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WORLD BANK DISCUSSION PAPER NO. 346

Africa Technical Department Series

Structural Aspects of Manufacturing in Sub-Saharan Africa

*Findings from a Seven Country
Enterprise Survey*

*Tyler Biggs
Pradeep Srivastava*

*The World Bank
Washington, D.C.*

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Foreword

Structural adjustment efforts in Africa are showing that, although macro-level economic reform is essential for private sector growth, it is not enough. There are enterprise-level constraints that inhibit the growth of existing firms and impede the entry of new ones. A major activity of the Africa Technical Department is the Regional Program on Enterprise Development (RPED), a research program designed to get a better grasp of the constraints that inhibit enterprise development in Africa, and to make recommendations to ease these constraints.

The RPED investigates these issues in three ways. First, it collects survey data from a panel of 200 large and small manufacturing firms in each of the following countries: Burundi, Cameroon, Côte d'Ivoire, Ghana, Kenya, Tanzania, Zambia and Zimbabwe. These interviews are conducted each year for three years and focus on four manufacturing sectors: textiles and garments, food processing, wood working and metal working. Survey questions seek general information on the firm and on issues relating to technology, labor, financial markets, conflict resolution, infrastructure, regulation and the use of business support services. Second, the program uses a series of case studies to make a deeper inquiry into certain aspects of the research agenda, such as finance, technology and business strategy. These case studies are selected from a stratified sub-sample of the panel firms and complement quantitative information gathered in the broader survey exercise. The third component of RPED involves cross-country studies as well as studies of issues related to firm dynamics over time. The latter studies are based on the longitudinal panel data spanning three years in each country.

Structural Aspects of Manufacturing Enterprise Growth in Sub-Saharan Africa: A Summary of Findings from RPED Surveys is the first attempt to present a summary of some of the more important findings and issues emanating from the RPED surveys and case studies. The range of topics covered by RPED surveys includes many aspects of African enterprise growth. In this summary report, we have chosen to focus on results pertaining to six key issues which we feel are particularly policy relevant: (i) enterprise finance; (ii) technical efficiency of African firms; (iii) structure of wages in African manufacturing; (iv) impact of regulations; (v) dynamics of enterprise growth in manufacturing; and (vi) Africa's competitive position in world markets. The findings presented in this paper are based on data from the first round of field surveys in Burundi, Cameroon, Ghana, Kenya, Tanzania, Zambia and Zimbabwe. Results from the second and third rounds of surveys will be analyzed in future reports.



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Abstract

This study is an assessment of the findings from the Regional Program on Enterprise Development's (RPED) first round of firm-level surveys in Burundi, Cameroon, Ghana, Kenya, Tanzania, Zambia and Zimbabwe. These surveys cover a wide range of issues including entrepreneurship, labor markets, technological capabilities, financial markets, infrastructure, regulation and conflict resolution mechanisms. This paper focuses on the analysis of credit and financial markets, technical productivity of African manufacturing enterprises, labor markets, firm growth, the effect of regulations and Africa's competitive position in world markets and constraints to exports.

Acknowledgments

This study, one of the Regional Program on Enterprise Development's (RPED), was sponsored by the Africa Technical Department, Private Sector Development and Economics Division, and a group of bilateral donors: The Belgian Administration for Development Cooperation, Canadian International Development Agency, Danish International Development Agency, Finnish International Development Agency, French Ministry of Cooperation and Development, French Ministry of Foreign Affairs, German Federal Ministry for Economic Cooperation and Development, Italian Ministry of Foreign Affairs, Netherlands Ministry of Foreign Affairs, Norwegian Agency for Development Cooperation, Swiss Development Cooperation, Swedish International Enterprise Development Cooperation and the Overseas Development Administration of the United Kingdom.

1. Introduction

Sub-Saharan African economies have undergone varying degrees of structural adjustment reforms since the early 1980s. These policy reforms have been premised on the twin pillars of free markets and sound money. The latter consists primarily of fiscal austerity to balance the aggregate budget and a realistically valued exchange rate. The emphasis on free markets, on the other hand, has taken the form of trade liberalization and elimination of government controls on relative prices within the economy as well as privatization of state-owned enterprises.

Expectations about the effects of these reforms were based on the neoclassical assumption that supply elasticities are relatively high and, therefore, improvements in price incentives and free markets would elicit a speedy and sizable response in investment and output. Unfortunately, the growth impact of these policies has been much lower than expected. In particular, the supply response of the manufacturing sector, especially manufactured exports, has been uniformly inelastic in almost all Sub-Saharan economies.

The problem of inadequate growth resulting from policy reforms in Sub-Saharan Africa has led to several types of responses. Some analysts argue that the structural adjustment policies themselves are part of the problem. Others think the reforms have not been implemented or not gone far enough or deep enough; the solution to the malaise is, therefore, stronger doses of the same medicine. A third response has come from those who emphasize that the neoclassical assumption of high supply elasticities, which formed the basis for the expectation that structural adjustment would elicit a speedy and sizable response in investment and output, is severely flawed in Africa. They argue that there are many structural aspects of African economies, like low skill levels, severe market imperfections, and inadequate infrastructure, which taken together firmly constrain short to medium-run supply elasticities. Finally, there are those who question the intellectual relationship between structural adjustment policies (which have become known as the “Washington consensus”) and economic growth.¹

We take a middle-of-the-road approach to the problem in the research summarized in this volume. It is clear that structural adjustment reforms are in the right direction and have produced some real gains. Evidence the fact that per capita GDP is rising again in many reform countries after more than a decade of real decline. It is also true that there are further gains to be achieved by more fully implementing these policies. However, it is increasingly recognized that the existing policy reforms are not necessarily adequate to spur rapid economic growth in these countries. A number of structural factors, such as microeconomic constraints affecting the efficiency of free markets, problems of low literacy and inadequate human capital, antiquated

¹ Krugman (1995); Lucas (1993).

infrastructure, laws and regulations that do not guarantee fair commerce due to problems of contract enforcement, and so on, are all equally important variables in a successful quest for sustained economic growth. The Regional Program on Enterprise Development (RPED) is designed to increase our understanding of such microeconomic constraints on the growth and development of manufacturing enterprises in Sub-Saharan Africa.

The RPED seeks to do this in three ways. The first is to collect and analyze firm-level panel data over a three year period from a sample of 200 firms in each of the following countries: Burundi, Cameroon, Côte d'Ivoire, Ghana, Kenya, Tanzania, Zambia, and Zimbabwe. RPED focuses on four manufacturing sectors: textiles and garments, food processing, wood working, and metal working. These are all early stage sectors which have historically been leaders in industrial development in most countries. Together, these sectors account for a substantial component (in most cases 60 to 70 percent) of manufacturing value added and employment in the economies of Sub-Saharan Africa. The second component of the RPED program is a series of in-depth case studies focusing on three specific areas of the research agenda, namely, finance, technological capability, and business strategy. The case studies utilize a selection of sample enterprises chosen from the larger panel and supplemented by interviews with other firms not included in the panel, as well as various institutions. Furthermore, the case studies are not limited to RPED countries. Indeed, one of their purposes is to provide comparative analyses, bringing in the experiences of more successful economies. Finally, the third component of RPED involves cross-country studies as well as issues related to firm dynamics over time. The latter will be based on the longitudinal panel data spanning three years in each country.

This paper presents a brief summary of the findings and issues emanating from the RPED Round I surveys which are now complete in all the countries. In addition, the discussion presented here also incorporates some of the themes and findings presented in eight RPED case studies.² The Round II surveys of RPED are complete; however, these results are not available for all the countries. Consequently, this paper does not include our country findings from the second round of surveys. The fieldwork for the final round of surveys began in June 1995 and analysis of the results is ongoing.

In organizing the materials presented in this paper, we have had to be selective. The range of subjects covered by RPED surveys is wide, consisting of issues such as entrepreneurship, labor markets, technological capabilities, financial markets, infrastructure, regulation, and conflict resolution mechanisms. Discussion of issues in each of these areas would be an extremely large enterprise. Consequently, we have decided to focus on six sets of issues in this paper. First, we chose the analysis of credit and financial markets since it is perceived as one of the major constraints to the growth of manufacturing enterprises in Africa, particularly the small and medium firms.

² The nine case studies completed are listed in the Appendix.

Furthermore, the completed case studies in finance provide a wealth of material that may interest researchers and policy makers alike. Similar considerations prompted the choice of issues related to firm and national technological capabilities. Technical productivity of African manufacturing enterprises has been a relatively neglected but important issue in previous analyses of firm growth in these countries. In addition, three detailed case studies of technological capabilities and firm productivity have also been completed. The other four subjects included in this paper are labor markets, regulation, firm growth, and export constraints. Regulation is of obvious interest to policy makers given that excessive interventions in the economy were the focus of wide-ranging policy reforms in most of these Sub-Saharan African economies. The extent to which firms perceive regulations as constraining their operations and potential growth, as well as the specific regulations that “bite” more than others, are of considerable policy interest. Finally, the discussion on firm growth focuses on the basic issues of which firms grow in these economies and why. Again, in evaluating the impact of structural adjustment programs in Africa, this discussion will be of significant interest.

This choice of subjects leaves out a number of interesting and useful areas covered by RPED from the scope of the present paper. In particular, we can mention five of them that constitute important elements of the RPED research program: (i) the nature and determinants of entrepreneurship; (ii) the impact of infrastructure on firm operations and growth; (iii) the analysis of business strategy; (iv) evaluation of competition policy and its impact on growth; and (v) the determinants of investment in the surveyed countries. Some of these areas may be covered in separate papers in the immediate future.

It is worth noting that different country research teams have focused on different issues in each country according to the immediate economic conditions prevailing. Even within specific areas discussed in this report, different country research teams have emphasized diverse questions, although there are also a number of themes common across all the countries. Consequently, we have organized our presentation not in terms of specific countries, but according to these general themes that were of policy interest across most of the surveyed countries.

The organization of the paper is as follows. The next chapter presents a discussion of the financial sector and enterprise finance in manufacturing firms. Chapter 3 contains a discussion of technological capabilities and learning mechanisms in the surveyed countries. The structure of wages in African manufacturing is analyzed in Chapter 4, while Chapter 5 presents a discussion evaluating the impact of regulation in Africa. In Chapter 6 we present a discussion of the dynamics of enterprise growth in African manufacturing and its impact on employment in these countries. Finally, in Chapter 7 we discuss Africa’s competitive position in world markets and constraints to exports.

2. Financial Sector and Enterprise Finance

Well-functioning capital markets are at the heart of a well-functioning capitalist economy. Interestingly, the better that financial markets work in an economy, the more they can be ignored as having no 'real' consequences. The most extreme instances of such well-functioning markets are found in the Arrow-Debreu type formulation of perfect markets and complete information. In such world with zero transaction costs and perfectly and costlessly enforced contracts, there is no need for financial intermediaries: resources are allocated efficiently, risks are shared optimally, and the real decisions of firms (such as investment) are de-coupled from their financial structure. The same holds true of many neoclassical macroeconomic models in which money is just a 'veil' with no consequences for investment, production, and other activities on the real side of the economy.

Unfortunately, such instances of well-functioning financial markets are not often found in the real world. Of all the markets in the economy, financial markets are perhaps the most complicated, involving as they do intertemporal trades wherein money today is exchanged for promises of money tomorrow. Even in the industrialized countries with relatively well-developed financial markets, market imperfections are a norm. Financial markets in African economies are likely to embody even greater imperfections, both in terms of numbers as well as intensity of any type of imperfection. Imperfections in financial markets can be traced to problems of limited information, limited communication, and weak contract enforcement mechanisms. Each of these deficiencies creates "friction" in the financial markets, leading to virtual absence of some markets (such as insurance, futures, etc.) and limited access and other allocative distortions in others. Information and enforcement problems generate frictions by raising the costs of financial transactions and acting as barriers to trade. In the market for debt, for example, imperfect information leads to screening costs to distinguish borrowers and monitoring costs to increase the probability of repayment. These frictions and the resulting barriers to trade between borrowers and lenders influences the markets' ability to supply credit and diversify or insure risks.

In the presence of financial market imperfections, the simplified abstractions of perfect and complete financial markets (which in effect assume away the financial sector) do not hold true. As recent theoretical developments have documented, once financial market imperfections are acknowledged, the resulting picture is a lot more complex: the types of financial intermediaries existing in the economy, the specific types of financial contracts used by individuals and firms, and the net worth of borrowers (as well as its composition and distribution), all affect the way capital is allocated in the economy.³

³ Bardhan (1989) contains numerous relevant references.

RPED's research program for the analysis of financial markets and firm financing in Africa has generated detailed information about a wide range of financial transactions undertaken by the cross-section of firms. In addition, financial case studies have also been undertaken in three countries — Ghana, Kenya and Zimbabwe — to probe into a number of qualitative issues, such as the types of contracts, flexibility in contractual arrangements, the nature of information flows among borrowers and lenders, and other such aspects of financial-market transactions identified as important by the growing body of recent theoretical developments often labeled as the New Institutional Economics. The information from three rounds of the large-scale surveys and the three case studies will be used to analyze a comprehensive set of issues including, for example, patterns of enterprise finance; relative comparisons with other countries in the world to evaluate the extent (if any) to which African economies are different; the relative importance of various sources and uses of funds on the part of enterprises; determinants of access of firms to specific sources of finance; the nature and extent of market imperfections in financial markets; assessing the incidence and determinants of credit rationing in markets for debt; and, the nature and role of non-market institutions ameliorating barriers to trade in financial markets. This is a hefty agenda by any measure, and a considerable amount of research will be carried out in the near future. In what follows, however, some findings from preliminary analyses of the survey data are highlighted.

Finance Matters

An important research objective of RPED is to evaluate the extent to which finance matters — that is, is availability of finance, in fact, important in determining real variables? Although it is widely believed that finance is an important constraining variable, especially in the context of small and microenterprises in African economies, there is very little systematic evidence on this issue. Findings emanating from different RPED studies suggest that the answer to this question is positively affirmative, that access to finance has important effects on real variables.

- Econometric analysis of firms in Kenya and Zimbabwe shows access to external and internal funds has a significant impact on firm investment behavior. In Kenya, for example, the probability of firm investment is explained by two variables that denote greater access to external funds: (i) firms that have received a bank loan at least once in the five preceding years and (ii) firm size (larger firms have greater access to external finance).⁴ Furthermore, for smaller firms, which tend to receive little formal credit, internal funds are also seen to be important in determining the likelihood of firm investment. Similar analysis of firm investment in Zimbabwe also shows internal funds to be important determinants of the likelihood of investment.⁵

⁴ See Biggs, Conning, Fafchamps and Srivastava (1995).

⁵ See Gunning and Mumbengegwi (1995).

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- Another RPED study using cross country data from Ghana, Kenya and Zimbabwe finds that access to short-term working capital increases value added in firms by as much as 40 percent, (Biggs, Shah and Srivastava [1995a]). The study also finds that access to longer-term capital, such as term loans from banks, has an insignificant effect on firm productivity. Thus, in contrast to the conventional emphasis in development finance on long-term financing for fixed-capital acquisition, these results highlight the importance of short-term financing for manufacturing performance.
 - More detailed probing by finance case studies further confirms the importance of access to credit for firm behavior. Thus, almost a third of the firms in the Kenyan case study reported being at least once in a situation where they were unable to undertake a profitable investment due to lack of funds.
 - The willingness of firms to invest is also likely to be affected by their perceived ability to deal with future liquidity shocks, which are proportional to the size of the firm's operations. In response to the question what strategies they would employ to avoid liquidity problems, almost two-thirds of all firms in Kenya said they would limit the size of the firm and cut down the scale of production. Firms, thus, view liquidity problems as manifestations of their overextending themselves relative to their financial resources.
 - Finally, RPED surveys also collected constraint scores from firms, asking them to rank the most important factors constraining their business as a whole. The responses of entrepreneurs show that in almost all countries lack of credit ranks highest as a constraining factor, with smaller firms more likely to rank credit as a problem than larger firms.

An obvious implication of these findings is that policies enhancing access to finance can have a strong, positive impact on the real performance of manufacturing firms in the economy.

Structure of Formal Firm Financing in Africa

The structure of formal firm financing in Africa is fairly similar to that in other countries of the world. This is perhaps not surprising given the fact that formal financial institutions, especially banks, have similar structure, organization, and rules of operation across different countries.

For all firms taken together, formal credit is quantitatively the most important source of external finance: on average, outstanding bank loans constitute 10-22 percent of firms' annual sales (Table 2.1) while overdrafts comprise another 10-15 percent of total sales (Table 2.2). However, in all countries surveyed, access to formal finance is strongly related to firm size. As seen in Tables 2.1 and 2.2, almost two-thirds of the

large firms (defined as having more than 100 employees) in all RPED countries report having received a bank loan at least once in the past 5 years while, in contrast, less than a fifth of microenterprises (less than 10 employees) report such loans. Similarly, almost all large firms and most medium-sized firms in all countries show access to bank overdraft facilities. In comparison, the proportion of microenterprises with overdraft facilities ranges from 6-25 percent across different countries. In addition, larger firms also pay lower rates of interest than smaller firms. It should be noted that the existence of a strong relationship between financial access and firm size is clearly a reflection of imperfections in the financial markets.

Table 2.1

Distribution and Importance of Bank Loans by Country Firm Size

(Percent of firms receiving a bank loan at least once in the past 5 years, and outstanding bank loans as a percentage of total annual sales)

| Country | Size | | | | Average for All Firms |
|----------------------|-------|-------|--------|-------|-----------------------------|
| | Micro | Small | Medium | Large | |
| Cameroon | | | | | |
| • % of firms | 31 | 49 | 48 | 85 | |
| • Loan as % of sales | 17 | 27 | 25 | 15 | 22 |
| Kenya | | | | | |
| • % of firms | 16 | 46 | 68 | 66 | |
| • Loan as % of sales | 14 | 14 | 10 | 18 | 14 |
| Tanzania | | | | | |
| • % of firms | 12 | 20 | 25 | 47 | |
| • Loan as % of sales | 4 | 7 | 2 | 19 | 10 |
| Zimbabwe | | | | | |
| • % of firms | 20 | 32 | 53 | 62 | |
| • Loan as % of sales | 4 | 27 | 18 | 8 | 11 |
| Zambia | | | | | |
| • % of firms | 12 | 27 | 37 | 63 | |
| • Loan as % of sales | n.a. | n.a. | n.a. | n.a. | n.a. |

Source: RPED Surveys, 1993

Table 2.2
Distribution and Importance of Bank Overdrafts by Country and Firm Size
(Percent of firms with access to overdraft facilities, and outstanding overdrafts as a percentage of total annual sales)

| Country | Size | | | | Average for All Firms |
|----------------------------|-------|-------|--------|-------|-----------------------------|
| | Micro | Small | Medium | Large | |
| Cameroon | | | | | |
| • % of firms | 14 | 58 | 76 | 96 | |
| • Overdrafts as % of sales | 8 | 10 | 8 | 7 | 9 |
| Kenya | | | | | |
| • % of firms | 23 | 78 | 90 | 90 | |
| • Overdrafts as % of sales | 21 | 12 | 10 | 13 | 13 |
| Tanzania | | | | | |
| • % of firms | 8 | 18 | 32 | 75 | |
| • Overdrafts as % of sales | 7 | 15 | 7 | 18 | 15 |
| Zimbabwe | | | | | |
| • % of firms | 25 | 50 | 83 | 90 | |
| • Overdrafts as % of sales | 20 | 4 | 10 | 11 | 10 |
| Zambia | | | | | |
| • % of firms | 6 | 27 | 60 | 92 | |
| • Overdrafts as % of sales | n.a. | n.a. | n.a. | n.a. | n.a. |

Source: RPED Surveys, 1993

The banking sector in most surveyed countries is oligopolistic with a handful of banks dominating the total deposit base. Structural adjustment reforms and interest rate liberalization have led to high rates of interest in all countries, fed by attempts by governments to move from monetizing deficits to borrowing in the credit markets. This crowding out by government borrowing has severely reduced the aggregate flow of credit to the private sector. Two additional aspects of formal firm financing in RPED survey data are also noteworthy from a policy perspective.

First, all formal loans and overdrafts are against collateral, and the size of the collateral is many times the value of the loans or overdraft ceilings. In Kenya, for example, the average ratio of collateral to debt equals 6 for all firms taken together while in Zimbabwe, the mean ratio is almost 4. The high ratios of collateral to debt coexist with virtually complete absence of developed secondary markets for collateralizable assets, such as machinery and equipment, implying that land is the overwhelming choice for collateralization. There are well-known problems in the use of land as a collateral in Sub-Saharan economies due to the nature of property rights in

land. Furthermore, due to the relatively recent attaining of independence in these countries and restrictions on land ownership (by indigenous Africans) prior to that, a large proportion of households and families have not yet developed equity in collateralizable real estate. Given these constraints, high collateral-debt ratios are a greater impediment to the expansion of formal bank lending in these countries than elsewhere.

Second, the maturity of most bank instruments in the surveyed countries is relatively short. There is a virtual absence of medium to long-term debt instruments in most of the countries, except Cameroon, where the largest firms have an average maturity for loans of 5 years. As seen in Table 2.3, the average debt maturity in the other countries is significantly less, ranging from 1 to 3 years.

Table 2.3:
Average Maturity of Bank Debt by Country and Firm Size
(Number of months)

| Country | Size | | | |
|----------|-------|-------|--------|-------|
| | Micro | Small | Medium | Large |
| Cameroon | 25 | 36 | 55 | 60 |
| Ghana | – | 24 | 23 | 37 |
| Kenya | 28 | 35 | 25 | 38 |
| Tanzania | 13 | 20 | 12 | 12 |
| Zimbabwe | 11 | 17 | 40 | 47 |

Source: RPED Surveys, 1993

By itself, the absence of long-term debt instruments in the financial spectrum is likely to adversely affect acquisition of fixed assets by manufacturing firms. However, it is also possible that banks and firms may be adapting contractual arrangements to get around this gap. In particular, short-term debts that are implicitly understood by both borrowers and lenders as likely to be rolled over may provide lenders additional control over borrowers' actions. For example, firms may use overdrafts for financing fixed-capital acquisition without being penalized by their bank. The RPED surveys show that such practices vary across countries. In Zimbabwe, for instance, banks claim to routinely scrutinize large transactions to ensure no hard core debt develops on overdraft accounts; they are particularly averse to the propensity of some borrowers to attempt converting parts of the overdraft into de facto loans. In Ghana, by contrast, use of overdrafts to acquire fixed assets seems relatively easier, especially for the large firms. The extent to which absence of explicit, long-term contracts has an impact on real investment by firms is empirically an open question.

Unimportance of Informal Credit Mechanisms

The RPED data regarding informal financial mechanisms in African economies reveal three important findings. First, the surveys show that informal credit is

relatively unimportant as a source of external funds for the manufacturing firms. Second, contrary to popular perceptions, rotating savings and credit associations (RoSCAs, such as *susus*) are even less significant, indeed, virtually absent, as sources of funds for manufacturing firms. Last, informal financial markets and institutions catering to the manufacturing sector appear quantitatively small and qualitatively less sophisticated when compared to other developing economies, particularly in Asia.

Table 2.4 below shows clearly that, both in terms of the proportion of firms accessing informal credit as well as in terms of its value relative to firms' sales, informal credit plays a relatively small role for these manufacturing firms. As may be expected, large firms show little informal borrowing, and its incidence increases as firm size decreases. However, excluding Cameroon, even among microenterprises, less than a quarter of firms in each country show any informal borrowing over the three-year period preceding the surveys. Similarly, outstanding informal loans to firms constitute less than 1 percent of sales in all countries except Cameroon.

Regarding RoSCAs, RPED data show that rotating credit and savings societies play virtually no role as a source of loans in all the countries except Cameroon. Furthermore, even their role in mobilizing savings is quite limited when looking at manufacturing firms in these economies. Participation in RoSCAs is confined primarily to microenterprises. However, as seen in Table 2.5 below, the proportion of microenterprises (i.e., firms employing fewer than 10 workers) participating in RoSCAs is quite small in all countries except Cameroon. Table 2.5 shows that microenterprises constituted more than one-third of the total RPED sample in all countries except Zimbabwe which has relatively more large firms. It should also be noted that an overwhelming majority of these microenterprises are unincorporated, household firms.

These results are in striking contrast to other studies that have perceived RoSCAs as the informal credit mechanism in African economies. A major reason behind this contrast may be differences in the sample utilized. Studies that have found a significant role of RoSCAs have primarily focused on individuals involved in petty trading activities. In contrast, RPED's sample consists exclusively of manufacturing firms. These results make clear that if the policy objective is to enhance the contribution of financial sector to manufacturing firms in the economy, *susus* and other such informal associations have a negligible role to play, at least in their present form.

Table 2.4

Distribution and Importance of Informal Borrowing by Country and Firm Size
(Percent of firms with informal loans in past 3 years, and outstanding loans as a percentage of total annual sales)

| Country | Size | | | | Average for All Firms |
|--------------------------------|-------|-------|--------|-------|--------------------------------|
| | Micro | Small | Medium | Large | |
| Cameroon | | | | | |
| • % of firms | 52 | 35 | 20 | 0 | |
| • Informal loans as % of sales | 3 | 3 | 0.2 | 0 | 2 |
| Ghana | | | | | |
| • % of firms | 26 | 18 | 8 | 5 | |
| • Informal loans as % of sales | 0 | 1 | 0 | 0 | 0.2 |
| Kenya | | | | | |
| • % of firms | 18 | 20 | 15 | 4 | |
| • Informal loans as % of sales | 1 | 1 | 0 | 0 | .4 |
| Tanzania | | | | | |
| • % of firms | 16 | 12 | 19 | 0 | |
| • Informal loans as % of sales | 0.2 | 1 | 1 | 0 | 0.5 |
| Zimbabwe^a | | | | | |
| • % of firms | 6 | 27 | 60 | 92 | |
| • Informal loans as % of sales | n.a. | n.a. | n.a. | n.a. | n.a. |

^aThe high figure for informal borrowing among large firms in Zimbabwe mostly reflects a transfer of funds across different businesses within the same holding companies.

Source: RPED Surveys, 1993

Table 2.5

Participation of Microenterprises in Rotating Savings and Credit Associations

| Country | Percent of Microenterprises Participating | Microenterprises as Percent of RPED Sample |
|----------|--|---|
| Cameroon | 45 | 40 |
| Ghana | 6 | 39 |
| Kenya | 19 | 43 |
| Tanzania | 1 | 43 |
| Zambia | 4 | 35 |
| Zimbabwe | 15 | 25 |

Source: RPED Surveys, 1993

Finally, the RPED surveys, as well as the case studies, suggest that the informal financial markets in most of these countries are not as deep or active as those found, for example, in many Asian countries. Most informal borrowing is from relatives, is without any interest charges, and is not institutionalized — in the sense of the presence of specialized individuals or firms making markets, quoting prices, and intermediating funds.⁶

Importance of Trade Credit in Sub-Saharan Africa

One of the more striking findings emanating from the RPED surveys is the pervasive presence of **trade credit** transactions among firms. Although the existence of trade credit in Sub-Saharan economies has been noted before, the RPED surveys provide for the first time rich details, allowing a rigorous evaluation of the nature of trade credit arrangements in these countries. RPED's findings on the quantitative significance of trade credit and its institutional arrangements can be important inputs into new policy initiatives aimed at enhancing financial intermediation in these economies.

For an individual firm, trade credit consists of four elements: (a) the reception of goods and services on the understanding that payment is to be made later ("accounts payable"); (b) the shipment of goods and services to clients, on the understanding that payment is to be made later ("accounts receivable"); (c) the prepayment to suppliers for goods and services to be received later (advances to suppliers); and (d) the reception of prepayments from clients for goods and services to be supplied later (advances from customers). Trade credit constitutes a substantial part of short-term financing for most companies in industrialized countries, but prepayments, in the form of (c) and (d), are relatively insignificant.

The quantitative significance of trade credit is revealed by the observation in most countries, that total trade credit received (equaling credit from suppliers and prepayments from customers) ranges from 3-7 percent of total annual sales (Table 2.6). Trade credit, thus, constitutes a third to one half the value of overdrafts obtained by firms from formal banks, and many times the contribution of other informal loans.

In addition to receiving trade credit, firms also grant trade credit in the form of sales on credit or prepayments to suppliers for goods to be received in future. Firms may grant trade credit for a transactions motive, i.e., to reduce the joint costs to buyer and seller of holding resources idle if there is uncertainty in the timing of arrival of goods; or they may grant trade credit for a sales promotion motive; or, due to a financial motive whereby larger firms with greater access to external sources of funds on-lend to smaller firms at a higher cost. Sales promotion appears to be the primary

⁶ Biggs, Raturi and Srivastava (1996). Urban informal credit markets in India, for example, are characterized by indigenous bankers who accept deposits and make loans, by intermediaries who syndicate large loans, and by discounting of indigenous bills, (Timberg and Aiyar [1980], Srivastava [1994]).

motive for credit granted by the firms in the RPED surveys, (Cuevas, Fafchamps, Hanson, Moll and Srivastava [1993], and Biggs, Conning, Fafchamps and Srivastava [1995]).

Table 2.6
Distribution and Importance of Trade Credit Received by Country and Firm Size
(Percent of firms with positive credit balance, and outstanding credit received as a percentage of total annual sales)

| Country | Size | | | | Average for All Firms |
|------------------------------|-------|-------|--------|-------|--------------------------------|
| | Micro | Small | Medium | Large | |
| Cameroon | | | | | |
| • % of firms | 36 | 51 | 68 | 79 | |
| • Trade credit as % of sales | 2 | 5 | 10 | 11 | 7 |
| Ghana | | | | | |
| • % of firms | 37 | 53 | 33 | 60 | |
| • Trade credit as % of sales | 2 | 4 | 5 | 17 | 5 |
| Kenya | | | | | |
| • % of firms | 30 | 44 | 56 | 53 | |
| • Trade credit as % of sales | 2 | 5 | 6 | 10 | 5 |
| Tanzania | | | | | |
| • % of firms | 6 | 26 | 19 | 56 | |
| • Trade credit as % of sales | 0.3 | 5 | 2 | 6 | 3 |
| Zimbabwe^a | | | | | |
| • % of firms | 32 | 71 | 90 | 89 | |
| • Trade credit as % of sales | 1 | 4 | 6 | 8 | 5 |

Source: RPED Surveys, 1993

Note: Trade credit received = accounts payable + prepayments from customers

Furthermore, most of these firms are net providers of trade credit: the trade credit they receive is less than the credit granted by them. Except for the largest firms in Kenya and Ghana, almost all other size categories of firms in all countries provide more trade credit than they receive. This is a remarkable finding since the presumption is usually that the African firms are credit starved and would, therefore, be attempting to receive as much credit as possible, not providing it. The RPED survey data show that the same firms that are ranking access to credit as a major constraint are also often net grantors of credit. Of course, in principle, there is no reason why this should not be so: indeed, firms may seek more credit because they have to sell on credit for various reasons. Thus, a firm may seek access to credit not

just to finance fixed-capital acquisition or working capital for inputs, but also to finance its activities in the market for its output. Further exploration of these issues will be undertaken in RPED research in the near future. It is sufficient to note at this stage the extensive presence of trade credit given and received by a wide variety of firms which highlights the critical role trade credit can play in enhancing financial intermediation. Policies that broaden the access of firms to trade credit markets can thereby increase their access to external funds.

Unlike trade credit arrangements in industrialized countries, trade credit transactions in Sub-Saharan African economies show a virtual absence of standardized contracts. Although the duration of trade credit transactions seem to be relatively common across firms, ranging from 30-60 days in Kenya, Ghana and Zimbabwe, there are no cash discounts as a rule. Few firms receive discounts for purchasing on cash and equally few offer them.⁷

The duration of trade-credit contracts is often not strictly enforced. For example, almost all firms receiving supplier credit in Kenya experienced difficulties at some time or another in repaying as scheduled. On average, these firms estimated that they could delay repayment to suppliers approximately three times a year without incurring creditor sanctions. The firms also reported that repayment could be delayed up to a month without any problems. However, the frequency and length of feasible delays obviously depend upon the specifics of the relationship between the two parties as it has evolved over time. In the event of a delay, the most common practice is for the debtor to apprise the lender of difficulties and negotiate a rescheduling of payment. Although firms often decide unilaterally when to repay following a delay, a more common practice is for both parties to discuss mutual needs and attempt accommodation. It is quite likely, therefore, that the renegotiation process is affected by the liquidity needs of both the lender as well as the borrower.

Interlinkage of Trade Credit and Insurance

An important theme emerging from RPED research is the intimate link between trade (and other informal) credit and firms' ability to insure against some types of risks. A simple way to recognize the link between credit and insurance is to note that, in the absence of ex-ante insurance, individuals can cope with adverse shocks by borrowing ex-post. The contractual flexibility in credit arrangements noted above also enables firms to better cope with unanticipated, temporary shocks to their liquidity. Thus, as seen in Table 2.7 below, trade credit provides the major buffer in Kenyan firms' attempts at dealing with unexpected liquidity shocks: the most commonly cited strategy is to delay payments to suppliers.

⁷ By comparison, trade-credit contracts in industrialized countries are highly standardized within sectors, although varying across industry and product types. For example, a common formula in the US is 2/10, net 30, meaning that the buyer gets a 2 percent discount on payment within 10 days, failing which payment must be made in full within 30 days.

Table 2.7
Sources of Funds to Finance Shocks to Firm Liquidity in Kenya
(Multiple answers allowed)

| | <i>All Firms</i> | <i>Kenyan African</i> | <i>Kenyan Asian</i> |
|------------------|------------------|-----------------------|---------------------|
| Personal savings | 30% | 62% | 23% |
| Formal credit | 59% | 33% | 71% |
| Delay payables | 63% | 33% | 80% |
| Informal loan | 46% | 48% | 46% |
| Sell faster | 21% | 29% | 17% |
| Number of firms | 56 | 21 | 35% |

Source: RPED Kenya Case Study, 1995

Note that flexibility in trade credit operates like a double-edged sword: while providing the dominant buffer against shocks, it is also a major source of such liquidity shocks since problems in cash flow are typically triggered by delayed payments from customers. The flexibility in payments thus operates as a diffusion mechanism for specific shocks. Isolated events somewhere in the economy are passed on to upstream firms as they do not get paid, then possibly to other upstream or downstream firms as upstream firms request early payments from their customers and delay payment to their suppliers. Provided that the shock is not too large, it is better absorbed by the firms operating jointly, enhancing the ability of the system in managing idiosyncratic risks.

The close interaction between credit and insurance has numerous consequences for firm investment behavior and resource allocation in the economy. As is well known from the theory of interlinked markets, policy interventions in credit markets must also consider the resulting implications for risk exposure/management for the target groups. For example, a firm may avoid investing in equipment and technology even if it can get a loan from a bank or a donor organization to finance it because the rigid repayment obligations of the loan may put the firm at risk of insolvency due to illiquidity. Similarly, since many risks are positively related to firm size, entrepreneurs unable to self-insure against large risks may prefer to remain small and diversify their activities in whatever way they can, such as starting a new firm instead of expanding the existing one, or encouraging family members to engage in different lines of business instead of joining theirs, or even keeping a job as a government employee and restricting their labor and managerial input into the business. Finally, restricted ability to cope with risks due to inadequate access to credit and insurance mechanisms, can also affect the willingness of firms to risk experimenting with new technologies. In addition, firms may also reduce exposure to risk by choosing multi-purpose technologies that do not allow gains from specialization.

Financial Market Imperfections and Financing Small Firms

The manufacturing sector in most countries surveyed by RPED appears to be characterized by a well-defined pattern of credit flows. The larger firms have relatively easier access to formal bank credit in the form of both loans and overdrafts; smaller firms have correspondingly lower likelihood of access to bank credit. Trade credit, on the other hand, normally flows downstream, that is, from suppliers to customers, and is "irrigated" at various levels by overdraft facilities. To the extent large upstream firms have access to bank finance, trade credit intermediates funds, supplied by the formal banking sector, to smaller firms that may otherwise have insufficient direct access to bank credit. The flow of overdraft and trade credit is complemented by informal borrowing which, however, appears rather small quantitatively. At the lowest size levels, some small firms and microenterprises are locked out of the credit flows altogether, unable to access either bank credit or trade credit. In their case, supplier credit is occasionally replaced by advances from customers: credit flows are reversed and intermediation fails in general.

The observed patterns of credit flows, formal and informal, are manifestations of market imperfections arising from limited information, limited communication, and incomplete contract enforcement. Needless to say, government policies obviously can not banish informational problems from financial markets since these may be endemic to the nature of the products themselves. However, policy interventions for expanding the access of firms to external finance have to consider the specific causes acting as "barriers to trade" in financial markets. Some of the policy-related themes emphasized in RPED's research can be understood in terms of two broad categories: those that mitigate problems of limited information, and those that focus on enhancing contract enforceability. We should note, though, that this division is mostly heuristic, since the issues of information and enforcement are quite closely connected, and not always mutually exclusive.

A problem central to expanding the flow of informal finance in the economy, including trade credit, is inadequate enforceability of contracts. For example, firms in Kenya cited the risk of non-payment as the chief reason for not giving credit to their customers.⁸ Trade credit transactions, much like other informal credit mechanisms, are not enforced through the formal legal system. This is because of the high costs involved in the process relative to the debt amounts, extended delays, and uncertainty in outcome; furthermore, even when a judgment is rendered, there remains the problem of collection. Thus, unless private enforcement mechanisms can complement or replace formal legal enforcement, the feasible set of informal financial transactions will shrink and many firms will not be able to access external funds.

A good example of this is provided by a recent RPED paper (Biggs, Raturi and Srivastava [1996]) analyzing trade credit in Kenya, which is characterized by two

⁸ A succinct manifestation of concerns about enforcement was the all too common refrain among respondents that, when selling on credit, "a bad debt means not only the loss of the principal but also of the customer."

distinct groups of businesses — Kenyan-African and Kenyan-Asian owned — operating in the same legal, regulatory, and business environment, but with quite different outcomes in terms of informal trade credit flows. Using econometric analysis of data from both the case study and the full RPED surveys, the paper shows that the observed patterns of credit flow are consistent with differential access to private contract enforcement mechanisms between the two groups of businesses. Thus, the tightly-knit Kenyan-Asian community has available extensive networks for exchange of information and can therefore use the reputation mechanism to enable private enforcement of informal credit contracts. The reputation mechanism is also extended to large Kenyan-African businesses but leaves out the smaller ones which, consequently, are out of the loop of trade credit flows.

A formal institution that partially substitutes for informal reputation mechanism is the Credit Reference Bureau. By allowing information about bad payers among firms, the reference bureau can help in separating the good payers from bad ones. The extent to which the existence of a well-functioning bureau can enhance enforceability of credit contracts, and thus the access of firms to external funds, is obvious when comparing most of the countries surveyed with Zimbabwe, which has an active branch of Dun and Bradstreet. However, the formation of credit reference bureaus may not be feasible entirely on private sector initiative since it suffers from the problem of externalities. For example, monitoring of firms newly entering the formal credit market creates an externality for other banks: the initial decision of a bank to grant credit to the firm, and subsequent negotiations of credit, are publicly observable. Other banks can therefore learn about the firm's credit history as it becomes "seasoned" by the initial bank and can ride free on the initial bank's investment in monitoring costs. If banks can compete for the initial bank's customers as the customers mature, the initial bank cannot internalize all the benefits from its investment in information (Biggs, Conning, Fafchamps and Srivastava [1995]). The presence of this externality means that fewer than optimal amount of lenders will undertake such investment. There is room for policy interventions designed to encourage private sector initiatives in such activity, including assistance in coordinating the role of banks, credit card companies, finance companies, hire-purchase firms, and NGO lenders.⁹

Another important institutional innovation in expanding the flow of informal trade credit in these economies can be the selective use of credit guarantees. The basic idea of credit guarantee is for an outside party (donor, government agency) to partially guarantee a supplier of credit against default using a special fund created specifically for that purpose. The success of such a guarantee scheme depends on designing incentives carefully so that lenders prefer to incur reasonable costs in screening, monitoring and fully recovering their money over collecting the insurance without any efforts.

⁹ Unless all entities agree to share information, no one will, at least until the credit reference data bank is large enough that the participation of a singly major player would not give a competitive edge to its competitors. The role for policy is, then, to deal with this externality by coordinating actions of different entities to establish the initial, critical mass of information.

Individual credit guarantee does nothing to increase the debtor's willingness to repay. It only reduces the lender's risk in trying out new borrowers and, thus, constitutes a possible avenue out of statistical discrimination against smaller firms by providing good borrowers an opportunity to prove themselves.

Informal enforcement can also be enhanced by using group schemes instead of individual guarantees. Similarly, the inclusion of small firms in credit flows may also be fostered by developing or encouraging formal organization of small manufacturers in various industries for coordination and enforcement. As a group, they could deal with larger, upstream suppliers extending trade credit with the promise of group enforcement. Depending upon the nature of group formation and non-monetary sanctions available to the members, group schemes can, in principle, dramatically enhance contract enforcement. Unfortunately, one problem which may arise with such innovations is that there are often high transaction costs involved in forming these groups and holding them together.

Finally, in the context of expanding the scope of formal bank credit, the RPED case studies highlight the importance of enhancing collateralizability of assets other than land, increasing the use of chattel mortgages and of factoring. To the extent collateral can substitute for information, expanding the scope of assets that can be effectively collateralized can also help increase formal credit flows. Virtually all formal bank loans and overdrafts are secured against a limited menu of assets, namely, land and buildings. Although land titling has proceeded to a different extent in various countries, exclusive reliance on real estate has resulted in smaller firms mostly being excluded from access to bank credit. In this context, expanding the scope of hire-purchase and chattel mortgages can also be useful measures. Hire-purchase is a rapidly growing form of credit in some of the surveyed countries, especially for vehicles and, to some extent, for consumer durables. Because the lender remains the owner of the good until full payment, the good can be repossessed from the delinquent debtor without having to resort to expensive court action. Hire-purchase may expand over time to also include machinery and equipment — although it is likely to be significantly constrained by the prevalent interest rates.

Like hire-purchase, chattel mortgages also rely on the collateralizability of moveable assets. Although the lender in a chattel mortgage is not the owner of the collateral, repossession in case of delinquency involves simplified procedures which are less costly than unsecured loans. However, the collateral value of equipment and machinery currently suffers from thin, unorganized markets for used capital. The absence of registration for items other than vehicles also introduces an element of uncertainty in equipment transactions. A dishonest debtor may be tempted to evade contractual obligations by liquidating the firm's equipment. If buyers cannot easily verify if a piece of property is free of lien, the market for second-hand equipment may suffer. The solution is to set up a registry of industrial machinery and equipment and to develop a market for auctioned equipment. These actions would increase the

collateral value of equipment and improve access to credit for small and medium manufacturing firms.

A third instrument that can substitute for collateral in formal credit transactions is the accounts receivables of firms. Currently, the market for factoring services in most countries is severely underdeveloped. A few large firms utilize bills of exchange and are provided bill discounting facilities by their banks, usually in a package combined with overdraft lines of credit.¹⁰ Expanding and deepening the market for discounting receivables can provide greater access to short-term credit for a larger number of firms. Encouraging private sector initiatives in this area should be given significant attention if they are forthcoming. It is likely that enhancing the scope of credit reference services will increase the feasibility of private factoring services. Alternatively, public sector factoring institutions may be considered on a pilot basis. In addition, NGOs and other programs focusing on providing credit to smaller firms may also be encouraged to initiate such services for their clients.

¹⁰ In practice, factoring differs from bill discounting by being a long-term contract that discounts *all* receivables of the firm.

3. Technological Capabilities And Learning Mechanisms In African Manufacturing

Technological capabilities are at the center of the new theories of economic growth which focus on technology and human capital as engines of growth. Recent developments in this literature suggest that long-run economic growth, as seen in East Asia most recently, reflects sustained increases in firm productivity stemming from continuous accumulation of technological capabilities. In this view, therefore, a liberal economic setting and policies to increase technological capabilities are the two blades of the scissors necessary to achieve increases in productivity and economic growth; either without the other is likely to be considerably less effective.

These issues of technological capabilities and firm productivity have been analyzed comprehensively in a recent RPED study entitled *Technological Capabilities and Learning Mechanisms in African Manufacturing*.¹¹ The study is one of the first systematic attempts to assess technological capabilities and firm productivity in African manufacturing firms. Despite their crucial importance, not much is known about technological capabilities and the resultant firm productivity in African manufacturing sector. The study utilizes data from the first round of RPED surveys as well as detailed case studies in each of three representative countries: Ghana, Kenya and Zimbabwe. As a group, these countries span the diversity of per capita incomes and industrial development patterns of the Africa region. The study focuses on a number of broad issues related to the patterns and determinants of manufacturing productivity, the levels of endowment of technological capabilities, the specific nature of technological efforts being undertaken by manufacturing firms, and the constraints they face in enhancing such endeavors. The objective of the investigation is to gain a better understanding of the technological problems facing African enterprises, large and small, and to help the World Bank and other development agencies design more effective assistance programs to accelerate the supply response to policy reforms.

The RPED study categorizes technological capabilities into three functional groups: investment and investment capabilities, production capabilities, and learning mechanisms. Investment and investment capabilities refer to the skills and information needed to identify feasible projects, locate and purchase suitable (embodied and disembodied) technologies, design and engineer the plant, and manage the construction, commission and start-up. The skills and knowledge needed for the subsequent operation and improvement of the plant are defined as production capabilities. Finally, the learning mechanisms available to firms determine the extent to which they can augment their endowments of production and investment capabilities over time. Together, the three types of capabilities determine how

¹¹ See Biggs, Shah and Srivastava (1995b).

efficiently firms organize and manage their activities, i.e., their total factor productivity.

Manufacturing Productivity in Africa: Patterns and Determinants

The analysis of total factor productivity in Zimbabwe, Kenya and Ghana yields a number of important findings. First, it is seen that African manufacturing displays structural relationships similar to those found in other developing regions. For example, comparisons with three Asian economies clearly indicate that, in both Asian and African manufacturing sectors, smaller firms are not necessarily more labor intensive than large firms. In addition, the African firms display the same relationships between factor intensities and partial factor productivities as are seen in the Asian countries.

Second, there is considerable heterogeneity in the technical efficiency of firms across the three African countries. Firms in Zimbabwe are the most efficient on average in each sector, while firms in Kenya are more efficient than their Ghanaian counterparts in at least two of the four sectors. Ghanaian firms, therefore, display the lowest levels of average technical efficiency. In contrast, variations in average technical efficiency across sectors are relatively insignificant in all three countries. With the exception of firms in the food processing sector, which display fairly little dispersion in estimated efficiency, the remaining three sectors appear broadly comparable in terms of total factor productivity.

Third, patterns of inter-firm productivity differentials across firm sizes indicate that neither small nor very large firms are relatively the most efficient. Among firms with at least 20 employees, our results show that firm efficiency increases with firm size up to a point before declining for the largest sized firms. Firms with 100-199 workers are the most efficient in textiles and garment sector while in the other two sectors the most efficient firms on average are those with 50-99 employees. Thus, medium-sized firms tend to be the most efficient in the sample. Firms in the food processing sector, however, do not display a strong relationship between firm efficiency and firm size.

Finally, comparisons suggest that African firms on average have relatively lower levels of total factor productivity in international terms. For example, studies of efficiency, specifically in the textile and garment sector in other countries, yield indices of average technical efficiency much higher than that estimated for this sector within the three African economies. Furthermore, most firms surveyed in the study, except to some extent those operating in the food processing sector, are poor performers even in comparison to best-practices defined relative to firms within only these three African countries. If the reference best-practice frontier included more industrialized countries, the relative technical efficiency of African firms would appear even lower.

The study also analyzes the sources of technical inefficiency in the sampled firms. The results of the study show that all learning mechanisms that firms can use to change their endowments of production and investment capabilities have a large impact on enhancing productivity. On-the-job training of workers, both inside and outside the firm, has relatively the largest impact on value added by firms; specifically, an increase of 1 percent in the number of workers trained could increase the value added of the sampled firms by 60 percent. Similarly, informational links established by foreign direct investment contribute to an increase in value added by 30 percent, an impact comparable to that obtained by technology transfer through technical assistance contracts or licensing arrangements. Interestingly, the study also finds that access to working capital financing is another critical determinant of firm efficiency. For the sample of firms as a whole, access to such financing increased value added by 37 percent. At the same time, the contribution to firm productivity of access to longer term bank loans is insignificant. This finding has implications for targeted credit policies which often place an exclusive emphasis on bank loans to finance fixed-asset acquisition.

A similar picture emerges when only the very small firms and microenterprises are analyzed for determinants of firm productivity. Again, training of workers is the most important contributor to higher value added by firms while access to working capital finance has an impact coefficient of 40 percent. In addition, previous experience of the entrepreneur and age of the firm, both of which contribute to human capital in the firm, are also positively associated with value added. The results also show that even within the very small firms, firms that are in the formal sector, in the sense of being registered entities, have substantially higher levels of value added than the small informal firms.

Endowments of Technological Capabilities in Firms

Given the importance of technological capabilities, and particularly of learning mechanisms, in determining manufacturing productivity, RPED country case studies provide additional details on the nature of technological effort undertaken in firms in the three countries studied. An important advantage of the case studies is that they allow greater qualitative details (e.g., whether or not plants display a good layout) about production and investment capabilities which otherwise cannot be captured fully in the large-scale survey used for the full sample of firms. This detailed “snapshot” of endowments of firm technological capabilities reveals levels that are significantly low by international standards.

Thus, findings from the case studies indicate that inter-country variability in investment capabilities within a given industry is determined largely by heterogeneity in firm size and ownership. Multinational and local, expatriate-run firms in each country generally have the necessary skills in-house or via the parent company to acquire technology and execute investment projects efficiently. A few indigenous large enterprises have sufficient capabilities to invest in complex industries. Most of the

remainder, however, need to upgrade their skills to move out of simple, labor-intensive activities. Zimbabwe, by all indicators, exhibits the highest level of national capability, followed by Kenya. Where both Kenya and Zimbabwe exhibit shortcomings is in the uneven spread of their more advanced investment capabilities. Outside the white community in Zimbabwe and the Asian community in Kenya, black African entrepreneurs are less likely to possess the required investment capabilities to be able to enter complex production activities.

Similarly, production capabilities show equally deficient levels across all three countries but with considerable cross-country variation. Again, firms in Zimbabwe display the highest levels of skills in terms of better designed plants, ability to maintain and repair equipment to keep it running in an efficient manner, use of quality control mechanisms, and some use of industrial engineering techniques. Ghanaian firms, in contrast, show significantly lower levels of production capabilities relative to the ones in Zimbabwe and, to some extent, in Kenya. In comparison to countries outside Sub-Saharan Africa, however, all three countries show low firm endowment of production capabilities.

Finally, the RPED country case studies also provide a detailed look at learning mechanisms available to firms in the three countries. Learning mechanisms constitute the most important category of technological capabilities since they enable firms to augment their endowments of the other two types of capabilities. Two types of learning mechanisms are distinguished: private and collective. Private learning mechanisms may be internal to the firm, such as in-house training and R&D, or external, involving relationships with buyers and suppliers, interactions with other firms through subcontracting, industry networks, and hiring local or foreign consultants. Collective mechanisms, on the other hand, consist of technical support services provided by NGOs, business associations, the government, or donors.

The comprehensive evaluation of learning mechanisms reveals, on the whole, a somewhat bleak picture. With the exception of multinational companies and a few large exporters, most firms are technologically isolated from the rest of the world. As a consequence, connections with international private learning sources, such as foreign buyers and suppliers, are weak or non-existent. Zimbabwe and Kenya are somewhat better off in this respect because they have relatively large, local expatriate business communities who have the advantage of being embedded in extended social and business networks, via family and other connections, which transcend national boundaries. Zimbabwe also benefits from its proximity to South Africa. The diffusion of benefits from these international connections, however, are constrained in Zimbabwe and Kenya by limited business interactions between the expatriate and indigenous communities.

Most firms operate in an information-poor environment: (i) there are very few vertical and horizontal linkages between firms because large enterprises tend to be

vertically integrated and there is very little subcontracting; (ii) direct foreign investment is limited, reducing the ability to “learn-by-copying” and the ability to “benchmark” the firm’s operations against internationally competitive firms in the same business; (iii) training opportunities and specialized consultancy services are weak or non-existent locally, and expensive if imported; and (iv) information sources on technical and business matters are poor.

Collective support services to assist and facilitate enterprise technical learning are often poorly delivered, when they exist at all. Business associations are also weak and deliver very few services, if any. NGOs and international development agencies provide some useful services, but coverage is limited and the support services are aimed at only a few areas, like finance.

With such poor external learning sources available to them, African firms are forced to rely almost exclusively on internal learning efforts to build their technical capabilities. By itself, this fact is not particularly problematical: internal efforts have been identified as the most important source of technological capabilities among successful small-scale exporters in Asia and Latin America. The problem in Africa is that internal technical efforts of firms, with the exception of a few large multinationals, appear to be less than what is needed, limited in scope, and sporadic. For example, internal efforts at R&D are both quantitatively and qualitatively minuscule in international terms. Similarly, internal training of workers is widely prevalent among firms, with patterns of incidence remarkably similar to those found in other countries, but with levels that are much lower than international averages. Thus, without the availability of adequate external learning channels to increase the inflow of new know-how, internal learning activities can not go very far in upgrading skills towards internationally comparable levels.

Technology Policy for Africa

Conceptually, manufacturing productivity can be thought of as being determined by four types of factors: (i) those that affect efficiency indirectly by altering the functioning of the national economy; (ii) those that directly affect the efficiency of an industry as a whole; (iii) those that influence the technical capability and efficiency of the individual enterprise; and (iv) those whose main impact is on the task-level efficiency of individual workers. Obviously, such a decomposition is basically heuristic in that it indicates only proximate, not the ultimate, sources of manufacturing efficiency. For example, the immediate locus of low task-level efficiency may be inadequate training by the enterprise. However, the firm’s own cost of training will be influenced by the effectiveness of the national education system, as well as the availability of industry-specific training courses. Additionally, the adverse incentive effect of excessive trade protection may manifest itself at the industry and firm levels in the form of inordinate product differentiation and inadequate technical know-how. Yet, in spite of the complexity of the causal links, the decomposition is useful for identifying different levels of policy concern.

National-level Policies

Nationwide policies in the form of macroeconomic policies, financial system development, infrastructure, and national education attainment have important impact on the efficiency of all firms. It is important to emphasize, therefore, the need for continued structural adjustment of the economies in terms of macroeconomic reforms and elimination of gross distortions in prices and incentive structures. In addition, however, a number of issues specifically in the context of technological productivity deserve attention. In the near term, efforts should be devoted to raising the efficiency of existing firms by alleviating some of the key constraints on capacity utilization, which has a significant impact on firm productivity in all three countries as shown by the empirical analysis.

In the longer term, two areas of policy concern are human capital development and trade policy. The stock of human capital is a priority issue for two reasons. First, dynamic comparative advantage of industries is very sensitive to small changes in the scarcest factors of production. For example, assuming correct choice of technology, the cotton textiles industry can grow dramatically in these countries, since it is a process based, labor intensive activity with limited linkages to other manufacturing sectors. Yet, the emergence of a competitively viable cotton textiles and garments industry can be severely constrained by the absence of 50 or 60 key technicians. Second, the stock of human capital in the form of general levels of educational attainment can also constrain market responses to skill shortages. With high overall educational attainment, small amounts of additional training can increase inter-sectoral mobility of labor in response to changing price incentives. This flexibility is severely restricted by the low education and skill levels of labor in the African economies. Regarding trade policy, there is no a priori reason why Africa should not benefit from some form of infant industry protection to promote learning in domestic firms, as has been evident in the cases of most successful developers in this century. However, given previous experiences with such policies, critical issues related to appropriate administration, monitoring, enforcement and, most importantly, time-bound elimination of these trade policies need to be carefully addressed.

Industry-level Policies

The principal objectives of industrywide trade policies in Africa should be to reduce the inter-firm variance in efficiency observed in given industries, and to raise the average productivity of the best local firms closer to international best-practice. To some extent, the heightened competitive pressure induced by policy reforms in most countries is causing firms to reduce sloth and slack and move towards best practice. There are, however, some problems which might be lessened by proactive, industry-level policies.

For example, firms will tend to underinvest in general types of training because worker mobility may prevent them from reaping the full benefits of such investments. For this reason, basic, industry-specific types of training are best organized on an

industrywide basis, where firms are induced to cooperate in the effort via membership in industry associations or by government. In such cases, all firms would pay some contribution to basic industry-specific training based on, say, a profit tax or some other scheme. To be effective, it is best that such training schemes be run with a good deal of firm involvement. There are currently vocational training programs in many African countries, financed by “training levies,” which are operated by government at much too great a distance from real businesses. Genuine, industry-run programs or those with heavy business-government cooperation tend to be most successful, as the experience of East Asia indicates.

A second area where industrywide policies may be called for arises where the source of inefficiency arises from insufficient product specialization within firms. In many African industries, firms produce a diverse array of products, foregoing the benefits of specialization. For example, absence of horizontal specialization leads to significant productivity losses in integrated textile mills engaged in the assorted activities of spinning, weaving and dying. The problem is how to achieve greater specialization if market forces, via liberalization, do not induce it spontaneously. The mechanisms that have most often been employed to obtain benefits from greater specialization are industry-wide cooperative agreements.

Firm-level Policies

Firm level policies are perhaps the most critical element of any technology policy, since firms are the most important actors in accumulating technological capabilities through developing, establishing, and operating specific production systems. The central objective of firm-level technology policy should be to encourage and support this learning process in existing firms and to enhance incentives for innovation and imitation. Furthermore, such policy should embody the most fundamental aspect of technology accumulation, namely, the role of individuals in transmission and diffusion of technology. A large part of technology, both new production processes and products, involves uncodified knowledge: rules of thumb acquired only with experience and via sustained interaction with the people and institutions embodying this know-how. Both within countries and transnationally, virtually all studies of technology transfer find that the diffusion of technology results, in the main, from movements or interactions of individuals from firm to firm and from country to country. There appears to be *no* evidence that the transfer of technological know-how can be achieved effectively by other modes independently, such as via technology licenses or, for that matter, blueprints sent over the Internet unaccompanied by sustained individual interaction.

The leading source of technical learning in firms in all countries comes via private channels — either internally from technical efforts within the firms themselves; or externally, from business interactions with buyers and suppliers, from interactions with other firms in the same industry, from hiring consultants and other technical experts, etc. Internal technical efforts, as documented by the study, are occurring in all

three African countries in the form of on-the-job training of workers, R&D and development and use of technical documentation within the firms. African firms appear quite similar to firms in other countries with respect to the patterns and determinants of internal technical efforts. For example, it is shown in the study that, as in other countries, large firms train more than small firms, that foreign-owned firms train more than domestic firms, exporters train more than non-exporters, and that managerial and skilled workers receive more training than unskilled workers. However, where African firms differ from their Asian and Latin American counterparts is in the overall incidence and quality of internal technical efforts.

Furthermore, the internal technical efforts of firms will not amount to much if the environment in which the firm operates is not supporting these efforts with new inflows of know-how, new market connections, and access to individuals with technical expertise. These external sources of learning, both private as well as collectively provided, are extremely weak or missing altogether in the three African countries. Thus, as noted above, most firms are technologically isolated from the rest of the world. Moreover, domestic firms operate in an information-poor environment. There are a small number of firms in each modern industrial sector, which means that firms cannot rely on inter-firm flows of information or employees to acquire new products and production knowledge, as in the more industrialized countries.

Private Learning Mechanisms: These private external learning mechanisms, as shown by RPED findings, add as much as 30 percent to the value added of firms. Consequently, enhancing the levels of such mechanisms is an important policy objective. Measures here span a wide range of issues, but might include: (i) reducing the problems and costs to firms in hiring experienced expatriate personnel. This would include things like making expatriate salaries tax-free and easily repatriable; (ii) making the environment better for foreign direct investment in key labor-intensive industries and encouraging vertical and horizontal links with local companies; and (iii) finding ways to lower transactions costs of sub-contracting. Inter-firm linkages through transactions in goods or services, both vertically and horizontally across firms, are minuscule in Sub-Saharan African economies. An important reason for this lies in high costs of enforcing private business contracts. Thus, finding inexpensive ways to enhance contract enforcement, either through private or public mechanisms, can reduce the transaction costs and risks of subcontracting considerably, thus improving substantially inter-firm flows of technological know-how.

Given the evident limitations of existing private learning mechanisms in Africa today, proactive interventions at the firm level to accelerate technological accumulation deserves high priority. Evidence from other developing regions of the world indicates that there are large benefits to be derived from collective external technological support to firms, if it is implemented properly. In addition, private learning mechanisms appear to be most readily available to larger firms with some foreign ownership or educated entrepreneurs who can take advantage of private network linkages. Hence, an exclusive reliance on private learning mechanisms may

reduce the participation of small firms, which in Zimbabwe and Kenya are primarily owned by black Africans, in the technological upgrading process.

Collective Learning Mechanisms: Collective technical support programs generally take two basic forms: "broad-based" or "high-intensity." Broad-based programs may include provision of industry-specific courses on specialized topics, facilitating the use of technical consultants by providing financial assistance, making technical information available, and promoting information sharing among firms. The most highly desired broad-based services according to the African firms surveyed by this study were specialized technical courses and technical assistance for productivity improvement. A first priority for broad-based collective support programs, therefore, should be to deliver effective service in these areas. These services will be particularly important for small, black-owned firms.

Second, given the tacit nature of technology dissemination and the current low technical capability endowments in Africa, the necessary changes in production engineering to raise productivity are not likely to be successfully implanted on a one-shot, short-term or sporadic basis typical of technical consulting or short courses. Ways will have to be found to provide broad-based support on a more sustained basis in Africa.

Third, there is a strong need for institutional capacity building in the provision of broad-based technical support services. Given that these services are best provided on a decentralized basis so as to be able to be close to clients, and that there are few decentralized providers in Africa, a central objective of policy must be to build up the necessary institutional infrastructure. Key institutions, like industry associations and independent NGOs need to be strengthened to deliver broad-based technical support. Centralized providers, which currently deliver some of these support services in Africa, could also be encouraged to move closer to clients to increase the effectiveness of existing programs.

Fourth, collective support efforts need to focus on creating and maintaining foreign market linkages in Africa to foster more learning-by-doing. For example, broad-based programs are needed to finance trips for African producers to foreign markets. Producers might receive assistance to go to trade shows and visit buyers and suppliers. Foreign buyers might also receive support to visit African producers. The support for individual-based knowledge transmission can be supplemented by publications, seminars, and exhibitions by the technical support agencies.

Last, provision of quality control testing and inspection services should be part of any broad-based collective support effort. These services are listed as highly desired by the surveyed firms, reflecting the perceived need in these countries to meet higher quality standards brought on by more extreme competition under current policy reform programs.

Regarding collective mechanisms for high-intensity technical support, their objective is to directly meet specific technical needs of firms which cannot be met via any other types of mechanisms. Demand for this type of direct support comes from firms operating in relatively high levels of technological complexity. Examples of high-intensity support include direct technical assistance from government technology institutions in the form of productivity improvement or joint technology development programs. Ghana, Kenya and Zimbabwe all have government technology institutions of one kind or another. However, few firms report using these high-intensity services, and fewer still have anything good to say about them. Given the record of centralized provision of services in Africa and the pervasive organizational weaknesses of public institutions — in terms of human capital, commitment and funding — the potential for delivering high intensity technical support is severely limited. The government's role in this area, therefore, should be to support private-to-private technology provision. Assistance for training and technical consultants by public agencies to support delivery of these services by non-government providers on a decentralized basis would also be beneficial.

Task-level Policies

Finally, considering task-level efficiency of workers, two factors can make a significant difference in worker productivity, namely, experienced management and systematic worker training. In process-oriented industries, such as textiles and garments, substantial previous worker experience is not a prerequisite for success. Formal on-the-job training in firms for relatively short periods can be quite successful in raising worker productivity to internationally competitive levels, given one starts with literate and numerate workers. A priority for policy aimed at increasing worker task-level efficiency should, hence, be to support enterprise training. A second area that policy must address at the task level is the shortage of skilled managers and technicians. For workers to be productive, they need adequate supervision, efficient plant layouts, and effective incentive schemes. Firm training also requires skilled and experienced personnel to run courses and to actively be involved in on-the-job learning. Given the shortage of skilled personnel documented by the study, one of the best ways in the short run to relieve such critical bottlenecks is also to facilitate the hiring of experienced expatriates.

4. Structure of Wages in African Manufacturing

The major issues addressed by RPED surveys in the working of labor markets can be grouped into three distinct categories, although there is significant overlap between the groups. The first set of issues concerns determinants of wages or earnings in the manufacturing sector and the relative inequalities in the distribution of earnings. In general, excessive differentials — excessive either because they do not appear to be justified by basic supply-and-demand factors in the labor market, or because they appear to be too large compared to what is observed in other parts of the world — create loss of welfare from the point of view of both efficiency and equity. It is a potential welfare loss in terms of efficiency because the marginal products of labor in different segments of the labor market (which tend to get equated to the wage per worker) are wide apart, and the volume of real GDP would be higher if they were closer together. Wide differentials in earnings are also, of course, one of the reasons for a highly unequal distribution of income. The presence of unduly high differentials should then alert policy makers to be concerned about the working of the labor market concerned. The specific policy measure appropriate for ameliorating the situation would, of course, depend on the determinants of the specific type of differential. The purpose of the economic analysis of wage differentials is precisely to pinpoint, as far as we can, the factors causing these differentials.

A second set of issues stems from the analysis of unit labor costs and their determinants as between different classes of manufacturing enterprises, different industries and across countries. Analysis of unit labor costs is of critical importance in the context of African countries since a common presumption is that these costs are relatively too high to allow successful growth of African firms into export markets.

Finally, one may also analyze the patterns of changes in the nominal and real wages over time in the economy and the impact of these changes on different classes of workers and firms.

Data on labor market issues were collected in the RPED surveys in two different ways. The large-scale survey instrument was applied to approximately 200 enterprises with questions directed at the managers on different aspects of the firm's labor force. In addition, a special survey of a sample of workers in the enterprises was undertaken. Approximately 10 workers were randomly selected from the work force of each of the enterprises surveyed. A workers questionnaire was administered to them so that we have direct information on wages and allowances paid to them, as well as the personal characteristics of the respondents. We have thus a unique data set for each country which combines information on the earnings and personal characteristics of workers with economic data for the enterprises in which they worked. The analysis

has so far been carried out for five countries using data from the first wave of surveys. The five countries are: Cameroon, Ghana, Kenya, Zambia and Zimbabwe.¹²

Wage Differentials by Occupational and Education Groups

Africa inherited the colonial wage structure which was characterized by very large differentials by occupation and skills. Several important trends have been operating in the African labor markets in the last three decades or so, all of which could be expected to have worked in the direction of narrowing the differentials and reducing the rate of return to education. For example, post-colonial governments, at least in their declared intentions, favored a more equitable wage structure. In some countries, e.g., Tanzania, the drive towards equity became the official creed. Second, post-independence Africa saw a very rapid expansion of education at a rate well above the growth of the labor force. Finally, since the mid-1980s many countries in Africa have experienced a persistent decline in real wage levels, particularly in the urban formal sector. At the same time, there seems to have been some attempt to protect the lower-paid workers from experiencing the brunt of the wage decline.

However, based upon median earnings in the surveyed firms, it is seen that skilled supervisory workers earn 80 to 165 percent more than low skilled workers. Administrative and clerical workers enjoy similar premiums, while management professionals have earnings levels 3 to 9 times more than those of the low skilled (Table 4.1). These differentials are much larger than in developed countries. In the United States, for example, the median earnings of professionals are about 2.5 times those of the unskilled, and skilled production as well as clerical workers have a premium of around 30 percent.¹³

Table 4.1
Occupational Earnings Structure, 1993
(Based on median earnings)

| <i>Occupation</i> | <i>Kenya</i> | <i>Zimbabwe</i> | <i>Cameroon^a</i> | <i>Zambia</i> |
|--------------------|--------------|-----------------|-----------------------------|---------------|
| Other Production | 100 | 100 | 100 | 100 |
| Skilled Production | 146 | 124 | 143 | 143 |
| Supervisor | 265 | 209 | 180 | 212 |
| Support Staff | 106 | 105 | 91 | 126 |
| Admin./Clerical | 236 | 365 | 181 | 277 |
| Management | 591 | 931 | 326 | 717 |

^aFor Cameroon, production workers in the sample are not categorized as skilled and other.

Source: RPED Surveys, 1993

¹² The first set of results have been set out in the paper "The Structure of Wages in African Manufacturing" (Draft, Office of the Chief Economist for Africa, September 1994), which was also used as a background paper for *A Global Labor Market: World Development Report 1995*.

¹³ Contrary to popular beliefs, the largest occupational differentials are not in Francophone countries. Instead the most hierarchical wage structure is in the ex-British colonies in Southern Africa — Zambia and Zimbabwe.

One can also evaluate returns to education based upon estimated earnings functions for the sample of surveyed countries. So far the analysis has been confined to male workers only, who constitute 90 percent of the sample. As seen in Table 4.2 below, for all countries, the dominant result is the increasing private returns to education as one moves from primary through secondary to university levels. This is generally true for all countries, though it is most pronounced for Zambia and Zimbabwe. Note, though, that evidence on incremental returns to education at different levels does not by itself provide guidance on the levels where investment in education would have the highest payoff. For one thing, the incremental returns to education obtained from these earnings function estimates represent private returns. The social costs of education clearly would increase with the level of education, in so far as higher education in African countries is heavily subsidized.

Table 4.2
Incremental (Marginal) Returns to Education, 1993
(Log differences in the coefficients of the successive levels of education)

| <i>Country</i> | <i>Primary</i> | <i>Secondary</i> | <i>Secondary or Technical</i> | <i>University</i> |
|--------------------------|----------------|------------------|-----------------------------------|-------------------|
| Kenya | .36 | .45 | – | .58 |
| Zambia | NS | .57 | – | 1.74 |
| Zambia (II) ^a | NS | .43 | – | 1.86 |
| Zimbabwe | .50 | .66 | – | 1.86 |
| Cameroon ^b | .76 | .36 | .56 | .68 |

^aSince the base in the first equation has only 9 observations, equation II makes the base incomplete primary and no education. Little difference is seen given the return to primary is not significant.

^bThe education system for Cameroon is complicated embracing both French and English schools. Secondary includes “Lycée.” The system also contains a technical level after “Lycée.” University includes I.U.T. — the ‘technical university’ level.

Source: RPED Surveys, 1993

Apart from the strong returns to education, the returns to formal training are also highly significant. Furthermore, the magnitude of the returns to training follow the patterns in the returns to education, i.e., countries with higher returns to education also have higher returns to training.

The finding about the increasing returns to education still leaves questions about the trends over time. Concerns about growing inequality have been important themes in the labor market literature in other regions. In the OECD countries, and particularly in the United States, the sharp rises in wage inequality from the middle of the 1970s after several decades of narrowing wage differentials have sent researchers searching for possible changes in product markets or technology. In Latin America, the impact of adjustment programs and trade patterns have been held responsible for increases in the degree of inequality. The RPED data sets would reveal trends over three years in the 1990s when the third wave is complete. But valuable as this is, we also like to know the trends over a longer period of time. One possibility is to

compare the results of the RPED analysis with results based on the analysis of other data sets available for other periods, e.g., the LSMS or other household surveys. This type of comparison has already been undertaken for Kenya. It does appear that, for this country, although the marginal returns to successive levels of education increase in 1993, the premiums have fallen significantly since the 1980s. Thus, the declining trend in real wages and the pay policies to protect the low paid have reduced the extent of the differentials.

Wage Differentials by Size of Enterprise

Human capital factors, such as experience and education, are not the only factors explaining the level of earnings of the individual worker. Other candidates are industry, ownership of the firm, and size of the enterprise. In most countries in the RPED sample, "size of the enterprise," measured by the total number of workers employed in the enterprise, turns out to be the most significant variable.

In Zimbabwe, for example, an RPED study (Velenchik 1996) finds substantial premium associated with employment in larger firms with mean wages in the largest firms equaling four times the average wages in the smallest firms. The size differential exists even after controlling for unionization, minimum wages and other interventions, as well as for differences in worker quality and job characteristics. The study finds that the size premium is much larger for white collar than for blue collar workers and, furthermore, that the differentials in Zimbabwe are much larger than those found in other developed and developing economies.

The diagnosis of causes underlying wage differentials among firms of different sizes is a necessary precondition for policy prescriptions. Different causes imply different aspects of the labor market as critical to the phenomenon and thus different policy interventions.

First, there might be the simplest explanation to focus on: institutional factors — union pressure or government labor legislation — might cause the differentiation. If true, this is a straightforward case of distortion in the labor market which creates welfare loss both in terms of efficiency and equity.

Second, the larger firms may pay higher wages simply because they are able to select superior workers, in terms of characteristics which are not reflected in observable human capital variables like education, experience and formal training. In most data sets this question is very difficult to address. But since RPED will have panel data sets for at least a part of the workers' sample over the three waves, it may be possible to eliminate the "fixed effects" of individual worker characteristics.

Third, the workers could enjoy higher wages in larger enterprises, simply because the latter enjoy higher rents and workers are able to share in this rent. This hypothesis envisages a profit or rent sharing theory of wage determination, rather than a purely competitive theory. In the African context, where the supply of efficient labor

could be expected to be in limited supply in manufacturing, employers might indeed be persuaded to share the rent accruing to their firms with their own work force in the interest of efficiency, morale, and industrial peace.

It should be noted that the policy implications of a rent theory of wage differentials are quite different from those of the efficiency wage theory. If wage differences are caused by efficiency factors, then there is no obvious factor causing welfare loss through distortions in the product or factor markets, although there may be legitimate concerns about the distribution of earnings. But in the rent sharing case, factors causing the creation of rent to be shared create a loss in potential real output of the economy concerned. In the context of welfare economics, the first best solution calls for intervention in the specific markets for capital, product, or technology causing the distortion. If such direct intervention is difficult, costly to enforce, or only partially successful, there is a strong case for encouraging direct promotion of small firms which enjoy lower or no rent, and lower wages.

Labor Productivity, Unit Labor Costs and Firm Size

Finally, we can note here results from a preliminary analysis of partial labor productivity and unit labor costs in African manufacturing firms. Both in terms of partial labor productivity and partial capital productivity, the data show patterns that are similar to those observed in other countries of the world. For example, partial capital productivity shows an inverted U-shape when mapped against firm size. Similarly, excluding the very small firms, the data fail to support a common presumption that small firms are necessarily more labor-intensive or have higher labor productivity. However, regression results that control for capital intensity, type of ownership, and the sector of activity suggest that the efficiency of factor use increases with firm size. This obviously has pessimistic implications for policies supporting small firms.

Comparisons of unit labor costs across countries in Africa relative to those in other developing economies are particularly useful in the context of possible export opportunities for African manufacturing firms. Some results on relative levels of unit labor costs are presented in Chapter 7.

5. Impact of Regulation in Africa

Deregulation has been a central focus of policy reforms in Sub-Saharan Africa. In addition to macroeconomic stability, a shift to free markets through substantial deregulation in the economy has been a major component of these policy changes. However, although economic theory provides clear analysis of the costs of distortionary regulatory regimes, empirical analysis of the impact of specific regulations has been quite limited in the context of African economies. The approach in such cases has been primarily to focus on the structure, conduct, and performance of the aggregate economy conditioned on the regulatory regime; analysis at industry or firm level has been virtually non-existent. Data from RPED surveys can thus provide useful contributions to the empirical analysis of firm and sector-level impact of government regulations in these economies. The results of these surveys over three years are likely to be particularly interesting given the relatively rapid and significant changes being implemented in the regulatory regimes across different countries.

The static costs of regulations can be thought of in terms of activity reduction and activity diversion. Activity reduction is the negative supply response of entrepreneurial activity to regulation, while activity distortion is a measure of the extent to which entrepreneurial and other resources are wasted on unproductive activities such as rent-seeking. In addition to impact on entrepreneurial incentives, distortionary regulations also affect the (mis)allocation of factors of production in the economy. Strict measurement of the costs of regulations is well known to be a difficult task — both empirically and conceptually. However, the immediate focus of the RPED surveys is on a relatively more modest objective, namely, evaluating whether or not particular regulations have an impact on firm behavior (without attempting quantitative estimates of these costs). At the least, this empirical exercise can provide analysts with an idea of which of the regulatory interventions have a greater impact on firms in the economy relative to the others and, over the three-year period of the surveys, how the relative impact of specific regulations changes in responses to policy reforms. Additional evidence regarding the costs of regulations is obtained in the surveys by comparisons with other constraints faced by firms, such as infrastructure, lack of demand, etc. These rankings thus provide indirect estimates of the costs of regulatory constraints relative to the costs imposed by the other constraints firm face.

In analyzing the impact of regulations on firms, the RPED surveys have elicited responses by firm owners or managers regarding the severity of specific regulatory constraints. The specific types of regulation covered in the RPED surveys can be classified into the following categories: restrictions on availability of foreign exchange; restrictions on type of ownership of enterprises; labor regulations on wages, hiring and firing; price controls on input or output; restrictions on location of firm; restrictions on firm activities; and the total costs of acquiring and complying with licenses. To ascertain whether regulatory obstacles to business expansion were

important, firms were asked to rank the severity of various regulatory and non-regulatory constraints on a five-point scale. In addition to evaluating the severity of each type of constraint on this scale, the firms were also asked to rank their three most important constraints among the set of all regulatory and non-regulatory obstacles.

Table 5.1 summarizes the firms' responses on the severity index and the rank of various obstacles to firm expansion. The results show that, for all the firms taken together, regulatory constraints of all types rank as the least important obstacles on the list of managers'/owners' concerns about firm growth. Lack of credit and lack of demand for the firm's products were generally ranked highest in all the countries, followed by problems such as high taxes, lack of support services, high utility prices and lack of infrastructure. Regulatory constraints, however, generally ranked as the least important obstacles with severity indices lower than 1 to 1.5 in almost all countries. Even in Zimbabwe, which has relatively the highest severity indices, only a small minority of firms actually listed regulatory constraints as one of their three main problems; access to foreign exchange and labor regulations were listed most commonly by the firms that did rank regulatory constraints as important. Some concern was also expressed by firms in Cameroon regarding labor regulations and activity restrictions in the first round of the surveys. In all other countries, regulatory obstacles are ranked by firms as having minor, relative, and absolute importance to their operations.

A more disaggregated analysis of the survey data reveals that some regulatory constraints are more severe than others and that, in general, regulatory obstacles are more important to the larger firms compared to small firms. In particular, two types of regulatory constraints — foreign exchange controls and labor market regulations — appear more important than other categories of regulatory constraints in the sample and are discussed separately below.

Foreign exchange controls are ranked as important more often by the large firms compared to small, and by firms that import their inputs compared to those purchasing them domestically. In Tanzania, for example, none of the microenterprises were concerned with foreign exchange controls while 2 percent of the small and medium-sized firms and 22 percent of the large firms ranked these constraints as important. Further, of the firms that imported their inputs, 75 percent ranked foreign exchange controls as a severe obstacle. In Kenya and Zimbabwe too, regulations controlling access to foreign exchange were cited as severe constraints by the larger firms. However, in both these countries, the responses in the second round of RPED surveys indicate that policy reforms have had a significant effect in mitigating the severity of the foreign exchange constraint for firms. In Zimbabwe, more than 80 percent of the firms acknowledged an improvement in the situation over the previous year, and the number of firms identifying access to foreign exchange as an important obstacle to firm growth dropped from 50 to only 6 in the whole sample. Similarly, in the second round survey in Kenya, almost 97 percent of the firms did not consider foreign exchange controls to be a problem.

Table 5.1
Severity Index (and Rank) of Obstacles to Firm Expansion in RPED Countries
(Number of firms which claim these obstacles to be among their three most – Ranks are in parentheses)

| <i>Obstacle</i> | <i>Burundi 1993</i> | <i>Cameroon 1993</i> | <i>Ghana 1992</i> | <i>Kenya 1993</i> | <i>Tanzania 1993*</i> | <i>Zambia 1993</i> | <i>Zimbabwe 1993</i> |
|---------------------------|-------------------------|--------------------------|-----------------------|-----------------------|---------------------------|------------------------|--------------------------|
| Lack of credit | 3.3(1) | 4.0(1) | 3.8(1) | 3.4(1) | 133(1) | 3.5(1) | 3.1(1) |
| Lack of demand | 3.0(2) | 3.7(2) | 2.6(2) | 2.7(2) | 37(6) | 2.8(3) | 2.9(2) |
| High taxes | 2.7(3) | 3.0(3) | 1.9(4) | 1.4(8) | 21(8) | 1.8(7) | 2.3(7) |
| Lack of support services | 2.7(3) | 2.5(5) | 1.6(7) | 2.0(4) | 57(4) | 2.4(6) | 2.4(6) |
| Lack of infrastructure | 2.2(6) | 2.4(8) | 1.8(6) | 2.1(3) | 58(3) | 2.8(3) | 2.8(3) |
| Lack of security | - | - | - | - | 3(15) | - | - |
| High utility prices | 1.6(9) | 2.5(7) | 2.2(3) | 1.7(6) | 59(2) | 3.1(2) | 2.7(5) |
| Lack of skilled labour | 2.4(5) | - | - | - | 14(9) | - | - |
| Import competition | 1.5(10) | 2.5(6)* | 1.8(5) | 1.9(5) | 40(5) | 2.6(5) | 1.9(10) |
| Local competition | 2.0(7) | - | - | - | 29(7) | - | - |
| Corruption | - | - | - | - | 6(13) | - | - |
| Regulation uncertainty | 1.7(8) | - | - | - | 13(10) | - | - |
| Investment benefits | | 2.6(4) | 1.1(9) | 1.1(13) | 2(18) | 1.4(8) | 2.0(9) |
| Activity restrictions | 1.2(12) | 1.7(11) | 1.1(10) | 1.3(10) | 3(15) | 1.1(13) | 1.4(13) |
| Labour regulation | 1.2(12) | 1.7(10) | 1.1(10) | 1.0(14) | 3(15) | 1.2(12) | 1.8(11) |
| Location restrictions | 1.2(12) | 1.1(15) | 1.3(8) | 1.4(9) | - | 1.2(11) | 1.4(14) |
| Ownership restrictions | 1.1(17) | 1.2(14) | 1.1(13) | 1.0(15) | 9(11) | 1.1(13) | 1.5(12) |
| Licences | 1.2(12) | 1.9(9) | 1.1(13) | 1.5(7) | 4(14) | 1.3(10) | 2.0(8) |
| Price controls | 1.3(11) | 1.3(13) | 1.0(15) | 1.3(11) | 1(19) | - | 1.1(15) |
| Foreign exchange controls | 1.2(12) | 1.3(12) | 1.1(12) | 1.2(12) | 8(12) | 1.3(9) | 2.7(4) |

Source: RPED Surveys

In a similar manner, a number of firms appear affected by labor market regulations related to minimum wages, firing restrictions and restrictions on temporary hiring. In Tanzania, for example, 9 percent of the firms would hire more workers if minimum wage restrictions were eliminated while the corresponding figures for Kenya and Zimbabwe were 14 percent and 20 percent, respectively. In other countries, however, these percentages are quite low. Kenya and Zimbabwe show the highest impacts for firing and temporary restrictions also with 15-30 percent of the firms claiming being influenced by these restrictions. The figures for other countries are approximately 5 percent or less. Thus, although not overwhelming, regulatory

constraints in the labor markets appear to be an area of possible policy concern in some of these countries, especially Kenya and Zimbabwe.

On the whole, however, the survey data indicate that regulatory obstacles rank as the least important obstacles to firm growth for owners/managers of the surveyed firms. Firm size is an important variable in this context, with larger firms affected relatively more than smaller firms by some of the regulatory constraints. Needless to say, interpretation of these results should be conditioned by the fact that the survey data may be underestimating the impact of regulatory obstacles on firms. For example, the incidence of the regulatory constraints are not uniform across different sectors or firms. If the samples are for any reason not representative and include more smaller firms relative to larger firms, the resulting average constraint scores would be lower. Furthermore, enforcement and compliance of regulations also may vary across sectors and firms (see Box 5.1 for an example of how compliance with tax codes varies across firm size). In addition, some regulatory constraints may be binding sequentially, i.e., they may be perceived as a binding constraint only when some other (regulatory or otherwise) constraint on the firm's activities is relaxed. In such situation too, their importance may be underestimated. Finally, it is also possible that the biggest impact of these regulations may not be on the existing firms but on discouraging new investors.

Box 5.1
Revenue Erosion Through Exemption and Evasion

An RPED study of regulations in Sub-Saharan Africa focuses on the issue of compliance by firms to tax codes in the economy.¹⁴ Using data collected from firms surveyed by RPED in Cameroon, the study analyzes tax evasion and exemption by the firms and finds an inverted U-shape between firm size and tax compliance. The study focuses on the three most important business taxes in Cameroon, i.e., the patente (an annually renewable business license), the IBC (a 35 percent tax for incorporated businesses or a 22 percent tax for unincorporated businesses on profits, with a specification of a minimum tax), and the ICAI (a variable tax on a firm's sales of domestic production).

The study finds evidence of pervasive revenue erosion through evasion and exemption. Statistical analysis shows a negative relationship between firm size and tax evasion: the smaller the firm, the more likely it is to evade any single tax and the more likely it is to evade all taxes. In contrast, with respect to tax exemptions, older and larger firms are more active. Thus, firms with at least partial public ownership tend to have access to the privileges of exemption, followed by private firms with some level of foreign participation in ownership. In general, therefore, the larger firms receive exemptions while the smaller ones tend to evade more; medium sized businesses thus tend to support the highest tax burden.

On the other hand, it is also possible that these data are not significantly biased and do indicate what is revealed by the numbers: regulatory constraints are the least important obstacles to enhancing firm growth in these economies. Of course, this does

¹⁴ See Gauthier and Gersovitz (1995).

not mean that regulations do not matter, or that regulatory reforms should be abandoned, but that, when it comes to firm growth and an enhanced supply response, regulatory reforms may be necessary but not sufficient. Consequently, in order to understand the inadequate supply response to policy reforms in Sub-Saharan Africa, it would be more appropriate to focus on factors such as institutional and structural constraints in different markets in the economy, or the technological capabilities of firms as critical areas of policy concern.

6. The Dynamics of Enterprise Growth in African Manufacturing

Why do some firms grow and industries prosper while others decline? This question raises a number of issues of importance to policy makers because enterprise growth is closely associated with the process of job creation, and with the changing distribution of employment across economic activities and production units. Such structural changes in the economy not only determine the sources of employment but also influence the quality of jobs, and thus directly affect living standards. Four questions provide an intellectual focus to the analysis of firm growth in Africa: (i) What types of firms grow in Africa and in what sectors? (ii) What impact does firm growth have on employment growth? (iii) What affect does firm growth have on the quality of jobs created? and (iv) What are the major determinants of firm growth? Each of these questions is discussed below based upon findings from Round I of the RPED surveys.

The analysis presented here utilizes data from four of the countries surveyed by RPED, namely, Cameroon, Ghana, Kenya and Zimbabwe. The data on firm growth rates were obtained in the surveys by asking firm entrepreneurs or managers the year they started operations, and about their employment and sales at start-up. Firms were also asked about their employment levels for the early and mid-1980s, the period during which these countries had begun implementing major structural adjustment reforms. Recall data were more complete for employment compared to sales; hence, growth rates are measured in terms of employment. With the completion of the three survey rounds in each country, a more rigorous econometric analysis of firm growth issues will be forthcoming.

What Types of Firms Are Growing in Africa?

The question of which size category of firms is currently showing the most robust growth in African economies has received a good deal of attention in the last few years. In the wake of structural adjustment reforms, there is a considerable policy interest in whether or not the new structure of incentives is working to stimulate growth of new entrepreneurs and to foster a reallocation of resources away from rent-seeking and non-tradable activities toward more productive manufacturing and tradable activities. Are new entrepreneurs coming forth and creating new enterprises? Are existing entrepreneurs branching out into new, lower domestic-resource-cost activities? In sum, the concern is with the evolving structure of production. The overarching question being: Is structural transformation at the firm level moving in an efficient direction? Questions about barriers to entry and growth, "graduation," the "missing middle," deindustrialization, and industrial concentration are all part of this basic concern. If small and medium-sized firms are entering manufacturing and growing up through the size distribution of enterprises, the presumption is that entry barriers are low, inter-firm competition is high, and structural transformation is evolving in an efficient direction.

Of particular policy relevance in this context is the issue of microenterprises and small firms. Development agencies in particular have been fascinated with the question of whether microenterprises (generally defined as employing less than 10 persons) are growing. Microenterprises are viewed as alternative employers for surplus labor, which is not purportedly being absorbed in large enough quantities by formal sector firms. For the donor agencies, their growth thus has implications for job creation, poverty and income distribution. The growth of micro and small enterprises is thought to contribute positively to the twin goals of increasing productive employment and achieving a more equitable distribution of the benefits of growth.

The growth of small factories (10 to 49 employees) has also attracted attention, since some see this segment of the size distribution as the fountain of entrepreneurial dynamism. If it is found that micro and small firms are growing, an additional question is often raised as to whether there is an upper limit to this growth in terms of some size class beyond which growth does not continue? The underlying concern here is whether there are natural or policy-imposed barriers to “graduation” up through the size distribution of firms.

To investigate the issue of which types of enterprises are growing in Africa, Table 6.1 through 6.4 present mobility rates, depicting growth of the RPED survey firms from start-up to present. The tables should be read down each start-up size column. For example, in Ghana, for all the firms which started up as microenterprises (1-9 employees), 54 percent remain microenterprises today, 41 percent “graduated” to the small enterprise (10-49 employees) size class, 3 percent to the medium (50-99 employees), and 2 percent to the large (100+ employees).

Several conclusions can be drawn from these tables. First, some microenterprises operating in the manufacturing sector of African economies do grow up or “graduate”¹⁵ into larger size classes. Over the economic life of the survey firms (which ranged from as much as 25 years to a few months), about half of the firms which started as microenterprises managed to grow out of the microenterprise size class. This is a higher percentage than found in several previous surveys (for example, Liedholm and Mead (1992) found that only about 20 percent of microenterprises ever “graduate”). However, the graduation rate of microenterprises is highly sensitive to several factors: (a) the number of very small household producers in the sample; (b)

¹⁵ The term “graduate” requires some explanation lest it take on more importance than it should. Some authors seem to use the term as if it had some economic content beyond simply adding a few workers to the payroll. In fact, it doesn’t. The term “graduate” here only refers to a firm growing out of some arbitrarily chosen size category. By choosing a larger or smaller size class, we can significantly influence the “graduation” rate. If we ask the question: Does graduation from the chosen size class influence significantly firm behavior?, the answer is probably no. Firm size does influence enterprise behavior, but at what point this occurs is not clear. We do know that moving from the category of a small, household enterprise, which maximizes family income, to a modern business, which maximizes profits, is a significant change in behavior. But the point at which this occurs has more to it than simply firm size, although size is an important characteristic.

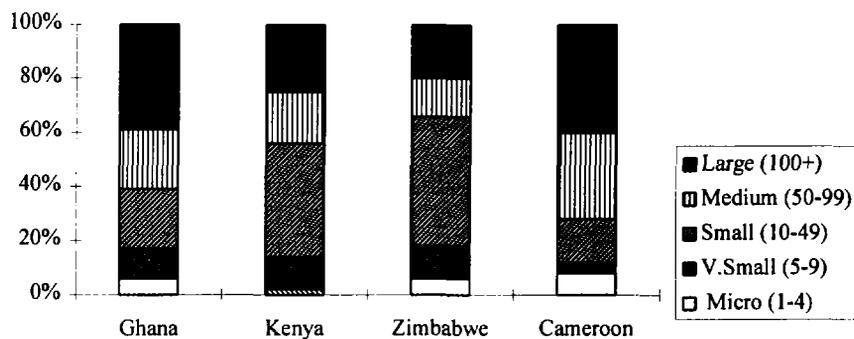
the sector from which the sample is selected; (c) the length of the growth period selected for examination; and (d) the range of the size class defined as micro.

In the other surveys like the one cited above, the enterprise sample includes many household “firms” with only one “employee” and includes firms outside the manufacturing sector. It is evident that a sample weighted heavily with household firms at the bottom of the range for a size class will have lower rates of graduation. Moreover, very small enterprises in the service sector, which might include street hawkers, one-person repair businesses and the like, have lower probability of growing than more highly skilled small manufacturers. The RPED sample, in contrast, does not include household producers and is limited to manufacturing firms with three or more employees.

The time period over which growth is measured also makes a difference to the graduation rate. To illustrate this point, look at Tables 6.5-6.8, where mobility is measured not from startup to present, but over a five to six year period. In Ghana, the graduation rate declines from approximately 50 percent to about 20 percent and in Kenya from 50 percent to about 10 percent.

The RPED data also show that almost no microenterprises “graduate” to become medium and large enterprises. The probability of a micro enterprise ever growing up to the 100+ employee size class is typically less than 5 percent. It is even lower for the smallest spectrum of the size distribution, i.e., firms with less than five employees. To see this, one can examine the origins of large firms in Figure 6.1. A negligible number of large firms existing today in all of the countries we surveyed started up in the 1-4 employees segment of the micro enterprise size class, and only a few more grew up from very small beginnings in the 5-9 employee micro size class.

Figure 6.1
Origin of Large Firms
(Percentage in each Start-up Size)



Source: RPED Surveys (1992 for Ghana, 1993 for others)

Table 6.1
Ghana — Firm Mobility between Start and Present
(Classified by startup size)

| Current Size | Start-up Size | | | |
|--------------|---------------|-------|-------|------|
| | 1-9 | 10-49 | 50-99 | 100+ |
| 1-9 | 54% | 15% | 0% | 0% |
| 10-49 | 41% | 53% | 57% | 25% |
| 50-99 | 3% | 17% | 29% | 0% |
| 100+ | 2% | 15% | 14% | 75% |
| N | 86 | 53 | 7 | 8 |

Source: RPED Surveys, 1992

Table 6.2
Kenya — Firm Mobility Between Start and Present
(Classified by startup size)

| Current Size | Start-up Size | | | |
|--------------|---------------|-------|-------|------|
| | 1-9 | 10-49 | 50-99 | 100+ |
| 1-9 | 55% | 14% | 0% | 11% |
| 10-49 | 26% | 29% | 14% | 11% |
| 50-99 | 14% | 27% | 21% | 0% |
| 100+ | 5% | 30% | 65% | 78% |
| N | 43 | 62 | 26 | 31 |

Source: RPED Surveys, 1993

Table 6.3
Zimbabwe — Firm Mobility between Start and Present
(Classified by startup size)

| Current Size | Start-up Size | | | |
|--------------|---------------|-------|-------|------|
| | 1-9 | 10-49 | 50-99 | 100+ |
| 1-9 | 46% | 5% | 0% | 0% |
| 10-49 | 26% | 27% | 8% | 0% |
| 50-99 | 11% | 13% | 25% | 8% |
| 100+ | 17% | 55% | 67% | 92% |
| N | 24 | 33 | 22 | 77 |

Source: RPED Surveys, 1993

Table 6.4
Cameroon — Firm Mobility Between Start and Present
(Classified by startup size)

| Current Size | Start-up Size | | | |
|--------------|---------------|-------|-------|------|
| | 1-9 | 10-49 | 50-99 | 100+ |
| 1-9 | 67% | 16% | 0% | 0% |
| 10-49 | 26% | 66% | 40% | 8% |
| 50-99 | 3% | 12% | 28% | 8% |
| 100+ | 4% | 6% | 32% | 84% |
| N | 28 | 30 | 20 | 37 |

Source: RPED Surveys, 1993

Table 6.5
Ghana — Firm Mobility between 1988 and Present
(Classified by 1988 size)

| <i>Current Size</i> | <i>1988 Size</i> | | | |
|---------------------|------------------|--------------|--------------|-------------|
| | <i>1-9</i> | <i>10-49</i> | <i>50-99</i> | <i>100+</i> |
| 1-9 | 54% | 15% | 0% | 0% |
| 10-49 | 41% | 53% | 57% | 25% |
| 50-99 | 3% | 17% | 29% | 0% |
| 100+ | 2% | 15% | 14% | 75% |
| N | 86 | 53 | 7 | 8 |

Source: RPED Surveys, 1992

Table 6.6
Kenya — Firm Mobility between 1986 and Present
(Classified by 1986 size)

| <i>Current Size</i> | <i>1986 Size</i> | | | |
|---------------------|------------------|--------------|--------------|-------------|
| | <i>1-9</i> | <i>10-49</i> | <i>50-99</i> | <i>100+</i> |
| 1-9 | 86% | 8% | 4% | 0% |
| 10-49 | 12% | 60% | 19% | 0% |
| 50-99 | 2% | 29% | 50% | 13% |
| 100+ | 0% | 3% | 27% | 87% |
| N | 43 | 62 | 26 | 31 |

Source: RPED Surveys, 1993

Table 6.7
Zimbabwe — Firm Mobility between 1986 and Present
(Classified by 1986 size)

| <i>Current Size</i> | <i>1986 Size</i> | | | |
|---------------------|------------------|--------------|--------------|-------------|
| | <i>1-9</i> | <i>10-49</i> | <i>50-99</i> | <i>100+</i> |
| 1-9 | 92% | 6% | 0% | 0% |
| 10-49 | 4% | 67% | 14% | 3% |
| 50-99 | 4% | 15% | 59% | 8% |
| 100+ | 0% | 12% | 27% | 91% |
| N | 24 | 33 | 22 | 77 |

Source: RPED Surveys, 1993

Table 6.8
Cameroon — Firm Mobility between 1987 and Present
(Classified by 1987 size)

| <i>Current Size</i> | <i>1987 Size</i> | | | |
|---------------------|------------------|--------------|--------------|-------------|
| | <i>1-9</i> | <i>10-49</i> | <i>50-99</i> | <i>100+</i> |
| 1-9 | 86% | 30% | 5% | 3% |
| 10-49 | 14% | 67% | 50% | 8% |
| 50-99 | 0% | 3% | 45% | 16% |
| 100+ | 0% | 0% | 0% | 73% |
| N | 28 | 30 | 20 | 37 |

Source: RPED Surveys, 1993

While the indications are that microenterprises are somewhat limited in their life cycle growth possibilities, observed growth histories of small enterprises (10-49 workers) show that they are not. The mobility tables and Figure 6.1 indicate that small enterprises in significant numbers do grow and become large enterprises in most countries. The number that ultimately grow up varies across countries according to differences in economic circumstances, as the differences between Ghana, Zimbabwe, and Cameroon attest. Finally, the data also indicate a significant decline in firm size across many of the large and medium firms. Downsizing, especially in Ghana and Cameroon, is more apparent when we examine growth during the structural adjustment period, presented in Tables 6.5-6.8. Almost 60 percent of medium firms and 25 percent of large firms reduced employment during this period in Ghana. Such declines have led to the questions about possible deindustrialization of the African manufacturing sector. In the normal pattern of things, we do expect to observe firms adjusting and exiting the market. With policy reforms in progress in all of the countries involved in our investigation, one would expect to observe more than the normal amount of adjustment activity. The question is whether it is excessive to the point where productive resources are being forced out of manufacturing and into lower value activities in other sectors of the economy. A detailed examination of the issue of deindustrialization is beyond the scope of this paper, but the evidence of downsizing in the medium enterprise size class in Ghana and Cameroon is troublesome. Given the importance, as well as the complexity, of the deindustrialization issue, this question will be examined in future RPED research.

Which Firms Drive Job Creation?

What types of firms create the most jobs in the economy? This has been an important question for policy makers seeking employment generation. It is also a controversial issue empirically. Much has been written in developed countries about small enterprises being the “engine of job creation.” Some studies analyzed employment growth across enterprises of various sizes in developed countries during the 1970s and 1980s, and found that job growth had been disproportionately concentrated in small firms. (Birch [1987], and Brown, Hamilton and Medoff [1990]). Although the results of these studies were vigorously disputed, they inspired a sort of folk wisdom that small enterprises are the only vibrant part of the economy.

In addition, for those interested in promoting public policies in favor of job creation, these results served to support arguments for employment policies aimed at small firms. International development agencies and other interested parties have also increasingly argued for micro and small enterprise support programs on the basis of job creation. In Africa, as in other developing areas, larger firms in the private manufacturing sector of the economy were criticized for not creating enough jobs, while micro and small firms were held up as paragons of employment generation. Is this, in fact, the case?

To examine the sources of employment growth at the firm level, we need a methodology to track job creation within firm size cohorts and between size cohorts as firms add employees and “graduate.” In order to make the analysis tractable, we break the calculations into two components. First, we look at employment growth within older firms, large and small, which have been in existence prior to and throughout the different policy reform periods in each of the countries. Second, we assess the increase in employment caused by entry of new firms created during the policy reform period. Two measures of growth are examined: (a) percentage employment growth within size class; and (b) percentage of overall employment growth contributed by each size class.

Table 6.9 examines employment growth within each size class for older firms, where firm size is defined as size at the beginning of the period. Growth rate is calculated by examining the net job creation within each size class, divided by the total initial jobs within that size category. For example, in Ghana, the micro category in 1988 employed 181 workers. These firms added a net of 54 jobs between 1988 and 1991, hence the growth rate of micro enterprises was $54/181 = 29.8$ percent over this period. These calculations show that micro firms have the fastest growth rate, while large firms grow slowest. However, these growth rates can be misleading for two reasons. First, while growth rates of micro and small firm employment are high, one must keep in mind that part of the reason for this is the low base on which these growth rates are calculated. Second, a largely ignored fact in most studies of employment creation is that, while small enterprises created a lot of jobs, they were also responsible for most of the jobs lost. There is always a good deal of turbulence in employment in the lower tail of the enterprise size distribution.¹⁶

Table 6.9
Employment Growth within Size Class
(Classified by size in 1986)

| <i>Size</i> | <i>Ghana^a</i> | <i>Kenya</i> | <i>Zimbabwe</i> | <i>Cameroon^b</i> |
|-----------------|--------------------------|--------------|-----------------|-----------------------------|
| 1-9 employees | 29.8% | 83.1% | 82.5% | 9.5% |
| 1-49 employees | 20.2% | 41.0% | 57.4% | -26.1% |
| 50-99 employees | -15.7% | 24.4% | 38.7% | -30.8% |
| 100+ | 5.5% | 12.5% | 3.8% | -23.0% |

^aFor Ghana, initial size refers to size in 1988.

^bFor Cameroon, initial size refers to size in 1987.

Source: RPED Surveys, 1993

If we look at the share of each size class in total jobs created during the policy reform period, large firms emerge as the dominant source of job creation in manufacturing in these countries. Table 6.10 examines the share of total job creation during the policy reform period attributed to each size class. For example, 2,832 jobs

¹⁶ The issue of entry and exit cannot be ignored in any study examining growth. This issue will be addressed as panel data from RPED becomes available. However, previous studies have shown that the direction of the results do not change significantly when entry and exit is taken into account.

were added in older firms during the period 1986-1992 in Zimbabwe. Of these jobs, micro firms added 94 employees, hence the share of overall manufacturing growth for micro firms was $94/2832 = 3.3$ percent. Overall, large enterprises outpaced the combined contribution of smaller rivals in almost every country. Large firms contributed 82 percent of overall job creation for older firms in Ghana, 56 percent in Kenya and 57 percent in Zimbabwe. Only in Cameroon, which was going through a major economic downturn during this period, do we see large firms contributing most of the employment decline.

Table 6.10

Employment Growth: Share of Overall Manufacturing 1986-1992
(Percent)

| | <i>Ghana</i> | <i>Kenya</i> | <i>Zimbabwe</i> | <i>Cameroon</i> |
|-----------------|--------------|--------------|-----------------|-----------------|
| 1-9 employees | 15 | 5.43 | 3.32 | 0.13 |
| 10-49 employees | 57.78 | 23.90 | 17.87 | -1.93 |
| 50-99 employees | -54.72 | 15.18 | 22.07 | -4.34 |
| 100+ | 81.94 | 55.49 | 56.74 | -93.86 |

Source: RPED Surveys, 1993

Similarly, jobs created by new entrants during the 1986-1992 period are not concentrated in the micro firm sector. For example, in Ghana, micro entrants created 80 jobs and small firms added 94 jobs during this period. However, two large private firms, one via a joint venture, also started during this period, creating 289 jobs at start and adding another 300 jobs over a three-year period during policy reforms. This shows that while there may be a large number of new entrants in the small firm sector, a single large firm entering the market can create many more jobs than the total of all small firms combined. More detailed analysis along these lines is not possible across countries currently, but will be conducted as more data becomes available from Rounds II and III of the RPED panel surveys.¹⁷

Quality Of Jobs Created Through Growth

In addition to the number of jobs created in the economy, the quality of these jobs is also an important consideration vis-à-vis policies for employment and poverty alleviation. The major overall concern here is whether efficient structural change is occurring which shifts workers over time up the ladder of productivity to higher standards of living. If this is not occurring then we have to question the job creation process.

¹⁷ Another important issue concerns sampling weights. However, since the samples were chosen on the basis of employment; weighted analysis did not yield different results. The complete set of results are presented in the paper "The Dynamics of Enterprise Growth," Biggs et al. (1995a). For data on productivity differentials, see Biggs et al. (1995b), *Technological Capabilities and Learning in African Enterprises*.

RPED findings indicate that there exist enormous wage and productivity differentials among firm size classes, even after controlling for human capital, worker experience, and other worker attributes. Micro firms generally create low wage and low productivity jobs in contrast to the medium and larger firms where both productivity and wages are higher. As noted in our discussion of labor market issues, larger firms pay significantly more than smaller firms. On average, these differentials are large, with a 70 percent difference between wages of micro versus large firms, and 100 percent differentials between small and large firms for skilled, non-manual workers (see Table 6.11 below).

Studies examining labor market characteristics in East Asia found similar differentials for Malaysia during the late 1960s, and for Bombay in 1979 (Mazumdar 1995). These differentials become narrower at higher levels of per capita income, as firms move up the ladder of productivity. Hence, an area for policy would be to promote growth and employment in higher productivity areas, leading to overall manufacturing growth and narrowing wage differentials.

Table 6.11
Spread in the Log of Earnings from the Lowest to the Highest Size Groups

| <i>Type of Worker</i> | <i>Kenya</i> | <i>Zimbabwe</i> | <i>Cameroon</i> |
|-----------------------|--------------|-----------------|-----------------|
| Manual | 0.52 | 0.69 | 0.72 |
| Non-Manual | 0.98 | 1.80 | 0.45 |

Source: RPED Surveys, 1993

Determinants of Firm Growth

Finally, we consider an issue of key interest in terms of policy, namely, what are the determinants of firm growth in Africa. The first question to be addressed in this context is: Is Africa different — i.e., do similar factors drive enterprise growth in Africa as in other parts of the world? Second, is the growth process largely a random process or are there systematic features that determine growth? Many studies of firm growth in developed countries argue that there is a large stochastic (or chance) element to growth. Third, if there are systematic variables which drive growth over time in Africa, what are they?

The systematic factors which have been found to determine growth in developed countries can be grouped under the following headings: (a) initial conditions, mainly size with small firms expected to grow faster than large firms; (b) firm age — entrepreneurs learn about their efficiency relative to others over time, growth is highest during this learning process; (c) human capital and management: good managers are needed to manage the process of growth; and (d) characteristics determining the obstacles to growth (e.g., regulations, market conditions and finance).

Regression results for the overall sample of entrepreneurial firms in RPED surveys show that 40-50 percent of the variance in growth rates can be explained by exactly the same variables found in developed countries, i.e., Africa does not appear different in terms of the variables which determine firm growth. This also indicates that a large part of firm growth is explained by systematic attributes of the firms. In other words, the growth process is not purely stochastic.

The systematic variables that are found important across the spectrum are firm size, firm age, human capital, sector and, in some cases form of ownership and ethnicity. Growth falls with firm size at an increasing rate. As predicted by Jovanovic's learning model (Jovanovic 1982), young firms grow faster than large firms. In addition, RPED findings show that growth falls with firm size and age throughout the sample space. (Biggs, Shah and Srivastava [1995a]). Human capital is an important indicator of growth, after controlling for initial size and age. In Ghana, for example, entrepreneurs with university and professional education grow significantly faster than those with less education. In Zimbabwe and Kenya too, entrepreneurs completing secondary school grow faster than those with less education.

Further analysis of characteristics determining firm growth and obstacles to growth awaits availability of panel data. Examining growth characteristics and relating it, in particular, to issues such as access to finance, business support services etc. requires historical data on these variables. These data were not available from the Round I cross-section. Using panel data, later research will be able to analyze characteristics determining growth over the three year period, using variables from the first round as a set of initial conditions.

In addition, considerable effort will be undertaken focusing exclusively on small and microenterprises. Preliminary analyses for these small firms show that their growth characteristics cannot be explained by age and initial size. These firms may not grow because the costs of growth outweigh its benefits, given the transaction costs involved in becoming a formal firm, etc. For a one person firm, self-employment may be an alternative to working for another firm, the person may have no desire or know-how to grow, unlike an entrepreneur who bears risks and organizes production processes. Further research should help determine factors that inhibit or accelerate growth, and should help policy-makers in designing appropriate financial and technical assistance programs to pick potential winners.

7. Africa Can Compete: Export Opportunities and Challenges for Garments and Home Products in the U.S. and European Markets

African export performance, particularly of manufactured goods, has been poor for many years. Even the substantial realignment of nominal exchange rates in these economies, a critical component of structural adjustment programs, has not had a strong impact on their export volumes. The lack of export response of African manufacturing seems to be significantly dependent upon factors additional to exchange rates. Some of these structural constraints have been analyzed by two RPED studies of African manufactured exports: one focuses on opportunities and challenges in textiles and home products in the US market, the other on European markets.

Research on the first study was begun when US retailers noted problems in sourcing manufactures from Africa. A rapidly growing market for Afrocentric products in the US has in recent years sent some US retailers scrambling to source products in Africa. The study estimated that the size of the American market for Afrocentric products is as high as \$500 million. The European study was a logical follow up to the first since that market is also of immense potential importance to the growth of African exports.

The two studies follow a case-study methodology by analyzing specific buyer/seller transactions between nascent African suppliers and importing companies in the US and Europe. The selection of product categories studied in these reports was based on revealed demand for imports of African products into the two markets. It includes firms in the textiles and garments sectors as well as those producing home products, like furniture and handicrafts. The studies focus on transactions between specific buyers and sellers to pinpoint major constraints in these market-based interactions reflected in increasing component costs at different stages in bringing products to the market and thus, ultimately, in lower price or non-price competitiveness of African exports. In addition, the studies also evaluate the extent to which the stereotype of lack of competitiveness of African labor holds true among these firms.

An important finding of the two studies is that Africa can compete: African unit labor costs are indeed competitive in terms of international comparisons. When African manufacturing firms are run by management with international experience, their labor costs are well within the range of Asian rivals. Relative unit labor cost in a common currency, like US dollars, is measured as the ratio of nominal wages per worker for a given work period, divided by productivity per worker for the same work period. Thus, competitiveness in, say, garment manufacture can vary among countries because of: (i) differences in wages paid to workers; (ii) differences in task-level productivity of workers, and (iii) differences in exchange rates.

As indicated in Table 7.1 nominal wages in US dollars, on average, tend to be comparatively low in Africa, with the exception of those in Francophone countries. Assuming that the exchange rate is permitted to seek its equilibrium level, the central question for international competitiveness is whether the task-level productivity of workers in countries like Ghana, Kenya and Zimbabwe is high enough, given these nominal wage rates, to produce export items at competitive prices. To answer this question, we interviewed plant managers in African companies producing clothing for the export market. All of these plants had managers (local and expatriate) experienced in dealing with the international garments trade. Questions were asked regarding the productivity of machine operators per eight-hour work period for the production of a particular product, in this case a man's casual, long-sleeved shirt and, in Zimbabwe, men's jeans. The resulting figures were then compared with data gathered from similar garments factories producing in India and the export processing zone in China. The results of this exercise are set out in Table 7.2.

Table 7.1
Comparison of Factor Costs between Select African & Non-African
Countries, 1994

| | <i>Zimbabwe</i> | <i>Kenya</i> | <i>Côte</i> <i>d'Ivoire</i> | <i>Senegal</i> | <i>Ghana</i> | <i>Mauritius</i> | <i>India</i> |
|---------------------------|-----------------|--------------|--------------------------------|----------------|----------------------|------------------|--------------|
| Monthly wage ^a | \$70-75 | \$55 | \$66-\$99 ^e | \$104 | \$30-45 ^f | \$120 | \$60 |
| Electricity ^b | 1.78¢ | 9.70¢ | 11.40¢ | 11.76¢ | 5.70¢ | 9.00¢ | 4.80¢ |
| Water ^c | \$0.38 | \$0.52 | \$0.60 | \$1.09 | \$0.32 | \$0.46 | \$0.32 |
| Diesel Fuel ^d | \$0.26 | \$0.47 | \$0.40 | \$0.68 | \$0.37 | \$0.27 | \$0.28 |

^aWage for a semi-skilled machine operator in the garments industry.

^bIndustrial electricity rates per Kwh during peak load period.

^cIndustrial water rates per cubic meter.

^dDiesel fuel cost per liter.

^eThe \$66 rate is estimated for inexperienced employees in a new factory whereas \$99 is the rate currently paid at the only remaining export garment factory in Abidjan, where workers have significant experience.

^f\$30 is for new hires and \$45 for more experienced workers.

Source: Interviews with garment producers, 1994

Considering the lack of experience of African workers, it is not surprising to find that task-level efficiencies of machine operators are only 60-70 percent of the average Chinese worker and 75-80 percent of the average Indian worker. Additionally, African workers, as was true of inexperienced Asian workers in earlier days, have problems maintaining quality when greater production speed is required. In early stages of industrial learning, this problem constrains the use of incentive schemes to increase productivity. For example, plant managers indicated that piece-rate pay schemes could not be used to raise worker task-level productivity until workers reach a certain skill level. The end result of piece-rate pay schemes when skills are low will be higher output but with a greater number of quality rejections.

Table 7.2
Task-level Efficiency in Standardized Garment Production
in Selected Countries, 1994

| <i>Number of Garments Produced per Machine Operator in 8 Hour Shift</i> | <i>EPZ</i> | | | | |
|---|-----------------|--------------|--------------------------|--------------|--------------|
| | <i>Zimbabwe</i> | <i>Kenya</i> | <i>Ghana^a</i> | <i>India</i> | <i>China</i> |
| Men's Casual Shirts | 12-14 | 12-15 | 12 | 16 | 18-22 |
| Men's Jeans | 10-12 | n.a. | n.a. | n.a. | 14 |
| Index of Unit Labor Cost (for Men's Casual Shirts) ^b | 0.034 | 0.026 | 0.022 | 0.027 | 0.040 |

^aTask efficiency for plain shirts was 12 and for striped or checkered shirts was 8 to 10.

^bThe following assumptions apply to the Index of Unit Labor Cost: (i) where a range of task level efficiencies and monthly wages (from Table 7.1) was available from company interviews, the average task efficiency or monthly wage for each country was used; (ii) 26 days are worked in the average work month; (iii) the FOB unit prices for the shirts produced in each country are taken from Table 7.3.

Source: Interviews with African garment producers, 1994

One factor that does materially influence worker productivity in early skill development is order size. Factory managers indicated that the larger the order size the higher the average expected task-level efficiency of workers. The reason is that inexperienced workers have a chance to build up speed and accuracy on longer production runs. As a consequence, African firms stated a preference for large and recurring orders from buyers. In most cases, they prefer (at least in bigger factories) to deal with large international retailers rather than small boutiques. It also takes experience to be able to make fast switches from one design to another along the production line and maintain high task-level productivity. This is why African exporters like to begin exporting by producing shirts rather than other items, like shorts or pants. Once workers learn to make a shirt, all that is generally required to keep up with fashion changes over time is to change the color of the fabric. With items like pants, the factory often needs to change the whole sewing technique when designs change.

In terms of international competitiveness, Africa's lower task-level productivities can be offset by its lower wages. A comparable worker in the export processing zone in China is paid about \$120 per month. This nominal wage translates into a unit labor cost index ($\$120 \div \$2,974$, the dollar value of output per worker per month) for China of about 0.040, compared to 0.034 for Zimbabwe, 0.026 for Kenya, and 0.022 for Ghana.¹⁸ India's unit labor cost index is 0.027. Thus, although African workers are less productive than Asian workers, much lower nominal wages allow Africa to have lower or equivalent price competitiveness on world markets.

¹⁸ See Note B in Table 7.2 for an explanation of the assumptions used in calculating the unit labor cost index.

However, there are a number of constraints identified by the RPED studies that tend to mitigate export competitiveness stemming from lower unit labor costs of African goods:

- Difficulties with infrastructure
- High transaction costs of linking into international markets
- Lack of technical learning in African manufacturing firms
- Difficulties in accessing export finance
- Policies which restrict the business environment
- Difficulties with taking advantage of EU and US trade regimes, and dealing with issues which may come up under their authority.

First, many African manufacturers face a variety of infrastructural constraints which hamper their competitiveness vis à vis their rivals elsewhere. An important example of this is the higher cost of getting their products to market. While the actual freight charges from Asian countries lie in the middle of the range shown by the African countries covered in these studies, the port charges from Africa can be as much as 600 percent higher than those from Asia. Consequently, shipping costs for a 20-foot container from Africa can exceed by over \$1,000 the costs for shipping the container from Asia. Similarly, another element of the cost of transportation is the issue of time. The turnaround time in African ports is almost as rapid as that in Asia but the average time between receipt and loading of a container is much longer in Africa than Asia. The lack of reliable telecommunications networks have also been identified as a constraint on enhancing the export competitiveness of African goods. It should be noted that the investment required in overcoming infrastructural constraints on export performance are not very large. In Kenya, for example, the addition of a few cranes in Mombasa and the improvement of the road and rail systems to Nairobi would be sufficient in the short term.

Second, transaction costs for firms in the markets for African exports are high because most African exporters either lack reputation or, worse yet, have negative reputations in the world markets. *Ex-ante* transaction costs are those incurred by buyers and suppliers searching markets for potential customers and developing contractual arrangements to govern their exchanges. *Ex-post* transaction costs arise when non-performance of one of the trading partners results in costs for the other party. Both private and collective mechanisms are needed in the current business climate to reduce transaction costs. Examples of collective mechanisms are national export promotion agencies, business association programs, NGO support programs, and donor agency support programs. The most important collective mechanism for reducing the transaction costs of nascent exporters has been the trade fair. Trade fairs in Europe, both private and government sponsored, have been valuable channels for African firms to learn about markets and to find customers. Nevertheless, the RPED case studies have identified important issues regarding the implementation of these fairs which must be addressed in order to enhance the impact on developing African exports.

Examples of private mechanisms, on the other hand, are trading intermediaries, opportunities for indirect exporting via subcontracting and the presence of pre-existing private contacts which facilitate entry into particular markets. Private mechanisms have been the bedrock of export marketing efforts in all successful countries. However, there is little evidence of efforts in the development community or in government programs in Africa to promote the development of private trading intermediaries, an especially limiting factor in the growth of exports of, for example, handicrafts.

Third, a critical element in enhancing export performance consists of promoting technical learning in African firms in order to make them competitive internationally. Either African firms need to continually improve or innovate their products in order to differentiate them from those of their competitors, or they need to learn how to produce more efficiently and in greater volume to take advantage of decreasing average costs.

An earlier section of this paper reported on RPED findings showing that African firms display lower levels of total factor productivity than firms in other developing countries (see Chapter 3 on Technological Capabilities and Learning Mechanisms). The section also provided a detailed discussion of firm and worker-level policies which can enhance learning mechanisms available to firms. We can note here briefly that technical learning can be promoted by both private and collective learning mechanisms. The most common private learning mechanisms are in-house training and contacts with foreign buyers and suppliers. However, in order to compete in an increasingly technically demanding market, African firms will need to engage in more formal R&D with the help of more expatriate employees and foreign consultants. The policy environment will have to be liberalized in order to make these last two possible in many countries. More formal technical courses, perhaps given in the destination market countries themselves, will further improve Africa's ability to gain international market share. Subcontracting, if Asia and Latin America have any relevance as models for developing competitiveness, should also be increased.

Collective mechanisms which are effected via NGOs, governments, business associations and donor agencies can promote high-intensity (firm specific) or broad-based learning. Broad-based services aim to create a richer learning environment from which firms can select needed services. The performance of existing collective mechanisms, particularly government-implemented services, has been quite poor in most of the African economies, and methods to enhance their provision in the economy are discussed in the section mentioned above.

Fourth, restricted access to finance provides another binding constraint to the development of African exports. Shortcomings in the banking system, shared by all countries surveyed, severely limit the opportunities for obtaining working capital, specifically pre- and post-export finance. Inexperience, both within the exporting community and in the banking system, has led to ineffective timing of trade credit,

which has frequently led to delayed payments. Most local banks take two weeks or longer to process letters of credit (LCs). Also, it is almost impossible for small to medium companies to use an LC from a foreign buyer to obtain working capital loans from banks. Efforts are needed to assist these firms to receive pre-shipment working capital loans.

Fifth, the policy environment, both within and outside these African economies, can also make important contributions to improving their export performance. Clearly, the African nations must continue the trend towards improving their business environment by fuller implementation of policy reforms. For example, while experienced African producers are relatively price competitive in Ghana, Kenya and Zimbabwe, in countries like Côte d'Ivoire and Senegal, even after the January 1994 devaluation, government wage policies and other factors continue to artificially maintain formal sector wages well above market-determined levels.

Last, policies in the US and European economies regarding African manufactured imports also have a substantial impact on the potential success of African export efforts. In all but a very few African countries and for all but a few manufactured products, African producers who meet strict origination requirements have duty free access to the US market. However, it must be noted that growth of exports which are deemed too rapid by the US government may bring on trade restrictions. Recent actions by the US, for example, in the case of Kenyan textiles and garments exports suggest that the fuse triggering restrictions may be getting shorter in practice compared to previous periods. A US quota imposed on exports of garments from Kenya has cost that country about 10,000 manufacturing jobs. Similarly, the elimination of all tariff ceilings and fixed duty-free amounts in the revised 1995 European Union-GSP accord means that Lomé countries (and LDDCs in the GSP) are now the only nations with duty-free access to the European market. This advantage is meaningless, however, if rules of origin are so strict that producers in Sub-Saharan Africa cannot meet the policy requirements and thus do not benefit from duty-free access. This may be the case in the garment industry where African nations are virtually required to have an up-stream textile industry in order to qualify for duty-free access because the cloth for an export garment must be produced by an ACP or European Community country. Since European cloth is too expensive in most cases, this leaves African countries with no choice than to develop a local textile industry if they want duty-free entry. In fact, if the African garment exporter is unable to meet the rules of origin under Lomé, then their exports may be subject to higher tariffs than some of their Asian competitors face. For an example of this, see Table 7.3 below, which illustrates how various countries' exports of men's shirts are affected by tariffs under prevailing trade regimes.

Table 7.3
Cost Comparison for Men's Casual Long Sleeved Shirt for Export to Europe
(in US dollars, Fall 1994)

| | <i>Zimbabwe</i> | <i>Kenya</i> | <i>Ghana</i> | <i>India</i> | <i>EPZ China</i> |
|---------------------------------------|-----------------|--------------|--------------|--------------|------------------|
| Fabric | 3.09 | 3.00 | 3.18 | 2.90 | 2.78 |
| Misc. Materials | 0.57 | 0.65 | 0.52 | 0.65 | 0.65 |
| Washing | 0.13 | 0.14 | 0.11 | 0.12 | 0.16 |
| Labels/Packaging | 0.18 | 0.47 | 0.36 | 0.40 | 0.25 |
| Dir./Indir. Labor | 2.09 | 1.68 | 1.22 | 1.22 | 1.83 |
| Transport to Port | 0.21 | 0.16 | 0.05 | 0.15 | 0.05 |
| Subtotal A (FOB) | 6.27 | 6.10 | 5.44 | 5.44 | 5.72 |
| GSP (85% of 12.5%) ^a | | | | 0.58 | 0.61 |
| Lomé Originating (No Tariff) | --- | --- | --- | n.a. | n.a. |
| Total ^b | 6.27 | 6.10 | 5.44 | 6.02 | 6.33 |
| Quota Cost | n.a. | n.a. | n.a. | 1.00 | 2.00 |
| Total ^c | 6.27 | 6.10 | 5.44 | 7.02 | 8.33 |
| Lomé Nonoriginating (12.5% Tariff) | 0.78 | 0.75 | 0.67 | n.a. | n.a. |
| Total ^d | 7.05 | 6.85 | 6.11 | 7.02 | 8.33 |

^aThis figure represents the 15 percent discount on the full rate of duty which GSP beneficiaries enjoy.

^bThese figures represent the relative prices of Lomé vs. non-Lomé goods when the Lomé goods have originating status and when the non-Lomé exporters do not have to purchase quota.

^cThese figures represent the relative prices of Lomé vs. non-Lomé goods when the Lomé goods have originating status and when the non-Lomé exporters must purchase quota.

^dThese figures represent the relative prices of Lomé vs. non-Lomé goods when the Lomé goods do not have originating status and when the non-Lomé exporters must purchase quota.

Note: Quota premiums are for the home-country purchase of quota for export to Europe. Their level may vary depending on market conditions. The values indicated are the maximum level. Most of the big exporting firms in Asia operate under historical quota allocations. Only when the firm wants to produce more than it has currently been allocated does it have to buy more quota on the market.

Source: Interviews with garment producers, 1994

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Appendix A

Regional Program on Enterprise Development (RPED) List of Available Papers

The following RPED papers are available by contacting the program directly. An order form is provided at the end of the Appendix for doing so.

Country Background Papers

- Burundi *Burundi: Disequilibrium, Reform and the Manufacturing Sector.*
Catholic University of Leuven and the University of Burundi, April 1993.
- Cameroon *State Crisis and the Manufacturing Sector in Cameroon.*
CETAI (University of Montreal) and ESSEC (University of Douala),
April 1993.
- Côte d'Ivoire *An Agricultural Export-Led Growth with Low Industrialization.*
CERDI, University of Auvergne, Clermont Ferrand, March 1996
- Ghana *Economic Reform and the Manufacturing Sector in Ghana.*
Center for the Study of African Economies — University of Oxford and the
University of Ghana, December 1992
- Kenya *Economic Development and the Manufacturing Sector in Kenya.*
University of Gothenburg and the University of Nairobi, July 1993.
- Rwanda *Rwanda: Disequilibrium, Reform and the Manufacturing Sector.*
Catholic University of Leuven, April 1993.
- Tanzania *Tanzania: Enterprise Sector in Changing Environment.*
Center for International Business Research — Helsinki School of Economics,
November 1992.
- Zambia *Zambia Country Background Paper.*
Foundation for Research in Economics and Business Administration
(SNF-Oslo) and the University of Zambia, June 1993.
- Zimbabwe *Zimbabwe Country Background Paper.*
Free University of Amsterdam and the University of Zimbabwe, April 1993.

Country Studies

Preliminary reports, completed several months after the field work, describe each component of the collected data set and offer a first statistical look at the survey results. The following preliminary reports are available:

- Burundi *First Report on the Burundi Survey.*
Catholic University of Leuven and the University of Burundi, January 1994.
- Cameroon *Preliminary Report on the RPED Cameroon Survey.*
CETAI (University of Montreal) and ESSEC (University of Douala),
November 1993.
- The State of Manufacturing Enterprises in Cameroon: Preliminary Report on the
Second Round of the Survey.* CETAI (University of Montreal) and ESSEC
(University of Douala), January 1995.
- Côte d'Ivoire *Les Industries en Cote d'Ivoire en 1995: Agroindustrie, Bois et Métaux, Note de
Synthese de l'Enquete.* CERDI (Clermont Ferrand) with CIRES (Abidjan),
Centre d'Etudes Economiques (Louvain) and ORSTROM (Abidjan), March
1996.
- Ghana *First Report on the Ghana Pilot Survey.*
Center for the Study of African Economies, University of Oxford, and the
Department of Economics, University of Ghana, February 1993.
- The Ghanaian Manufacturing Sector 1991-1992: Findings of Waves 1 and 2.*
Center for the Study of African Economies, University of Oxford, and the
Department of Economics, University of Ghana, August 1994.
- Kenya *First Report on the Kenya Survey.*
University of Gothenburg and the University of Nairobi, September 1993.
- First Report on the Kenya Round II Survey.*
University of Gothenburg and the University of Nairobi, March 1995.
- Tanzania *Preliminary Report on the RPED Tanzania Survey.*
Center for International Business Research, Helsinki School of Economics,
April 1994.
- Preliminary Report on the Round II Survey.*
Center for International Business Research, Helsinki School of Economics,
May 1995.

Zambia *The Zambian RPED Enterprise Database.*
Foundation for Research in Economics and Business Administration (SNF-Oslo) and the University of Zambia, February 1994.

The Zambian RPED Study, Draft Report – Round II.
Foundation for Research in Economics and Business Administration (SNF-Oslo) and the University of Zambia, July 1995.

Zimbabwe *First Report on the Zimbabwe Survey.*
Free University of Amsterdam and the University of Zimbabwe,
November 1993.

The Manufacturing Sector in Zimbabwe: First Report on the Round II RPED Survey Data, Free University of Amsterdam and the University of Zimbabwe,
October 1994.

The Regional Program on Enterprise Development: Report on Round III of the Zimbabwe Survey. Free University of Amsterdam and the University of Zimbabwe, December 1995.

Analytical reports pull together the empirical research within an analytical framework. The following analytical reports are available:

Burundi *The Structure, Performance and Development of the Manufacturing Sector in Burundi.* Catholic University of Leuven and the University of Burundi,
August 1994.

Cameroon *Manufacturing Enterprises under Adjustment in Cameroon: A Survey Perspective.* (First Draft). CETAI (University of Montreal) and ESSEC (University of Douala), May 1994.

Economic Reform and the Development of the Manufacturing Sector in Cameroon: Final Report on the Round II RPED Survey Data. CETAI (University of Montreal) and ESSEC (University of Douala), June 1995.

Structural Adjustment and the Manufacturing Sector in Cameroon: Report on Round III RPED Data. CETAI (University of Montreal) and ESSEC (University of Douala), May 1996

Ghana *Economic Reform and the Manufacturing Sector in Ghana.(Round I).*
Edited by Amoah Baah-Nuakoh, Department of Economics, University of Ghana, and Francis Teal, Centre for the Study of African Economies, University of Oxford, August 1993.

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- The Ghanaian Manufacturing Sector in 1991 and 1992: Firm Performance and Growth (A Second Preliminary Report on Wave I and II of a Panel Data Survey).* Francis Teal, Centre for the Study of African Economies, University of Oxford, June 1994.
- The Ghanaian Manufacturing Sector 1991-1992 Findings of RPED Survey Waves I and II.* Centre for the Study of African Economies, University of Oxford, and Department of Economics, University of Ghana, August 1994.
- The Ghanaian Manufacturing Sector 1991-1993: Some Findings from Waves 1 to 3.* Center for the Study of African Economies, University of Oxford, and the Department of Economics, University of Ghana, December 1995.
- Kenya *Limitations and Rewards in Kenya's Manufacturing Sector: A Study of Enterprise Development.* University of Gothenburg and the University of Nairobi, January 1994.
- Manufacturing in Kenya Under Adjustment: Final Report on the Round II RPED Survey.* University of Gothenburg and the University of Nairobi, May 1995.
- Report on Round III of the Kenya Survey.* Department of Economics, Gothenburg University, Sweden, and Department of Economics, University of Nairobi, Kenya, May 1996.
- Tanzania *RPED: Development and Growth of Industrial Enterprises in Tanzania.* Center for International Business Research, Helsinki School of Economics, May 1994.
- Dynamics of Enterprise Development in Tanzania: Final Report on the Round II RPED Survey.* Center for International Business Research, Helsinki School of Economics, July 1995.
- Zambia *The Zambian RPED Study.* Foundation for Research in Economics and Business Administration (SNF-Oslo) and the University of Zambia, August 1994.
- The Zambian RPED Study, Final Report, Round II.* Foundation for Research in Economics and Business Administration (SNF-Oslo) and the University of Zambia, November 1995.
- Zimbabwe *The Manufacturing Sector in Zimbabwe: Dynamics and Constraints.* Free University of Amsterdam and the University of Zimbabwe, April 1994.
- The Manufacturing Sector in Zimbabwe: Industrial Change Under Structural Adjustment Final Report on the Round II RPED Survey Data.* Free University of Amsterdam and the University of Zimbabwe, January 1995.
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Report on the Round III (1995) of the Zimbabwe Survey. Free University of Amsterdam and the University of Zimbabwe, December 1995.

Case Studies

Finance

- Ghana *Case Studies of Enterprise Finance in Ghana.* Carlos E. Cuevas, Marcel Fafchamps, Rebecca Hanson, Peter Moll and Pradeep Srivastava. May 1993.
- Zimbabwe *Enterprise Finance in Zimbabwe.* Tyler Biggs, Marcel Fafchamps, John Pender, Elizabeth Robinson, Pradeep Srivastava, April 1995.
- Kenya *Enterprise Finance in Kenya.* Tyler Biggs, Jonathan Conning, Marcel Fafchamps, Pradeep Srivastava, June 1996.

Technology

- Ghana *Technological Capabilities and Industrial Development in Ghana.* Sanjaya Lall, Giorgio Barba Navaretti, Simón Teitel, Ganeshan Wignaraja, March 1993.
- Kenya *Technology Acquisition, Operation and Development in Selected Kenyan Manufacturing Establishments.* Simón Teitel, Ricardo Soifer, et al, October 1993.
- Zimbabwe *From Autarky to Competition: Technology and Skills in Zimbabwe's Manufacturing.* Simón Teitel and Francisco Thoumi, July 1994

Business Strategy and Support Services

- Mauritius *Textile and Garment Production in Mauritius.* Dennis P. Ferrill, March 1993.
- Regional *Africa Can Compete! - Opportunities and Challenges in Garments and Home Products in the U.S. Market.* World Bank Discussion Paper #242. Tyler Biggs, Gail Moody, E. Diane White, and Jan-Hendrik van Leeuwen, March 1994
- Regional *Africa Can Compete! Opportunities and Challenges in Garments and Home Products in the European Market.* World Bank Discussion Paper #300. Tyler Biggs, Margaret Miller, Caroline Otto and Gerald Tyler, May 1995.

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- Ghana *Real Wages and the Demand for Labor in Ghana's Manufacturing Sector* Francis Teal, October 1995.
- Zimbabwe *Zimbabwe's New Entrepreneurs: An Emerging Success Story?* Ralph Bradburd and Brian Levy, October 1995.
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- Regional *The Impact of the AIDS Epidemic on African Firms.* Tyler Biggs, Manju Shah, and Pradeep Srivastava, June 1996.

Regional *Informal Finance and Trade Credit in Kenyan Manufacturing.* Tyler Biggs and Pradeep Srivastava, June 1996.

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The following RPED products have been selected for publication by the World Bank's Africa Technical Department:

Regional *Africa Can Compete! Opportunities and Challenges for Garments and Home Products in the U.S. Market.* World Bank Discussion Paper #242. Tyler Biggs, E. Diane White, Gail Moody, Jan-Hendrik van Leeuwen, June 1994.

Regional *Technological Capabilities and Learning Mechanisms in African Enterprises.* World Bank Technical Paper #288. Tyler Biggs, Manju Shah and Pradeep Srivastava, April 1995.

Regional *Africa Can Compete! Opportunities and Challenges for Garments and Home Products in Key European Markets.* World Bank Discussion Paper #300, Tyler Biggs, Margaret Miller, Caroline Otto and Gerald Tyler, May 1995.

Regional *Structural Aspects of Manufacturing in Sub-Saharan Africa: Findings from a Seven Country Enterprise Survey.* Tyler Biggs and Pradeep Srivastava, June 1995.

In addition, the Ghana Technology Case Study was published by MacMillan Publishers of the U.K and St. Martin's Press in the U.S. as *Technology and Enterprise Development – Ghana Under Structural Adjustment* by Sanjaya Lall, Giorgio Barba Navaretti, Simón Teitel and Ganeshan Wignaraja in 1994.

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