in Thailand and Indonesia. The sign of the coefficient is negative, meaning that the migration rate is higher in years when the terms of trade for agriculture are low. We tried a population density variable (the ratio of population to agricultural land); the variable did not have explanatory power. Inflation was empirically relevant in Indonesia with a positive coefficient, suggesting that the heating up of the economy was supportive of migration. The role of the inflation rate can be interpreted in various

ways, however the finding is not strong enough to justify diving into a discussion of this subject here.

Finally, the public good, or policy, variables discussed above had little impact. These variables are trended, thus they had only weak correlations with the migration rate. The most pronounced effect is education in the Philippines, obtained in the principal components regression. It was possible to force some of the policy variables in other regressions using the principal components procedure, but at the cost of reducing the level of explanation. This means that the contribution of these variables to the explanation, conditional on the other regressors, is negligible or negative. This result may reflect the data problem, but it may also be due to the fact, discussed above, that the impact of public goods on the migration rate might be ambiguous. In a cross-country study (Larson and Mundlak 1997), education showed a robust positive impact on the migration rate. However, that study did not include measures of physical infrastructure, such as road length, or health conditions, thus it is not strictly comparable to the current study. It does, however, contain year and geographic dummies that may confound some of the impact of infrastructure. To conclude, we refrain from generalising our empirical results on the role of the policy variables.

CONCLUSION

Labour migration from agriculture is related to the dynamics of the sectoral allocation of labour. This chapter has examined the process in Indonesia, Thailand and the Philippines. The migration rates from agriculture to non-agriculture in these three countries are relatively low compared to those of other countries, thus labour surpluses have not been reallocated very quickly to other sectors of the economy. The effect of these low migration rates on the persistence of intersectoral income differentials is obvious. Even so, migration rates have been responsive to each country's income ratio, and were also affected by the absorbing capacity of non-agriculture, as indicated by several measures. The policy variables consisting of indicators of physical and human capital had little impact on the migration rate apart from that captured by relative incomes.

Unfortunately, the migration series contains considerable variability for which we have not been able to account. This variability may be due to data problems or perhaps to economy-wide shocks. This remains part of the puzzle of migration in Indonesia, Thailand and the Philippines.

NOTES

Migration in Indonesia, Thailand, and the Philippines was also far slower than in Latin America where rates were close to 2 per cent in the 1960s, and over 2 per cent in the 1970s and 1980s (Larson and Mundlak 1997).

This is the essence of the dual economy model of Lewis (1954) and Ranis and Fei (1961). Income is calculated as GDP (in constant prices) per worker, where non-agricultural GDP is the difference between total GDP and GDP in agriculture (and similarly for non-agricultural employment).

The price ratio is the ratio of the GDP deflator in agriculture to that of non-agriculture. The GDP deflator is derived from the ratio of GDP in nominal prices to GDP in constant prices.

The data problems are discussed in Mundlak et al. (2002).

The principal components method used followed the algorithm in Mundlak (1981). The level of significance was 10 percent. A statistical rank of 3 means that three linear combinations of the variables summarise the information contained in the regressors.

Let $m = b \ln x$, then the elasticity of m with respect to x is $\partial \ln m / \partial \ln x = b/m$. The results reported here are obtained at the mean value of m .

The labour data in the Philippines is reported for three sectors—agriculture, industry and services. Thus, industrial employment is not the same as non-agricultural employment. In 1960, approximately 50 per cent more people were employed in services than in industry. By 1971, employment in services was double that in industry; by the late 1990s, it was nearly triple.

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APPENDIX—DATA SOURCES

Thailand

Gross Domestic Product (agricultural and total). The agricultural GDP series includes forestry and fishery but does not include simple agricultural processing products. National income accounts were obtained in constant and current market prices (baht) from the Office of the National Economic and Social Development Board (NESDB).

Employment (agricultural and total). Data on employment come from the National Statistical Office, *Report of the Labor Force Survey*. Round 2 (July-September) was used for 1969-83, and Round 3 (August) was used from 1984 on. No data were reported for 1970, so straight-line interpolation was used to estimate the data. For 1961-68, data obtained from Coxhead and Plangrapphan (1998) were used.

Philippines

Gross Domestic Product (agricultural and total). The agricultural GDP series includes forestry and fishery. National accounts were obtained in constant and current market prices (pesos) from the Economic and Social Statistics Office, National Statistical Coordination Board (NSCB).

Employment (agricultural, industrial and total). Data on employment come from the Labor Force Survey, National Statistics Office. When available, data from the October survey were used. Sectoral data were not reported in

1964, 1969 and 1979. For these years, the ratios of sectoral employment to total employment were estimated using straight-line interpolations. Agricultural and industrial employment figures were then calculated from these estimates.

Education. Economy-wide human capital is proxied by the mean school years of education of the total labour force. This data series was constructed by Nehru et al. (1993) from enrolment data using the perpetual inventory method and is available up to 1987. Data for 1988–98 are forecast by fitting the series using an OLS regression of human capital on time.

Indonesia

Gross Domestic Product (**agricultural** and total). The GDP series in current and constant prices were obtained from various issues of *Statistik Indonesia* (the Statistical Yearbook of Indonesia), Badan Pusat Statistik (BPS). The agricultural GDP series includes forestry and fishery.

Employment (agricultural and total). The *National Labour Force Survey* contains data on population aged 10 years and over who worked, by main industry. These were obtained from various issues of *Statistik Indonesia*, BPS. Data for the missing years of 1972–75, 1979 and 1983–84 were estimated using straight-line interpolations of the ratio of agricultural employment to total employment, as well as the total employment series. Agricultural employment was then calculated from these estimates. Employment data reported for 1998–99 were for population aged 15 and over, so the annual growth rates in this series were calculated and applied to the previously mentioned employment series (for population aged 10 and over) to obtain estimates for these years.

Consumer Price Index. Data on the consumer price index of 17 capital cities in Indonesia are reported in the *International Financial Statistics* of the International Monetary Fund. Data were converted to a base year of 1993.

Education. Economy-wide human capital is proxied by the mean school years of education of the total labour force. This data series was constructed by Nehru et al. (1993) from enrolment data using the perpetual inventory method and is available up to 1987. Data for 1988–98 are forecast by fitting the series using an OLS regression of human capital on time.

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Abbreviations (Id), (Jp), (Ph) and (Th) refer to Indonesia, Japan, Philippines and Thailand respectively.

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RURAL DEVELOPMENT AND AGRICULTURAL GROWTH in Indonesia, the Philippines and Thailand

Understanding economic growth is central to the study of development. Rural economic growth is an important aspect of economic growth. Historically, rural agriculture has employed most people in most countries, and continues to do so today. Nevertheless, the causal relationships between economic growth and growth in agriculture remain poorly understood.

This volume focuses on economic growth in the agricultural sectors of Indonesia, the Philippines and Thailand. Starting from similar positions, the agricultural sectors of these economies have diverged considerably over the last 40 years. The volume investigates the ways in which policy, institutions, investments, resource constraints and the reallocation of agricultural labour have driven this divergence.

The volume documents the interplay of endowments, technology, the accumulation of productive factors, policy, and advocacy in the rural sectors of these three countries. Each contributes in its own way to an explanation of the past.

Good policy rests on an understanding of successes and failures in the past. This book is a critical contribution to such an understanding.

Takamasa Akiyama ■ Donald F. Larson (eds)