AGRICULTURAL TRADE AND FOOD POLICY: EXPERIENCE OF DEVELOPING COUNTRIES

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EXPERIENCE OF DEVELOPING COUNTRIES

by

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ABSTRACT
AGRICULTURAL TRADE AND FOOD POLICY:
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This essay reviews and generalizes the recent experience of the World Bank in studies undertaken on pricing and trade policy in agriculture in developing countries. Five archetypical countries are used as the basis for the comments. The countries are Nigeria, Colombia, Philippines, Jamaica and Pakistan. The motivation behind each of the studies was to gain an understanding of the incentive or disincentive environment in which agriculture operates. Five questions were analyzed in their current economic and political context, viz.:

Is the incentive system so structured as to favor or retard agricultural output?

How do government trade and price interventions affect output, farm income, consumer income and government revenue?

How does agricultural policy synchronize with industrial policy and with the more general macroeconomic policies of the country?

What relationship do domestic prices in agriculture bear to the border prices of similar goods? and

How can agricultural pricing policies and mechanisms be restructured to achieve the stated goals at lower cost?

The paper begins by summarizing the techniques used to analyze trade and price policies, then continues by identifying and describing in some detail common sources of disincentives in agriculture. The findings are that direct government intervention in the production, pricing, and distribution of foods on a massive scale is common. There is a profound distrust of the ability of the market to value and allocate resources. When legitimate policy goals require interventions, little thought is given to the type of instrument selected to achieve that goal. As a result government intervention gives rise to price distortions in the domestic economy that have serious allocative and efficiency effects. In order to defend domestic controls, it becomes necessary for governments to also control border trade. Policymaking thus has a lock-step nature to it where the implementation of certain policies necessarily require further controls on other parts of the economy.

In addition to direct government intervention, indirect forms are possibly of even greater concern. There is little appreciation by policymakers of the interrelationship between the food sector and other sectors. Thus industrial policy such as protection of domestic manufacturing is thought to have little effect on agriculture. This is not the case. Likewise maintaining an overvalued exchange rate by the system of industrial protection is a large (often major) disincentive to agriculture. Problems in the policymaking process, in pan pricing and stockholding are also identified as serious constraints to the uninhibited growth of the agricultural sector.
AGRICULTURAL TRADE AND FOOD POLICY:
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Since the so-called "world food crisis" of 1973 and the subsequent 1974 World Food Conference, there has been a heightened concern in developing countries over agricultural production, food availability, and what might be termed food policy. 1/ With the food crisis of 1973, the two subsequent "oil shocks," and the recent deep recession in industrial countries, the last decade has been a time of economic upheaval for many developing countries as they attempt to restructure their manufacturing and agricultural sectors to accommodate the new environment in which they find themselves. Yet, while considerable change and policy reform has taken place, it is disputable whether, in many cases, agriculture as a sector has performed as well as it might. Certainly, it has performed below the expectations of those who formulate the development plans of individual developing countries.

Food systems (production, distribution, processing, etc.) evolve at different rates under alternative policy environments. The purpose of this essay is to examine some of the policy reasons why agricultural performance differs among countries and to identify common policy-induced causes that have inhibited development of the food system in developing countries. In order to accomplish this, the work draws upon the experience of the World Bank where,

1/ The term "food policy" is intended to be broader than agricultural policy since it includes marketing and consumer interests as well as producer interests.
over the last few years, agriculture sector studies, emphasizing policy/institutional aspects, have been undertaken in several developing countries. The essay begins by describing the method of analysis used in the studies then illustrates by examples problem areas in agricultural policy that are common across the countries examined. A number of themes emerge as common constraints to the efficient organization of the food sector. Their severity varies from country to country, but it is usually the case that this collection of constraints will be found in one form or another, to a greater or lesser degree, in most developing countries. Further, the interrelationship of these themes to each other will become apparent as the essay proceeds. Thus, the decision to implement a certain public policy towards agriculture virtually guarantees that other seemingly unrelated public policies must be provided. This essay demonstrates the lock-step nature of certain policy decisions.

Country Coverage and Issues

The countries chosen for this work were Nigeria (Robertson), Colombia (Thobani), Philippines (World Bank, July 1984), Jamaica (World Bank, May 1973), and Pakistan (Thobani). In a sense they may be regarded as archtypical countries as their economic characteristics and stage of development represents most types of developing countries. Nigeria, a lower-income oil exporter, typifies the problem of a country where petroleum earnings since the "oil shock" have vastly changed the environment within which agriculture operates. The exchange rate became greatly overvalued penalizing agricultural exports and making food imports cheaper than domestic substitutes. Bottlenecks in the distribution of farm inputs caused rationing and prices in excess of administered prices. Agricultural performance suffered. In Pakistan, a low-income developing country, the issues revolve around guaranteed support
prices for the four major agricultural crops — wheat, rice, cotton, and sugarcane — and how those prices should be set in relation to international prices in order to achieve certain domestic goals. Wheat and sugar are purchased by the government at fixed prices and sold at a subsidy to ration-shops. In addition there is a parallel open market (domestic) for both crops. Rice and cotton are domestically consumed and are major exports — an activity the government reserves for itself for all four commodities. Many inputs into agricultural are subsidized. The government's goal is to withdraw somewhat from some of these activities and to introduce a more systematic method of determining farm prices.

The Philippines, a lower-middle income oil importing nation, is representative of those countries whose agriculture is in transition from being large importers of basic foodstuffs to being self-sufficient or minor exporters of cereals. The issues in agriculture involve the uneven treatment of export agriculture compared to import-replacement agriculture, the overall tendency to draw resources out of the agricultural sector through industrial and macro policies, and the conflict between the goals and policies towards agricultural inputs.

Jamaica, a middle-income developing country, is a food importer (mainly cereals) and a food exporter (mainly tropical products). During the 1970s and early 1980s, production of all the major export crops declined — as much as 9.4% per year over a 12-year period for bananas — while production of crops for domestic consumption — mainly root crops and vegetables — grew at about 6% per annum. The decline in agricultural exports occurred despite the fact that Jamaica has either developed a degree of product differentiation or has negotiated preferential access agreements for its export products such that it gains a premium price for those products. The movement of intra-
sectoral prices in favor of domestic agriculture and the monopsonization of exports through marketing boards appeared to be primary factors causing the overall decline in agriculture. Now the difficult task of restructuring incentives to stimulate agriculture is underway.

Finally, Colombia, also a middle-income country, represents an economy attempting to diversify its agricultural base with respect to exports in order to stabilize export earnings and farm income. Coffee, sugar, cotton, bananas, flowers, and tobacco are the important agricultural export crops — coffee alone accounting for nearly 30% of agricultural GDP and 45% of the value of agricultural exports. Agricultural imports are small. But growth in agriculture has declined from over 4% per annum over the 1970s to 1.5% per annum in the 1980s partly because of external conditions and partly because of domestic policies. Issues of concern to the government are the optimal export mix (diversification), commodity price stabilization, and the efficient administration of agricultural prices.

Table 1 provides data on some basic economic indicators of these countries.

The motivation behind each of the studies was to gain an understanding of the incentive and disincentive structure and the price-policy formation process for agriculture in each country in order to advise the governments on policy changes that might enhance agricultural growth and productivity. A common set of questions were analyzed in their current economic and political context, viz:
Table 1: CHARACTERISTICS OF DEVELOPMENT IN SELECTED COUNTRIES

<table>
<thead>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>87.1</td>
<td>804</td>
<td>380</td>
<td>2.8</td>
<td>12.7</td>
<td>-12</td>
<td>7,645</td>
<td>31</td>
<td>2.7</td>
<td>105</td>
<td>57</td>
</tr>
<tr>
<td>Philippines</td>
<td>50.7</td>
<td>300</td>
<td>820</td>
<td>2.8</td>
<td>12.8</td>
<td>-8</td>
<td>11,158</td>
<td>28</td>
<td>4.8</td>
<td>124</td>
<td>44</td>
</tr>
<tr>
<td>Nigeria</td>
<td>90.6</td>
<td>924</td>
<td>860</td>
<td>3.3</td>
<td>14.4</td>
<td>-9</td>
<td>7,889</td>
<td>11</td>
<td>-0.6</td>
<td>92</td>
<td>54</td>
</tr>
<tr>
<td>Jamaica</td>
<td>2.2</td>
<td>11</td>
<td>1,330</td>
<td>0.7</td>
<td>16.2</td>
<td>-12</td>
<td>1,145</td>
<td>36</td>
<td>-0.2</td>
<td>90</td>
<td>35</td>
</tr>
<tr>
<td>Colombia</td>
<td>27.0</td>
<td>1,139</td>
<td>1,460</td>
<td>3.1</td>
<td>22.7</td>
<td>-4</td>
<td>9,092</td>
<td>26</td>
<td>4.5</td>
<td>124</td>
<td>26</td>
</tr>
</tbody>
</table>

/a/ The "resource balance" is the difference between exports and imports of goods and nonfactor services, expressed as a percent of the value of exports.

Source: World Development Report
Is the incentive system so structured as to favor or retard agricultural output;

How do government trade and price interventions affect output, farm income, consumer income and government revenue;

How does agricultural policy synchronize with industrial policy and with the more general macroeconomic policies of the country;

What relationship do price controls on agriculture bear to the border prices of similar goods; and

How can agricultural pricing policies and mechanisms be restructured to achieve the stated goals at lower cost.

Method of Analysis

In order to measure and evaluate the effects of government intervention through the pricing mechanism, it is necessary to have a reference point. A commonly accepted reference point is the price regime that would prevail in the absence of any government intervention. In the absence of government interventions, prices of traded or tradeable goods in the economy would equal the price of the same goods on international markets adjusted for locational and quality differences. This is referred to as the border price of the goods and it represents the opportunity cost to the country of the commodity whether imported or exported or whether it is a potential import or export. Once a set of border prices and domestic prices for each commodity at the same point in the marketing chain is assembled, it is possible to construct three measures of the degree to which domestic and border prices diverge.

The first measure is the nominal protection rate (NPR). It is simply the difference between the domestic and border price of each commodity expressed as a proportion of the border price, where the border price is converted into domestic currency at the official exchange rate. That is
\[
NPR = \frac{P_d - P_b}{P_b} \times 100
\]

where \(P_d\) = domestic price

\(P_b\) = border price

NPRs may be positive (when the domestic price is higher than the border price) indicating that the commodity is protected or they may be negative (when the domestic price is lower than the border price) indicating that the commodity is "taxed" or "negatively protected." Alternatively, an NPR equal or close to zero indicates that the commodity is neither directly protected nor taxed.

Because of the relative ease with which NPRs can be calculated, they are calculated over a number of years to demonstrate how agricultural protection has changed over time. However, since international commodity prices vary greatly from year to year, NPRs tend to be very unstable in addition to other shortcomings. Thus other methods, while entailing more work to calculate, provide a more accurate assessment of the degree of protection.

The second measure of protection is the Effective Protection Rate (EPR). This measure takes account of the fact that intermediate inputs in the production process may be overvalued or undervalued by government interventions and thus may distort the level of protection calculated using NPRs.

\[
EPR = \frac{V_d - V_b}{V_b} \times 100
\]

Where \(V_d\) = value added evaluated using domestic prices;

\(V_b\) = value added evaluated at border prices
Value added is defined as the value of output at any point in the production process less the value of the purchased inputs, with prices expressed in domestic currency using the official exchange rate for imported inputs. It now becomes apparent how NPR and EPR differ. The EPR measure allows for the fact that the domestic price of inputs into the process may differ from their border prices and therefore affect the margin (value added) of the process. Like NPRs, EPRs can be positive, negative or zero. A high positive level of effective protection encourages expansion of the commodity while a negative one discourages production. An effective protection rate of approximately zero has a neutral output effect. EPRs are useful in policy analysis because they provide a good comparison across commodities of the net effect of various price interventions in the product and input markets. A comparison of EPRs will provide an indication of the direction of resource flows both within agriculture and between agriculture and other sectors of the economy.

The third measure of protection used is the net effective rate of protection (NEPR). This is the EPR corrected for the estimated misvaluation of the exchange rate resulting from the trade regime. The basic premise for making calculations of NPRs and EPRs is that the prices of goods and resources in the presence of distortions and government interventions do not reflect the true social costs and benefits, i.e., "social prices" of the goods. The exchange rate is the price of domestic currency in terms of another currency, and that price also can differ from its "social price," i.e., the "shadow" exchange rate. The latter is the rate of exchange

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1/ The studies do not deal with the management of the official exchange rate from the viewpoint of its appropriateness for maintaining viability in the current account.
calculated to prevail in the absence of trade interventions or under an "optimal" trade regime. In the calculation of NEPR the shadow exchange rate rather than the official exchange rate is used in the valuation of traded inputs and outputs.

The unique contribution of the exchange rate as an incentive or disincentive to production can be measured by comparing the difference in protection offered to a product or an industry when calculated using the EPR and the NEPR. Thus both calculations are made where possible.

The analysis of the effects of intervention on product prices is extended in some of the studies by measuring the effects of price changes on production and consumption and by calculating the reallocations of income that result from intervention using the Marshallian economic surplus framework. The method is well known for both its usefulness and limitations. Details are not presented here but are given in Bale and Lutz. By making such calculations it is possible to identify those who gain and those who lose from intervention and to measure the extent of the gains and losses. While it is necessary to exercise caution in interpreting the numbers produced by this analysis (they should not be taken too literally), the numbers do provide a good indication of the redistribution of income, the losses of foreign revenue and the deadweight loss the policy. As such they can have a profound influence on policymakers.

Finally, to investigate the relative efficiency of various agricultural activities and industries, and to judge their international competitiveness, some studies make use of the concept of "domestic resource costs" (DRCs). An industry's DRC represents the cost of domestic resources used per unit of foreign exchange earned or saved when domestic resources are valued at their true value in the economy, which may differ from their current market
value. If there is a disparity among DRCs across economic activities, a reallocation of domestic resources to the lower DRC (more efficient activities) would generally result in higher total output and therefore higher national income. Thus the DRC calculation shows an activity's "internal foreign exchange rate." Activities with "internal exchange rates" lower than the shadow rate for the country would reveal activities which should be encouraged, since they can earn foreign exchange at a cost better than the national average (represented by the shadow exchange rate).

DRCs are used in these studies for two purposes. First, as a measure of the relative efficiency of resource allocation within the economy and second as a measure of the international competitiveness of various industries. These two uses of DRCs respond to two questions frequently raised in policy dialogues with developing country decision-makers. First, it is often asserted that in the real world policymakers have no choice but to promote individual priority industries by differential incentives. The economic policy analyst then must question whether those industries favored by the policy deserve the special incentives. Are they using domestic resources efficiently or is there a better use of these resources in the economy?

Second, it is frequently claimed by those who receive special treatment that removal of the incentives, protection, or subsidy would result in their industry being drowned by international competition. The DRC measure provides an indication of the robustness of the industry vis-a-vis similar industries in the rest of the world. The DRC is therefore a very useful tool of analysis in formulating policy advice.

The methods outlined here, their empirical difficulties and their theoretical limitations are well documented in the literature and are compactly treated in Scandizzo and Bruce.
In each of the countries studied, the analyst made two visits to the country to collect data, analyze the issues, and discuss the findings with the government. While there is considerable loss of detail when attempting to generalize in a synopsis such as this, it is hoped that any characteristics common across all countries that are identified, will provide a useful starting point for others undertaking similar studies. Those common characteristics are addressed in the succeeding sections. 1/

Direct Government Intervention

There exists massive intervention by governments in the production, pricing and distribution of food in all the countries studied. Aspects of government intervention give rise to price distortions in the domestic economy both among products within the country and between domestic and international prices of the same product, which have serious allocative and efficiency implications on the economy. The policies of intervention are rooted in a model of development where it is thought to be desirable in the interests of growth and development to skim excess resources from agriculture and direct toward industrialization. Since the resources were surplus to agriculture this could be done, it was thought, without reducing agricultural output. A further objective of public intervention is to improve food supply to consumers by a variety of actions. It is only recently that the self-defeating nature of these interventions in the longer run and the extent of their generally disincentive effect on agricultural output has been fully understood.

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1/ The author took under advisement the admonition of one reviewer that "no generalization is worth a hoot - including this one."
Although the bankrupt nature of such policies is now widely accepted by economists, there continues to exist among policymakers a lack of confidence in the ability of the market to value and allocate output. As a result, governments readily intervene in the market mechanism in various ways, especially by administering prices. Many price interventions are undertaken without consideration of the consequences on agricultural output, on the optimal product mix in the sector, on efficiency, or on inter-sectoral resource flows. There are commonly three motivations behind many agricultural price interventions. First, by domestic price controls or by export taxes on food commodities, food prices can be kept artificially low in order to benefit the politically powerful urban population. This is the so-called "urban bias" in policymaking. Second, by government procurement and resale of staples, targeted at the poorer population, an element of social policy can be accomplished. Third, in the case where export taxes are levied, the government secures an important source of revenue.

This final motivation warrants further comment. In the long run government expenditure must be financed by government revenues generated through various forms of taxation. In the interests of equity and efficiency, it is usual that all sources of income, that is all sectors of the economy, bear a portion of the total tax burden. If revenue can be raised through direct taxation and if the tax incidence is equal across all sectors, then this is an optimal and non-distortionary method of financing government expenditure. But it is not administratively nor politically possible to

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1/ The tax is non-distortionary in the sense that it is neutral vis-a-vis inter-sectoral resource flows. It may, of course, affect the labor-leisure choice.
directly tax the income of agriculture in most developing countries. Thus in order to extract any revenue from that sector, governments are forced, as a practical matter, to levy indirect forms of taxation on agriculture. 1/ This is usually accomplished by manipulating various prices in order to alter the terms of trade of agriculture. Yet there are many ways of doing this, each with different distributional and efficiency implications. Accordingly, indiscriminate use of indirect taxation or implicit taxation of agriculture is to be avoided.

The massive intervention at almost every level by governments in the food complex of their countries indicates that the tax and revenue aspect of intervention is not the sole or even dominant motivation for government action. In fact, the extent of government intrusion gives the implicit message that the production, distribution and pricing of food is too important to be left to farmers, middlemen and food retailers, and that in the absence of government intervention, markets would fail to provide a secure flow of food at relatively stable prices for consumers. Given such an underlying agenda, it is tempting if not inevitable that governments will intervene.

In many, if not most, developing countries food prices are administered often at both the farm level and at the retail level. In Pakistan, for example, the government sets a "support price" at which its buyers (PFD or PASSCO) will buy wheat. Farmers may sell to government agents or to the private trade. The government buyers resell to ration shops at fixed low prices. This essentially sets the upper limit of the open market price. Private middlemen typically pay somewhat less than the support price as they

1/ This argument is developed by Chhibber.
provide extra services such as credit or transportation. Wheat procured by
the government is milled and sold in privately owned rationshops to ration
card holders at the same price at which the government sells the flour to
them. 1/ Until 1981, the "support price" of wheat was below the border price
by as much as 60 percent. In recent years, the margin has narrowed to around
30 percent below the border price and in the last two years, it has approx-
imated the border price as world prices have fallen while the support price
has been raised. Thus, during the 1970s, Pakistani wheat producers were
implicitly taxed and Pakistani consumers were implicitly subsidized by the
government's wheat pricing policy. 2/ It is interesting to note that as farm
prices for wheat in Pakistan have moved toward border prices, so production
has increased and imports declined to the extent that Pakistan now has a small
exportable surplus.

Likewise, Pakistan rice "support prices" are set for paddy and milled
rice. Milled rice can only be sold to PFD or authorized dealers and the
government (RECP) is the sole exporter of rice. Because of its pricing policy
and monopoly power, the price of Pakistani rice has averaged 35 percent below
the border price between 1973 and 1983. Again, rice producers are "taxed" in
order to keep consumer prices of rice at lower levels. With increasing
domestic prices and decreasing world prices for rice, the margin has narrowed
over the decade and should approximate zero by the mid-1980s.

1/ The rationshops cover costs and profits by selling the gunny bags in
which flour is delivered.

2/ Taxation is "implicit" since the tax is neither seen nor stated as a tax
and the government neither actually collects the tax nor distributes
revenues from it. Nonetheless, a redistribution from one group to
another occurs despite this just as is the case for an explicit tax.
The government of Pakistan has been committed to a price setting policy for major crops for many years. The advantages of fixed prices are argued along two lines. First, under quite restrictive assumptions on the shape of the supply and demand curves, the net welfare of producers and consumers is greater at the midpoint of two different prices (Newberry and Stiglitz, p. 33). Second, risk-averse farmers operating in an environment of uncertain future prices, have no future markets to insure against uncertainty. Thus, price stabilization schemes are a second best mechanism to provide some certainty in the absence of future markets. But the gains from stabilization are typically small compared to their costs and there are often better alternatives to achieve stabilization objectives (Newberry and Stiglitz, pp. 39-46). Thus, the automatic reliance on price fixing precludes any consideration of other possibly more efficient ways of reducing farmer uncertainty.

In the Philippines, a parastatal organization (Nasutra) is the sole buyer and seller of sugar. Because of their pricing policy, it has been estimated that over the period 1974-82, producers have received only 77 percent of the world price of sugar while consumers have paid only 69 percent of the world price. Through its pricing policy, Philippine sugar producers have been subsidizing sugar consumers. Likewise, a parastatal (PCA) administers the coconut industry and controls a large proportion of the milling. Because of its various levies and taxes and recent embargo on copra exports, running to an equivalent export tax of 22 percent, producers are implicitly and explicitly taxed while consumers are subsidized and coconut

1/ These arguments are developed further by Thobani (March 1983).
processing is protected. The Philippines has, in recent years, moved from being a rice importer to being self-reliant or a small exporter of rice. This significant production response was generated, among other things, by a producer price above that at which imports could be obtained. As production responded, the National Food Authority lowered rice prices so that now they approximate the world price. However, for yellow corn, which is used as an animal feed, farm prices still exceed import prices thus protecting the infant industry.

In Nigeria because of an export ban on rice and licensing of groundnut exports, domestic prices have been held at approximately 20 percent below border prices in recent years. Likewise, cotton growers are forced to sell their entire output to the Cotton Board at a price consistently fixed at around 20% less than that which would prevail in a freer market environment.

In Jamaica where statutory marketing boards control exports andthur prices, it has been shown that on average between 1970 and 1979, the implicit tax on producers imposed by the boards were 17 percent for sugar, 28 percent for cocoa, 36 percent for coffee and 42 percent for bananas.

The effects of policies that impose "tax" burdens on export agriculture of the extent demonstrated here are numerous and serious. Since farmers are price sensitive, they respond to lower prices by producing less than they would if their product were priced at its international opportunity cost. Farm income is lowered. This affects the rate of adoption of new technology, the level of usage of modern inputs and thus the growth of agriculture. Farm labor declines aggravating rural to urban migration problems. Further, because of reduced output, the policies limit the quantities available for exports which earn badly needed foreign exchange. The underpricing of the commodity increases domestic consumption of the good. Clearly, consumers are
better off but at a price to producers. Again, export receipts are reduced because increased consumption leaves a smaller residual for exporting than is the case if economic policies were neutral with respect to the opportunity cost of food. Also, there is the deadweight (efficiency) loss resulting from the misallocation of resources caused by the price intervention.

While it is commonly the case that export crops are taxed and, therefore, underpriced domestically, it is often the case that food imports are also taxed by tariffs, quotas, or parastatal monopoly import rights and are thereby overpriced (in terms of their border price or opportunity cost) on the domestic market. The motivations behind these actions typically are to raise government revenue (via duties), to conserve foreign exchange and to stimulate import-replacement production activities. The effects on efficiency, resource allocation, and government revenue are the same as in the case of taxing domestic agriculture. The difference is that in the case of import controls on food, domestic consumers are taxed while domestic producers of the product or of its substitutes are implicitly subsidized in that they receive a price for the product in excess of its international opportunity cost.

For example, in Colombia the parastatal (IDEMA) sets farm prices for the importable commodities of wheat, corn, soybeans, and beans based primarily on production costs which exceeded border prices by an average of 76 percent during 1980-82. The disparity is maintained by both tariffs and quantitative restrictions on the importation of food items which IDEMA supports. Likewise tariffs, import licensing or import bans on maize, rice, wheat and sorghum in Nigeria resulted in those products being overpriced by an average of 88 percent between 1979 and 1983. As is obvious from the numbers cited here, when governments intervene in the pricing mechanism, it is not a marginal intervention, but a very large one that must have serious efficiency
implications. The general pattern, that prices of export crops are held down by various types of interventions while import-substitute crops are paid premiums, is illustrated in Table 2. The price that countries pay in terms of lost output, lost export revenues, and efficiency, and the redistribution caused by the policy are given for selected countries and commodities in Table 3.

Often when governments observe a stagnation of agricultural performance possibly caused by their pricing policies, or when they wish to stimulate agriculture, the common policy response is to do so via subsidies on agricultural inputs. In Nigeria, banks are required to devote 8 percent of their loans to the agricultural sector at interest rates of approximately half of the going commercial rate while fertilizer and farm chemical subsidies of 85 percent are given. In Jamaica, during the 1970s, farm loans given by a parastatal development bank were at an interest rate of less than one-half of those offered by commercial banks and fertilizer subsidies amounting to one-third of the price of fertilizer were given to producers of sugar and domestically consumed food crops. In the Philippines, as in most countries, the government subsidizes irrigation water by charging below its marginal cost so that the implicit subsidy on water between 1980 and 1981 was about 90 percent.

These activities may or may not be costly in terms of the financial burden it places on the economy. But they are costly in terms of tying up scarce human resources in the administration of the program and most have the further disadvantage that they have proven ineffective in stimulating agriculture. When there is forced allocation of subsidized credit, banks tend to lend to the largest, most creditworthy farmers who already do business with them or to agro-processing or marketing organizations where collateral is more
Table 2: BORDER PRICE AND DOMESTIC PRICE FOR RECENT YEARS
AND FOR MAJOR COMMODITIES OF THE STUDY COUNTRIES /a

<table>
<thead>
<tr>
<th></th>
<th>Pakistan</th>
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<th>Colombia</th>
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<th></th>
<th>Philippines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Procurement price (Rs/100 kg)</td>
<td>125.0</td>
<td>145.0</td>
<td>145.0</td>
<td>Wheat</td>
<td>Market price (pesos/100kg)</td>
<td>1,439</td>
<td>1,717</td>
<td>1,978</td>
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<tr>
<td></td>
<td>Import price</td>
<td>166.6</td>
<td>153.0</td>
<td>158.7</td>
<td>Border price</td>
<td>1,058</td>
<td>1,184</td>
<td>1,036</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>Procurement price</td>
<td>131.3</td>
<td>157.5</td>
<td>181.2</td>
<td>Corn</td>
<td>Market price</td>
<td>1,364</td>
<td>1,527</td>
<td>2,015</td>
</tr>
<tr>
<td></td>
<td>Export price</td>
<td>249.2</td>
<td>327.0</td>
<td>315.0</td>
<td>Border price</td>
<td>730</td>
<td>915</td>
<td>1,126</td>
<td></td>
</tr>
<tr>
<td>Basmati rice</td>
<td>Procurement price</td>
<td>294.7</td>
<td>342.5</td>
<td>374.8</td>
<td>Sorghum</td>
<td>Market price</td>
<td>1,183</td>
<td>1,372</td>
<td>1,728</td>
</tr>
<tr>
<td></td>
<td>Export price</td>
<td>707.3</td>
<td>701.1</td>
<td>747.2</td>
<td>Border price</td>
<td>7,085</td>
<td>874</td>
<td>823</td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Procurement price</td>
<td>1,026</td>
<td>1,107</td>
<td>1,122</td>
<td>Soybeans</td>
<td>Market price</td>
<td>2,015</td>
<td>2,568</td>
<td>3,280</td>
</tr>
<tr>
<td></td>
<td>Export price</td>
<td>1,326</td>
<td>1,597</td>
<td>1,267</td>
<td></td>
<td>Border price</td>
<td>1,471</td>
<td>1,759</td>
<td>1,773</td>
</tr>
<tr>
<td>Sugar</td>
<td>Rationshop sale price</td>
<td>460</td>
<td>597</td>
<td>697</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nigeria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>Border price (adjusted to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>farmgate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>Farmgate price</td>
<td>226</td>
<td>320</td>
<td>411</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Border price</td>
<td>131</td>
<td>126</td>
<td>134</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundnuts</td>
<td>Farmgate price</td>
<td>307</td>
<td>361</td>
<td>426</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Border price</td>
<td>336</td>
<td>334</td>
<td>283</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Gazetted price</td>
<td>342</td>
<td>264</td>
<td>389</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equivalent border price</td>
<td>330</td>
<td>280</td>
<td>316</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorghum</td>
<td>Farmgate price</td>
<td>400</td>
<td>465</td>
<td>510</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Border price</td>
<td>645</td>
<td>563</td>
<td>597</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                | Jamaica                        |          |          |          |
|                | 1977 | 1978 | 1979    |
| Sugar          | Farmgate Price ($J/ton)       | 197 | 188 | 190    |
|                | Export price (adjusted        | 234 | 330 | 396    |
|                | to farmgate)                  |          |          |          |
| Bananas        | Farmgate Price ($J/ton)       | 132 | 132 | 145    |
|                | Export price                  | 323 | 732 | 763    |
| Cocoa          | Farmgate Price ($J/ton)       | 1,202 | 2,002 | 2,404    |
|                | Export price                  | 1,693 | 5,268 | 5,226    |
| Coffee         | Farmgate Price ($J/ton)       | 380 | 666 | 812    |
|                | Export price                  | 603 | 900 | 1,249  |

a/ All prices are adjusted for quality and location so that the two prices for each commodity are comparable.
Table 3: OUTPUT AND MONETARY EFFECTS OF AGRICULTURAL PRICING POLICIES

<table>
<thead>
<tr>
<th></th>
<th>Jamaica, 1980</th>
<th>Philippines 1979-81 Average</th>
<th>Nigeria, 1979-81 Average</th>
<th>Colombia, 1982</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sugar</td>
<td>Bananas</td>
<td>Cocoa</td>
<td>Coffee</td>
</tr>
<tr>
<td>Production (1000 metric tons)</td>
<td>301</td>
<td>69</td>
<td>3.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Exports (Imports) (1000 metric tons)</td>
<td>132</td>
<td>33.1</td>
<td>1.2</td>
<td>1.8</td>
</tr>
<tr>
<td>Production without distortions (1000 metric tons)</td>
<td>319</td>
<td>77.2</td>
<td>4.1</td>
<td>8.5</td>
</tr>
<tr>
<td>Exports (Imports) without distortions (1000 metric tons)</td>
<td>140</td>
<td>37.1</td>
<td>1.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Change in Production (%)</td>
<td>5.9</td>
<td>11.3</td>
<td>16.9</td>
<td>23.5</td>
</tr>
<tr>
<td>Change in Exports (Imports) (%)</td>
<td>6.0</td>
<td>12.0</td>
<td>17.0</td>
<td>23.0</td>
</tr>
<tr>
<td>Change in Farm Income (US$ million)</td>
<td>5.8</td>
<td>1.5</td>
<td>1.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Change in Foreign Exchange (US$ million)</td>
<td>6.9</td>
<td>16.4</td>
<td>21.2</td>
<td>31.7</td>
</tr>
<tr>
<td>Change in Foreign Exchange (%)</td>
<td>3.3</td>
<td>1.9</td>
<td>0.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Deadweight efficiency loss (US$ million)</td>
<td>5.9</td>
<td>12.2</td>
<td>17.2</td>
<td>23.8</td>
</tr>
</tbody>
</table>

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readily available. The resulting paradox is that credit available to
agriculture may actually decline, as happened in the Philippines, as non-
administered interest rates rose to clear the "free" portion of the credit
market and as the informal credit market contracted. (An additional paradox
in the credit market is that no attention is given to the alternative of
increasing capital available to the farming sector by mobilizing farm savings
and the informal credit market). Likewise, fertilizer subsidies have been
very ineffective. Because of the general fungibility of fertilizer, targeted
subsidies such as those used in Jamaica fail. In Nigeria, because of the
excess demand for fertilizer at the subsidized price, rationing results and a
secondary market, either internal or external (through smuggling) or both,
flourishes. Finally, the selected inputs that are subsidized constitute a
small proportion of the total cost of production. Thus, lowering them by even
quite large amounts has a rather minor effect on the net returns of the
farmer.

A resultant consequence of intervention in the product market is that
restrictions must be placed on international products and their substitutes in
order to defend the domestic pricing policy. If domestic food prices are held
below prices that could be obtained on international markets, domestic
producers clearly would prefer to export. If domestic prices artificially
exceed world prices, then imports would dominate the domestic market. Thus,
once the decision is made to establish domestic prices at levels at variance
from border prices, governments must simultaneously control and regulate trade
of those products and their substitutes. Often, rather than placing tariffs
or export taxes on products, parastatal marketing organizations are estab-
ished which are provided broad regulatory authority and monopoly power in the
purchase, resale, import and export of their products. They become not only
an instrument of policy but often a powerful policymaking authority. The record in developing countries is clear that parastatals are usually much more concerned with their own well-being and (to a lesser extent) the welfare of domestic consumers than they are in the interests of farmers or the rural sector.

**Indirect Government Intervention**

Not only do governments intervene directly in the determination of food output, consumption and prices, but they also intervene indirectly in ways which, because they are not generally recognized, may have an even more serious effect on agriculture than direct measures.

There is little appreciation by policymakers of the interrelationship between the food sector and other sectors of the economy. Macro-policy, or policies taken in other sectors, that directly affect agriculture, are often not recognized as influencing agriculture. Of particular concern is the set of commercial policies designed to promote industrialization in developing countries through protection of domestic manufacturing. By protecting the manufacturing sector, agriculture is disadvantaged in several ways. To the extent that agricultural inputs are domestically produced under a protective umbrella, so agricultural input costs are increased, lowering farm returns and making agricultural exports less competitive on the international market. The dynamic effects of reduced investment and slower adoption of new technology on growth clearly compound the static effects and over time dominates them. Further, to the extent that resources such as labor and capital are bid away from agriculture by protected domestic manufacturing, so agriculture either must pay more for or lose resources previously available to it. Unanticipated side effects of protection of the manufacturing sector also occur. In the Philippines, for example, protection provided for domestic manufacturers of
small tractors (two-wheeled power tillers) and small water pumps for farm
irrigation had the unintended effect of increasing their price relative to
larger imported equipment. This has favored the sub-optimal use of larger
imported tractors and pumps which are more labor-displacing than smaller
equipment.

A final side effect of protection of the manufacturing sector is that
the set of tariffs and quotas on imported manufactures defends an overvalued
exchange rate. In a distortion-ridden economy, trade deficits held in check
by protecting domestic industry allow the value of the domestic currency vis-
a-vis its trading partners currencies to be maintained at a level higher than
would prevail under a freer commercial regime. Exporters, when they convert
their foreign earnings into domestic currency, receive less domestic currency
than they would if the currency were devalued. Likewise, importers of duty-
free goods receive goods at a domestic price that is lower than that which
would prevail if the exchange rate were at its distortion-free level. Thus,
both exports and duty-free imports are undervalued. This often places agri-
culture in developing countries in double jeopardy, since a major source of
export revenue is agriculture, yet they also import sizeable quantities of
food products. For example, the Philippines exports copra and sugar while it
imports wheat and feedgrains. Jamaica exports bananas and sugar while it
imports rice and wheat. Colombia exports coffee and sugar while it imports
wheat and coarsegrains, and Nigeria exports groundnuts and cocoa while it
imports maize and rice. When export products and import-competing products
are undervalued, then the effect on production, consumption and growth is
identical to the case where exports are taxed and imports are subsidized.
There is underproduction and overconsumption of the goods. The extent to
which currencies are misaligned in most developing countries is not widely
recognized and certainly its effect on output is not generally appreciated by policymakers in developing countries. For example, the exchange rate has been estimated as being overvalued by 25-30 percent in the Philippines over most of the 1970's; by 35 percent in Jamaica during the early 1980s; by approximately 25 percent in Colombia in the early 1980s; and by 44 percent in Nigeria over the last five years. When margins of less than 5 percent make a difference in making or not making a sale or a profit, the effect of implicit taxes on domestic agriculture of these dimensions can have a devastating effect. The results of our studies show that misaligned exchange rates have played the major role in inhibiting agricultural performance. While industrialization has been stimulated by these policies, it is on a narrow and non-sustainable base. Agriculture, on the other hand, has responded to disincentives by growing at a low rate with the result that many countries have had to import more food and/or reduce their agricultural exports. While development policy has now gone beyond models that emphasize industrialization and neglect agriculture, policy practice in developing countries has yet to catch up.

As an example of the importance of misaligned currency values, Table 4 presents the unique effects of the exchange rate on selected agricultural products for the Philippines using conventional welfare measures. In addition, Table 5 illustrates the extent of the protective bias against agriculture in the Philippines by showing the extent that it is "implicitly taxed" relative to the high rates of protection for agroprocessing and manufacturing. The effect of the overvalued currency as a protective device can also be seen by comparing the EPRs and net EPRs. Agriculture is heavily taxed while agroprocessing and manufacturing still generally remain highly protected.

The irony of this system of protection is that many of the protected activities would remain competitive in the absence of protection. This is
illustrated in Table 6 where domestic resource cost calculations are presented for the same set of activities. With a few obvious exceptions such as the processing of dairy products and flour milling, many of the products or processes are shown to be close to or below the shadow exchange rate and would therefore be competitive under a more open trading regime.

In summary, in examining the extent and types of price interventions in agriculture in developing countries, one cannot help but be struck by the limited success it has achieved, the flimsy reasons given for its introduction, and the neglect of viable market alternatives. As economists contemplating the state of the agricultural economy in developing countries, one cannot escape the conclusion that while market failures are sometimes discernable, government (or pseudo-government) failure is pervasive, massive, and universal.

The Policymaking Process

There are several problems in the organization of the policymaking process that are common across the developing countries studied here. First, in formulating policy, undue emphasis is given to short-run problems and policies and insufficient or no attention is given to the policies that would enhance the long-term performance of the food sector. Within Ministries of Agriculture, few if any resources are devoted to assembling a cogent and coherent plan of the future direction of agriculture. By a long-term plan, it is not intended to imply that detailed long-run plans on agriculture should be made, but rather that broad objectives should be enunciated and a consistent set of policies that respond to that should be adhered to. Too often public decision-making in agriculture can be more accurately characterized as "crisis management" rather than "forward looking." "Public policy decisions" become largely a euphemism for an incoherent sequence of desperate expedients. The
Table 4: PHILIPPINES: ESTIMATED CONTRIBUTION OF THE EXCHANGE RATE AS A DISINCENTIVE TO AGRICULTURE
(ANNUAL AVERAGE 1979-81) /a

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Change in production (000 m.t.)</th>
<th>Change in consumption (000 m.t.)</th>
<th>Change in Foreign Exchange Earnings ('000)</th>
<th>Welfare Gain of Producers ('000)</th>
<th>Welfare Gain of Consumers ('000)</th>
<th>Net Deadweight Efficiency Loss ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>-394.4</td>
<td>484.4</td>
<td>-877.8</td>
<td>1,850,443</td>
<td>1,552,668</td>
<td>149,467</td>
</tr>
<tr>
<td>Copra</td>
<td>-373.3</td>
<td>47.3</td>
<td>-420.3</td>
<td>-993,787</td>
<td>82,149</td>
<td>278,437</td>
</tr>
<tr>
<td>Sugar</td>
<td>-702.4</td>
<td>36</td>
<td>-738.4</td>
<td>-1,501,120</td>
<td>171,877</td>
<td>416,101</td>
</tr>
<tr>
<td>Yellow corn</td>
<td>-177.4</td>
<td>535.7</td>
<td>(493.5)</td>
<td>-430,038</td>
<td>-575,943</td>
<td>667,177</td>
</tr>
<tr>
<td>Total</td>
<td>-1,647.5</td>
<td>1,103.4</td>
<td>-2,530.0</td>
<td>-4,763,999</td>
<td>-1,220,407</td>
<td>2,473,871</td>
</tr>
</tbody>
</table>

/a The table is interpreted in the following way: Because of the overvalued exchange rate the production of rice, for example, was on average in 1979-81, 394,000 tons less than it otherwise would be, consumption of rice was 484,000 tons larger than it otherwise would be, foreign exchange earnings of 1.6 billion were foregone, etc.

/b US$1=7.74

Source: Bale, p. 37.
Table 5: PHILIPPINES: EFFECTIVE PROTECTION RATES FOR MAJOR AGRICULTURAL PRODUCTS, AGROPROCESSING AND MANUFACTURING a/

<table>
<thead>
<tr>
<th>Sector</th>
<th>EPR</th>
<th>Net EPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rainfed</td>
<td>-0.4</td>
<td>-19</td>
</tr>
<tr>
<td>Irrigated</td>
<td>3.6</td>
<td>-15</td>
</tr>
<tr>
<td>Copra</td>
<td>-27</td>
<td>-47</td>
</tr>
<tr>
<td>Sugar b/</td>
<td>-16</td>
<td>-36</td>
</tr>
<tr>
<td>Cotton</td>
<td>-12</td>
<td>-32</td>
</tr>
<tr>
<td>Logs</td>
<td>-10</td>
<td>-32</td>
</tr>
<tr>
<td>Agroprocessing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slaughtering and poultry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dressing</td>
<td>128</td>
<td>73</td>
</tr>
<tr>
<td>Meat products (uncanned)</td>
<td>68</td>
<td>27</td>
</tr>
<tr>
<td>Dairy products</td>
<td>52</td>
<td>15</td>
</tr>
<tr>
<td>Canned fruits and vegetables</td>
<td>80</td>
<td>36</td>
</tr>
<tr>
<td>Rice milling</td>
<td>-49</td>
<td>-60</td>
</tr>
<tr>
<td>Flour milling</td>
<td>1,148</td>
<td>845</td>
</tr>
<tr>
<td>Sugar milling and refining</td>
<td>-12</td>
<td>-33</td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textile mill products</td>
<td>78</td>
<td>35</td>
</tr>
<tr>
<td>Other textiles</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Footwear</td>
<td>18</td>
<td>-11</td>
</tr>
<tr>
<td>Paper products and containers</td>
<td>193</td>
<td>118</td>
</tr>
<tr>
<td>Tanning and leather finishing</td>
<td>145</td>
<td>86</td>
</tr>
<tr>
<td>Tires and inner tubes</td>
<td>323</td>
<td>220</td>
</tr>
<tr>
<td>Insecticides and agricultural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>chemicals</td>
<td>17</td>
<td>-11</td>
</tr>
<tr>
<td>Petroleum refineries</td>
<td>21</td>
<td>-8</td>
</tr>
<tr>
<td><strong>Average (all manufactures)</strong></td>
<td><strong>44</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

\*a/ The reference years are 1973 to 1979 except cotton which is 1975 to 1981.
\*b/ Nominal protection coefficient.
### Table 6: PHILIPPINES: DOMESTIC RESOURCE COSTS FOR MAJOR AGRICULTURAL PRODUCTS, AGROPROCESSING AND MANUFACTURING

<table>
<thead>
<tr>
<th>Sector</th>
<th>DRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture a/</strong></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>6.3-6.9</td>
</tr>
<tr>
<td>Copra</td>
<td>5.9-6.2</td>
</tr>
<tr>
<td>Cotton</td>
<td>7.2</td>
</tr>
<tr>
<td>Logs</td>
<td>3.4-5.5</td>
</tr>
<tr>
<td><strong>Agroprocessing b/</strong></td>
<td></td>
</tr>
<tr>
<td>Meat products (uncanned)</td>
<td>9.4</td>
</tr>
<tr>
<td>Dairy products</td>
<td>18.1</td>
</tr>
<tr>
<td>Canned fruits and vegetables</td>
<td>10.3</td>
</tr>
<tr>
<td>Rice milling</td>
<td>9.9</td>
</tr>
<tr>
<td>Flour milling</td>
<td>26.0</td>
</tr>
<tr>
<td>Sugar milling and refining</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td></td>
</tr>
<tr>
<td>Textile mill products</td>
<td>12.2</td>
</tr>
<tr>
<td>Other textiles</td>
<td>8.2</td>
</tr>
<tr>
<td>Footwear</td>
<td>6.5</td>
</tr>
<tr>
<td>Paper products and containers</td>
<td>11.3</td>
</tr>
<tr>
<td>Tanning and leather finishing</td>
<td>9.6</td>
</tr>
<tr>
<td>Tires and inner tubes</td>
<td>9.9</td>
</tr>
<tr>
<td>Insecticides and agricultural chemicals</td>
<td>5.2</td>
</tr>
<tr>
<td>Petroleum refineries</td>
<td>9.0</td>
</tr>
<tr>
<td><strong>Average (all manufactures)</strong></td>
<td><strong>8.9</strong></td>
</tr>
</tbody>
</table>

---

**a/** For agriculture, DRGs are calculated from 1975 to 1981 when the shadow exchange rate is estimated to have fluctuated from 8.9 to 9.1.

**b/** For agroprocessing and manufacturing, DRGs are calculated for 1974 when the shadow exchange rate was 8.9.
result is that a series of ad hoc and internally inconsistent policies are often implemented to respond to transitory problems. While the problems may quickly pass, the policies tend to live on and proliferate although the original rationale for them has passed. Thus ad hoc policies are stacked onto ad hoc policies with none of them necessarily related to any notion of the longer term direction of agriculture. A plethora of unnecessary and counterproductive controls results. To be fair there is a genuine tension in public policy between short-term questions of food availability and security, and the implementation of incentives for the solution to these problems in the long run. But the inevitable trade-offs between these two aspects must be faced by those responsible for public policy toward agriculture. It is widely held that both time and the appropriate policy environment are required to sustain productivity increases. But reconciling this with the demands of urban populations for stable and often low food prices has proved difficult if not elusive.

A common response to the observation that short-run policy solutions are the modus operandi of agricultural ministries is that policymakers are so concerned with the everyday well-being of their sector and, in some cases, its survival, that they cannot afford the luxury of dreaming into the future. But this argument misses the point inasmuch as the future performance of agriculture and the need for future quick ad hoc solutions to emerging crises in agriculture is largely a function of those policies put in place now. Thus in order to minimize the need for "crisis management" type policies in the future it is important to create a policy environment now that fosters a healthy and orderly agricultural complex in the future.

A further reason for the absence of longer term policy formation is the frequent absence of personnel capable of providing the necessary support-
ing analysis or policy overview immediately below the level of senior management in the Ministry. Although expensive, it may be worthwhile to engage some expatriot expertise until the void can be filled locally. This is showing promise in some countries, such as the Philippines, where such a unit has been operating for some years.

A second organizational problem in agriculture is that it is usually the case that public decision-making in the food sector is decentralized among several ministries or agencies which often act independently of, and without consultation with, each other. As a result of this, a unified national plan for the sector proves elusive, the spillover effects of a policy decision from one agency on the policies of other agencies are not considered, and unintended side effects within the sector are not identified.

In Jamaica, for example, there are over 100 public entities dealing with agriculture, ranging from numerous divisions of the Ministry of Agriculture, through the parastatal marketing organizations, to the National Water Authority. No fewer than six ministries have responsibility for various parts of the agricultural complex. Likewise in the Philippines public decision-making in agriculture is divided between five ministries and an equal number of parastatal marketing agencies. The decentralized decision-making apparatus is not a problem as long as the areas of jurisdiction are independent. But that is not the case. Decisions made by one agency have implications that affect, directly or indirectly, aspects of agriculture beyond the obvious ones. Thus, decisions made by the irrigation authority on the pricing of water affect the demand for fertilizer, marketing policies that affect farmers' net returns influence the demand for farm inputs, and policies providing incentives to non-agriculture affect agriculture by increasing the competition for inputs common to both sectors. In brief, policymakers usually
do not think in a general equilibrium framework. It is, therefore, important that a mechanism be established such that those Ministries whose decisions affect agricultural performance — Agriculture, Finance, Industry, Natural Resources, Trade and Marketing, etc. — can collectively participate in the policy formation process.

Related to the ad hoc nature of policymaking in agriculture is the lack of definition of the objectives of agricultural policy and food policy. Too often governments cling to ambiguous, or operationally unworkable goals based on fashionable catch phrases. Thus, operationally empty phrases such as "food self-sufficiency" or "food security" have probably engendered more misguided effort in policy formation than they have produced beneficial results. In an operational context, what does "food self-sufficiency" mean? Every country can be self-sufficient in food merely by fiat, with prices and consumption of food adjusting to its autarkic level. More to the point, what is the value of self-sufficiency in food? At what cost is it worthwhile to achieve self-sufficiency? Is it useful or sensible to be self-sufficient in food when a country is dependent on imported inputs to produce its food? Too many of these questions are left unanswered in the policy debate of developing countries.

In the Philippines, for example, great efforts were made to ensure "self-sufficiency" in rice. Initially, domestic prices were above world levels but recently have been pretty much on a par with world prices. Production has expanded to such an extent that small quantities are exported and often large levels of stocks are held. While it appears that it may be cheaper to lower stocks by exporting more at one period and importing it at another, Philippine authorities maintain that they cannot do this because they have created such a sense of national prestige over being "self-sufficient"
that imports of rice, regardless of its economic wisdom, would be viewed as
failure to meet the "self-sufficiency" goal.

Similarly, support prices for cereals above border prices in Colombia
are justified on the nefarious grounds that the country "should have" some
measure of self-sufficiency in such basic items.

Likewise, the term "food security" has defied operational definition
and as a vague concept when used as a policy objective leaves too much room
for interpretation of its meaning by those who must operationalize it. Often
it is interpreted as meaning the holding of physical stocks of food. But
possibly better alternatives, such as earmarked foreign reserves and improved
transportation and distribution in the hinterlands that would provide an equal
level of food security at possibly lower cost, are not considered.

As a result of the overemphasis on food security and on domestic food
price stabilization, very large stocks are often held by official agencies.
There are at last two questions that need to be asked in this context. First,
why is it considered necessary for a government agency to hold stocks? That
is, how or why has the private market failed? Second, what is the optimum
level of stocks that should be held for "prudent food security" reasons?

The answer to the first question is that private stockholding has not
failed but is usually deemed inadequate by those who bear responsibility for
food availability. The incentive for private stockholding is based on the
expectation of future price increases. If governments fix prices at one level
throughout the season, there is no incentive for private stockholding. When
prices rise, if there is political pressure placed on stockholders who are
denounced as "hoarders, profiteers and speculators," then the incentive to
operate a private stock scheme is eroded.
The answer to the second question is that those agencies responsible for ensuring food supplies tend to "overstock" in the sense that conservative rules of thumb" are used to set stock levels, such as "60 days' supply of rice", rather than calculating acquisition and release prices, optimum levels considering the cost of holding stocks, and the probability of a crop shortfall, etc. The conservative stock management strategy stems from the asymmetry of consequences of incorrect stockholding. If stocks are too high, there is a relatively small cost (often hidden) in terms of forgone investment opportunities, physical storage costs, wastage, etc. But, if stocks are too low, governments may fall.

A somewhat different stocking problem exists for coffee in Colombia yet the outcome of overstocking still prevails. Coffee is a major agricultural activity in Colombia accounting for 31 percent of the value of agricultural output and 45 percent of total legal agricultural exports. Coffee exporters must deposit a certain share of their coffee exports with the National Coffee Fund. The share, which can vary several times a year, has ranged from 15 percent to 62 percent since 1979 and is used as a device to regulate exports. As a member of the International Coffee Organization, Colombia has an export quota based on two components: a fixed component decided by negotiation and a smaller variable component based on the share of Colombia coffee stocks to world stocks. Colombian coffee stocks have now accumulated to the equivalent of one year's exports. Such levels cannot be justified on efficiency grounds or to meet production shortfalls. They cannot even be justified in terms of increasing Colombia's coffee quota. Thobani (October 1983) has shown that current stock levels are approximately three times as large as the optimal level given the need to hold stocks for production shortfalls. The probable reason for holding such large stocks is
for negotiating purposes since Colombia can have a more credible threat to withdraw from the association if its stocks are large.

The common practice in developing countries of holding apparently excessive levels of stocks is a costly activity. As a first best, policies should be designed that allow more active participation of the private sector. As a second best, governments should more carefully calculate optimum public stock levels, decision rules for accumulation and release of stocks, and investigate alternatives to the physical storage of stocks.

Pan Pricing

Usually associated with administered prices for agricultural products is the insistence on pan-seasonal and pan-territorial pricing of commodities. The practice of maintaining identical prices across time and place distorts production patterns, eliminates any incentive for private stockholding, and guarantees that the government must bear the cost of storage. If the nominal value of a sack of rice is the same at harvest as it is 6 months later, then farmers correctly want to sell all their marketable surplus at harvest rather than later. This places a financial, administrative and physical burden on the parastatal responsible for the product. If prices are to be controlled, then they should increase seasonally from harvest to the onset of the next harvest at a rate determined by the cost of storage. In a similar way pan-territorial pricing -- the setting of constant acquisition prices of farm products throughout the entire country by a government or parastatal -- removes the locational comparative advantage enjoyed by farms close to the market. By so doing the distribution, location and intensity of production are sub-optimal and an efficiency loss is incurred by the economy.
Fertilizer Policy

A final area where government intervention has consistently led to misallocation of resources is in the area of fertilizer policy. Many countries have mismanaged fertilizer policy so that attempts to be "self-sufficient" in fertilizer have resulted in farmers paying above world prices for this critical input. While it has long been the case that imports of fertilizer were taxed in order to foster domestic fertilizer manufacturing and compounding industries, it is only since the oil/commodity price boom of 1973 that more restrictive and detrimental policies have been put in place. In the Philippines, for example, the fertilizer marketing system is regulated by the Fertilizer and Pesticide Authority (FPA), created in 1973. Initially prices were held down by allowing tax free imports of finished fertilizer and raw materials, and by cash subsidies for losses incurred by domestic producers due to price controls. But later implicit subsidies to domestic producers were not removed. The FPA permits imports of fertilizer by five firms to supplement domestic production to satisfy domestic demand at the official prices. Three of five firms also produce fertilizer. It has been reported that because of administered imports and prices of fertilizer farmers have paid a premium of approximately 10% over the border price in recent years (David and Balisacan). But the policy has not resulted in a uniform implicit tax across all types of fertilizer. For example, in 1982 mixed fertilizer received a small subsidy, urea was priced slightly above world price, ammonium sulphate was 27% higher than world price and muriate of potash (used on sugar and other export crops) was 86% higher than world prices. The domestic fertilizer industry has received protection averaging 80% over the last decade as a result of its duty free privilege to import fertilizer and its raw ingredients in an environment of controlled finished fertilizer
prices. Given this environment, there has been little incentive to modernize and upgrade the three fertilizer plants built over 20 years ago using what is now very dated technology.

**Conclusions**

A great deal of knowledge has been accumulated from actual development experience and empirical research under a wide range of economic and social conditions over the last decade. While there remains a sharp debate on some issues, there has been a strong convergence of opinion on several major aspects of agricultural trade and development. This essay has endeavored to demonstrate the major role played by public policy, both domestic and international, in this respect. With respect to public policy towards agriculture, several common shortcomings are apparent and several robust policy directions can be suggested.

First, the predominance and pervasiveness of government intervention in the free interplay of markets is striking. There appears to be a deep distrust in or lack of tolerance for market mechanisms. The free market is seen as a dangerous Gulliver that must be tied down by numerous threads of control. This approach gives rise to dirigistic solutions that are cumbersome to administer and costly to the nation (in terms of both pecuniary costs and efficiency losses). The common practice of political price setting (or administered prices) implies a redistribution of wealth. Typically the redistribution is from rural producers to the more politically powerful urban consumers. But given the position from which many developing countries begin, the important issue is improving producer incentives while perhaps targeting programs at particularly low income households. While this does present a policy dilemma, there is a need to reconcile the interests of producers and consumers. Too often consumer interests are weighted too heavily. Policy-
makers are well advised to bear in mind that the price paid for cheap food today is food import dependence and a lethargic agricultural performance tomorrow.

There is increasing agreement among planners that if prices are to be administered, they should be related to the international opportunity cost of the product. That is, international prices should provide the standard against which domestic prices are set. This does not necessarily imply that prices should change daily but that over the years, there should be a correspondence between domestic and international prices.

A further clear requirement for a vigorous agriculture is the need for a modern pricing policy for inputs. With the increasing use of off-farm inputs as agriculture develops, so the need for a modern pricing policy for those inputs increases. This not only means pricing fertilizer, farm chemicals, tractors, etc. at their international opportunity cost but it also means abstaining from protecting, via trade barriers, domestic industries that may never become competitive but which bid inputs away from agriculture. With the increasing adoption of new technology -- the high yield varieties -- the use of complementary modern inputs becomes more essential. To deny or restrict their optimal usage by the wrong pricing policy has a proportionately larger negative effect on agricultural output than when traditional varieties were grown.

It is increasingly apparent that different sectors of the economy need to be treated more equally in order to optimize resource allocation across sectors. Implicit taxation of agriculture and implicit or explicit subsidies for manufacturing and agro-processing through commercial policies need to be minimized if not eliminated. A realistic exchange rate policy must also accompany this. The implicit taxation of agriculture through an over-
valued exchange rate appears to be the single most powerful disincentive in agriculture in nearly all of the developing countries examined. Farmers need incentives to adopt new technology and to expand production. Pricing policies that reflect international opportunity costs provide the best guide to resource allocation and investment decisions. In short, more outward looking and open policies are required.

Establishing such an environment from the status quo requires a strong national commitment and broad agreement on common goals. This necessarily means that, in most cases, the compartmentalized policymaking structure within Ministries is inappropriate to solve such complex and interlocking problems. A strong centralized office that can orchestrate the coordination of policies and the cooperation of competing Ministries is needed. Further, the timing of such changes is important to their success or failure. The timing of major policy realignments is particularly appropriate at the current time as many of the countries surveyed here have little choice but to undertake reforms brought on, in part, by the fiscal crises they face. The most should be made of such opportunities.
BIBLIOGRAPHY


