

REPORT

Mozambique: Creating a Productive Wheel in a Competitive Cart



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SUBMITTED TO
USAID/Mozambique

SUBMITTED BY
Nathan Associates Inc.

AUTHOR
Soumodip Sarkar

UNDER CONTRACT NO.
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Task Order 834

TECHNICAL REPORT

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This report does not necessarily reflect the views of the United States Agency for International Development, Nathan Associates Inc., the Ministry of Industry and Trade of Mozambique, or of the CTA.

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Executive Summary

Mozambique's recent economic performance has been impressive, not just by African standards, but a record surpassed only by a few developing countries in the world. From 1995 to 1999, per capita income increased at an annual average of 8.6 percent,¹ while the 2002 annual growth rate was 8.3 percent, with a per capita growth of 6.1 percent. Inflation fell from more than 50 percent in 1996 to 2 percent in 1999, rising again to 11.4 percent in 2000 and 21.9 percent in 2001 to slightly below 14 percent in 2003. The economic growth has been accompanied and indeed fuelled by high rates of capital formation. Since 1999, private investment has held steady between 25-30 percent and public sector investment reached above 10 percent. Foreign direct investment has increased steadily, from \$139 million in 2000 to \$255 million in 2001 to \$380 million in 2002, before falling slightly to \$342 million in 2003.

However, despite low wages, Mozambique's low productivity undermines its competitiveness. In one World Bank study of industrial performance,² Mozambique was found to have the lowest labor productivity in a sample of eight sub-Saharan countries. The study also found total factor productivity to be very low – 0.38. The Mozambican Ministry of Industry and Trade (MIC) also shares these concerns; in its quarterly survey of the industrial sector, it highlighted firms' poor productivity as a major concern for industry.³

Since workers' wages are linked to their productivity, higher productivity implies higher wages and an improvement in worker welfare. From a broader economic viewpoint, studies show that up to half of economic growth can be attributed to productivity growth.⁴ Productivity growth, specifically in manufacturing, improves workers' welfare and GDP growth, and contributes to the government's larger struggle to reduce poverty. Increasing productivity must be a vital part of the Mozambican government's industrial strategy.

² Mozambique Industrial Performance and Investment Climate 2003, August 2003, World Bank.

³ Balanço da Produção Industrial – 1º Trimestre de 2003. Ministry of Industry and Commerce, Mozambique.

⁴ Productivity Growth and Poverty Reduction in Developing Countries, Centre for the Study of Living Standards, September 2003.

For Mozambique to achieve its policy targets and escape poverty, productivity and productivity growth must be essential to official government policy. Even a 2 percent increase in worker productivity could result in a 1 percent increase in GDP per capita. Assuming a growth-poverty elasticity of -0.73 (Besley and Burgess), this would imply a reduction of poverty by 0.7 percent. In absolute terms, this implies a possibility of more than 120,000 people moving above the poverty line annually. While these figures are at best rough estimates, but there is little doubt that productivity growth translates into economic growth and poverty reduction. A strategy to create a business environment for productivity growth must be implemented.

This study seeks to better understand reasons for Mozambique's low productivity and suggest some policy recommendations to increase productivity growth. The study was conducted to find reasons for Mozambican firms' low productivity, and suggest policy changes to increase productivity. The research was based on a combination of an extensive literature review, field interviews, and data analyses. Data were obtained from field visits to a sample of firms, most in the industrial sector. The study also included a survey. The Ministry of Industry and Trade (MIC) arranged the interviews. We also obtained industry- and firm-level data from MIC sources.

The study analyzed the structure of the industrial sector highlighting its extremely skewed nature both in terms of manufacturing value added as well as the spatial distribution. Using firm level data as well as ministry data, we also calculated the value added per worker and its distribution across firms in both the manufacturing and agro industry sub sectors. Further analyses of some clusters in each sector were revealing. For instance, in manufacturing, a study of five firms in similar activity we found a wide dispersion in costs and value added. Consequently, labor productivity within this cluster is also very different. The productivity (value added per worker) also varied widely despite the similar activities. The firm with highest labor productivity is 11 times more productive than the firm with the lowest productivity.

Our study corroborates earlier World Bank-CTA study, in that labor productivity is very low, and we also found low capacity utilization. Besides low productivity, there is also a wide dispersion in the cost structure and labor productivity of firms with similar activities. During interviews conducted for this study, it was clear that there is a lack of awareness of productivity as an issue for domestic firms. Few firms had installed human resource training and skills investment or a system of productivity enhancement wage schemes. Firms do not appear to practice the payment of piece rate, which links pay to productivity in most labor-intensive industries.

The results of our study reconfirm previous studies' conclusions that productivity and growth in Mozambique must be analyzed in the wider context of the business environment and competitiveness. As the World Bank's Investment Climate study rightly pointed out, in Mozambique firm-level productivity and productivity growth were low primarily because of the business environment. A favorable business environment can support productivity growth. Second, in promoting investment and growth at the firm and sectoral levels, competitiveness is immensely important. Labor component and consequently labor productivity are only part of competitiveness in the value chain.

Our research corroborates the findings of the World Bank study on Mozambique's poor business environment. While our interviewed sample was too small to give robust quantitative results, a clear sense emerges that not only are workers poorly trained, and worker training does not seem to be a high priority for business. Worker health, primarily the widespread prevalence of HIV, besides being a major issue of social concern, the AIDS epidemic has direct consequences for firms and productivity. Besides workforce skills, management skills are another issue affecting the organizational environment in general and worker productivity in particular. Our research showed disparities in indicators such as worker-to-administrator ratio, administrator-to-worker ratio among firms engaged in similar activities, and indicators of possible organizational problems. Although issues of organizational problems are difficult to capture quantitatively, the way the firm is structured in terms of sourcing of materials and composition of human resources may determine the value added. Overall our study strongly suggests that the road to increasing competitiveness via improving the business climate would lead to productivity increases as well.

If Mozambique has come far, it needs to go further still if it is to rid itself of its stigma as one of the world's poorest countries. Mozambique is still recovering from the collapse of production and infrastructure after the departure of the Portuguese, who took with them the technical, managerial, and entrepreneurial classes a market economy needs. We suggest policy changes to promote productivity growth and increase Mozambique's competitiveness. We suggest specific policy changes and recommend other studies, namely the World Bank's Investment Climate Assessment and Nathan Associates' Diagnostic Trade Integration Study, among others, for a wider range of policy suggestions.

Among our recommendations, we suggest specific policy measures that would enhance the pool of trained Mozambican workers. We also propose the creation of a council to promote productivity and competitiveness. Many countries have used national competitiveness and productivity councils to foster productivity awareness and promote productivity growth among firms. We also recommend that the government should avoid artificially increasing production costs, especially labor costs. In order for Mozambique to take advantage of its fundamental competitive advantage in labor-intensive manufactures. We also recommend a set of measures aimed at reducing the high cost of doing business in Mozambique.

1. Introduction

By most macroeconomic measures, Mozambique's recent economic performance has been impressive. From 1995 to 1999, per capita income increased at an annual average of 8.6 percent,⁵ albeit from a low base. In 2000, floods plunged GDP growth to 2.1 percent. However, the following year, the economy rebounded, growing at an incredible 13 percent. Production at the new \$2.2 billion Mozal aluminum smelting plant contributed greatly to this growth. The 2002 annual growth rate was 8.3 percent, with a per capita growth of 6.1 percent. Inflation fell from more than 50 percent in 1996 to 2 percent in 1999, rising again to 11.4 percent in 2000 (mainly owing to floods) and 21.9 percent in 2001 to slightly below 14 percent in 2003. The real exchange rate of the metical against the U.S. dollar has appreciated by 17 percent over the past two years, but depreciated against the rand by 45 percent.⁶ This made Mozambican exports to South Africa more competitive, but conversely increased costs for manufacturing firms that depend on South Africa for imports, especially raw materials.

High rates of capital formation have fueled economic growth. Since 1999, private investment has held steady between 25-30 percent and public sector investment reached above 10 percent. Foreign direct investment has increased steadily, from \$139 million in 2000 to \$255 million in 2001 to \$380 million in 2002, before falling slightly to \$342 million in 2003.⁷ The Investment Promotion Center (CPI) has played a pivotal role in promoting Mozambique as an investment destination and facilitating the licensing process for foreign investors.

Despite these advances, Mozambique remains desperately poor. Its GNP per capita in 2002 in purchasing power parity terms was \$1,050 (GDP per capita was a little over \$200 in 2002), ranking 157th of 177 countries. On social indicators such as health and education, conditions are still abysmal (see Exhibit 1-1). The World Bank estimates that about 69 percent of the population lives below the poverty level.⁸ However, using the \$1 per person per day, adjusted for purchasing power parity, Mozambique's National Institute of Statistics (INE) estimates the

¹ Data from World Bank

² Chapter 1: *Overview of the Economy from Mozambique: Diagnostic Trade Integration Study*. Nathan Associates, 2004

³ Ibid.

⁸ *Mozambique at a Glance*, 2003, World Bank.

incidence of absolute poverty at around 20 percent. To address poverty, the government launched an Action Plan for Reducing Absolute Poverty, known as the PARPA 2000–2004.

The menace of AIDS shows little sign of slowing. Official statistics indicate that more than 14 percent of the country's adult population is HIV-positive. Some provinces of the country have an infection rate of more than 25 percent. Unchecked, the disease could have serious economic repercussions including low growth and productivity. Urgent measures must be taken to slow the spread of AIDS.

Exhibit 1-1

The Human Development Index

The United Nations Development Program (UNDP) ranks Mozambique 171st in the Human Development Index (HDI) with an HDI value of 0.354. Only six countries are behind Mozambique. The HDI focuses on these variables of human development: measures of life expectancy, school enrollment, literacy, and income. The following table, from UNDP's Human Development Report 2004, shows how far Mozambique has to go on important development indicators, besides income per capita.

| <i>Life expectancy at birth (years) 2002</i> | <i>Combined primary, secondary and tertiary gross enrolment ratio (%) 2001/2002</i> | <i>GDP per capita (PPP US\$) 2002</i> |
|--|---|---------------------------------------|
| 1. Japan (81.5) | 1. Sweden (114) | 1. Luxembourg (61,190) |
| 2. Sweden (80.0) | 2. Australia (113) | 2. Norway (36,600) |
| 168. Angola (40.1) | 156. Mauritania (44) | 153. Central African Republic (1,170) |
| 169. Central African Republic (39.8) | 157. Côte d'Ivoire (42) | 154. Burkina Faso (1,100) |
| 170. Rwanda (38.9) | 158. Papua New Guinea (41) | 155. Benin (1,070) |
| 171. Mozambique (38.5) | 159. Mozambique (41) | 156. Mozambique (1,050) |
| 177. Zambia (32.7) | 176. Niger (19) | 175. Sierra Leone (520) |

SOURCE: *Human Development Report 2004, UNDP*

Despite low wages, Mozambique's low productivity undermines its competitiveness. In one World Bank study of industrial performance,⁹ Mozambique was found to have the lowest labor productivity in a sample of eight sub-Saharan countries. The study also found total factor productivity to be very low—0.38 (on a scale of 0 to 1). The Ministry of Industry and Trade (MIC) also shares these concerns; in its quarterly survey of the industrial sector, it highlighted firms' poor productivity as a major concern for industry.¹⁰

Since workers' wages are linked to their productivity, higher productivity implies higher wages and an improvement in worker welfare. From a broader economic viewpoint, studies

⁹ Mozambique Industrial Performance and Investment Climate 2003, August 2003, World Bank.

¹⁰ Balanço da Produção Industrial – 1º Trimestre de 2003. Ministry of Industry and Commerce, Mozambique.

show that up to half of economic growth can be attributed to productivity growth.¹¹ Productivity growth, specifically in manufacturing, improves workers' welfare and GDP growth, and contributes to the government's larger struggle to reduce poverty. Increasing productivity must be a vital part of the Mozambican government's industrial strategy. (See Exhibits 1-2 and 1-3 for a brief discussion of foreign donors' role in Mozambique's economy.)

For Mozambique to achieve its policy targets and escape poverty, productivity and productivity growth must be essential to official government policy. A strategy to create a business environment for productivity growth must be implemented. This study seeks to better understand reasons for Mozambique's low productivity and suggest some policy recommendations to increase productivity growth. The study was conducted to find reasons for Mozambican firms' low productivity, and suggest policy changes to increase productivity. The research was based on a combination of an extensive literature review, field interviews, and data analyses.

"Flying Geese" and Cheap, Productive Labor

In the industrialization process, comparative advantage typically develops from labor-intensive light manufacturing to more capital- and technology-intensive operations. The progression typically begins with industries such as garments and textiles. As labor and management become more sophisticated and real wages increase, industrialization progresses into heavier areas such as chemicals, steel, and electronics, and advances to knowledge-intensive activities. As this happens, labor-intensive activities move elsewhere. This has been called the "flying geese" development paradigm.¹² Several studies demonstrate that this dynamic of shifting comparative advantage has been at work in East Asia. It is linked to foreign direct investment; spin-off of labor-intensive industries fosters a "virtuous circle" of economic development in the region.¹³ A similar pattern of "flying geese" may be forming in East Africa, particularly because of rising wages in countries like Mauritius and the promise of the huge American market from AGOA.

¹¹ Productivity Growth and Poverty Reduction in Developing Countries, Centre for the Study of Living Standards, September 2003.

¹² Ocampo, J.A. (1993), "New theories of international trade and trade policy in developing countries," in Agosin, M. and Tussie (1993), *Trade and Growth: New Dilemmas in Trade Policy*, Macmillan, Basingstoke.

¹³ Rose, Andrew K, "Dynamic measures of competitiveness: Are the geese still flying in formation?" *Economic Letters*, May 30, 1997, Vol. 97. Also, Mark Hiley, "Industrial restructuring in ASEAN and the role of Japanese foreign direct investment," *European Business Review*, 1999, Vol. 99.

Exhibit 1-2*Aid Dependent?*

Mozambique's willingness to reform and strong macroeconomic performance have attracted many international donors. Development aid is flowing steadily, and there appears to be a genuine desire among developed nations to assist. To many, Mozambique is the 'other face of Africa,' representing optimism to aid agencies, donor countries, foreign observers and well-wishers. Mozambique risks becoming dependent on aid.

It received US\$935 million, or \$55 per capita, in assistance in 2001, less than some other countries. (Nicaragua's aid per capita was \$178 and Mauritania's \$95). In terms of gross national income and gross capital formation, official development assistance to Mozambique is very high. Comparative figures for 2001 in the following table show the extent to which assistance is a source of capital for Mozambique.

| <i>Country/Region</i> | <i>Net ODA (\$ millions)</i> | <i>Aid/Capital (\$)</i> | <i>Aid Dependency Ratios</i> | | |
|-----------------------|------------------------------|-------------------------|---------------------------------|--|---------------------------------|
| | | | <i>Aid as percentage of GNI</i> | <i>As Percentage of Gross Cap. Formation</i> | <i>As Percentage of Imports</i> |
| Botswana | 29 | 17 | 0.6 | 2.5 | 1.0 |
| Lesotho | 54 | 26 | 5.5 | 18.4 | 6.9 |
| Madagascar | 354 | 22 | 7.8 | 49.6 | 188.8 |
| Malawi | 402 | 38 | 23.4 | 210.2 | 38.3 |
| Mozambique | 935 | 52 | 28.2 | 70.8 | 20.3 |
| World | 58,244s | 10w | 0,2w | 0.9w | 0.6w |
| South Asia | 5,871 | 4 | 1.0 | 4.3 | 5.1 |
| Sub-Saharan Africa | 13,933 | 21 | 4.6 | 24.6 | 11.0 |

SOURCE: Selected World Development Indicators, 2004. The World Bank

A central factor in determining a location for labor-intensive manufacturing investment is the cost of labor in the host country. This is determined by productivity and wage rates (in international equivalent value). In wage rates, Mozambique presently enjoys an advantage. With a minimum wage in 2004, of 1120297 meticaís (slightly less than \$50 per month) for workers in the industrial sector, labor costs are much lower than in South Africa or Mauritius. Domestic firms should therefore be internationally competitive, even if productivity is relatively low; with good management, productivity levels can be competitive. Mozambique has the potential to attract 'footloose industries' seeking locations with low labor costs, such as garments, footwear, toys, sporting goods, simple electronic assembly, and certain agro-industries. Location decisions in many of these industries are sensitive to costs. In the garment industry, "a 10 percent differential can make buyers shift from one country to the next."¹⁴

¹⁴ From the text of a speech by Maurice Vigier de Latour, Marketing and International Director of Floreal Group, Mauritius.

Mozambique is not the only country in the region to access foreign investments in labor-intensive manufactures. Other sub-Saharan African countries such as Ghana, Namibia, and Botswana also compete in this sector. Given that productivity is a crucial factor in investors' decisions, efforts are underway in some of these countries to "land the flying geese." Botswana has established a productivity council to this end; Mozambique should do likewise.

Methodology

Our study combined an extensive literature review, field interviews, and data analyses. Two field visits were conducted for personal interviews and data collection. The study was conducted for approximately one month. Field work in Mozambique included interviews with a cross-section of people ranging from businessmen to ministry officials to policy makers. Data were obtained from field visits to 11 firms, most in the industrial sector, with more than one visit to many. The study also included a survey. The Ministry of Industry and Trade (MIC) arranged the interviews. We also obtained industry- and firm-level data from MIC sources. While the data sample was too small and dispersed across firms operating in different subsectors for any meaningful total factor productivity analyses, we conducted sectoral labor productivity analyses and value chain analyses.

Exhibit 1-3*Has Mozambique Avoided a Disease?*

During the 1960s, with the discovery of large natural gas deposits in the North Sea, the Netherlands experienced unexpected consequences. The Dutch guilder appreciated, making Dutch non-oil exports less competitive. This syndrome came to be known as "Dutch disease." Although the disease is associated with a natural resource discovery, it can occur from any development resulting in a large inflow of foreign currency, including large inflows of foreign aid, sharp increases in the international price of natural resource exports, a surge in foreign direct investment, etc.

With large, steady inflows of foreign aid, is Mozambique showing any of the symptoms of Dutch disease? If foreign currency is converted into local currency and spent on domestic non-traded goods, then the country's real exchange rate would appreciate, either through increase in money supply (if exchange rates are fixed) or supply of foreign exchange (under flexible exchange rate systems).

Despite the large flow of foreign aid, Mozambique

shows little sign of suffering from Dutch Disease (See Overview of the Economy from Mozambique: in *Diagnostic Trade Integration Study*, Nathan Associates, 2004). The main reason for this appears to be the way foreign exchange is used. There have been no sizeable increases in foreign exchange reserves (sterilization of foreign currency), and it appears that inflows of foreign exchange are spent entirely on imports, and have no direct impact on the country's money supply or the demand for domestically produced goods and the real exchange rate.

However, there is little doubt that with its high dependence on foreign aid (reported in 2003 at more than USD1.2 billion, or 25 percent of GDP financing 50 percent of the budget deficit, Mozambique may be in the precarious position of dependency on a resource that can be fickle and does not reflect productive capacity.

2. Productivity, Productivity Growth, and Poverty Reduction

Economic growth theories have long indicated capital formation and efficiency of investment as sources of economic growth. Workers' wages are intrinsically linked to their productivity. Higher productivity implies higher wages and increased worker welfare. On the other hand, higher productivity can lead investors to greater outlay and higher growth. Studies have pointed to the connection between productivity growth and poverty reduction on one hand and productivity growth and economic growth on the other. Productivity growth can be seen as a catalyst creating a virtuous circle where all economic agents—workers, the government, and entrepreneurs—can benefit.

Productivity Growth and Poverty Reduction

For Mozambique to achieve its policy targets and achieve prosperity, productivity growth must form an integral part of official government policy. It must also implement a concerted strategy to create a business environment that promotes productivity growth.

There are compelling reasons to emphasize a concerted strategy to increase productivity in various economic sectors. One is the link between productivity growth and poverty reduction. At a micro level, marginal product determines the real wage rate of any factor (e.g., labor). Hence, a rise in a factor's productivity is associated with an increase in its real return, in this case an increase in the wage rate of labor. The return to factors depends on factor productivity, which translates into a positive association of higher wages and welfare to productivity.

In the Schumpeterian view of economic growth, new firms emerge and unproductive, uncompetitive firms die, thus always renewing the industrial fabric. This constant renewal is

the process of capitalism and this is what creates economic growth.¹⁵ These Schumpeterian waves of 'creative destruction' cause productivity growth.

In Mozambique's development strategy, productivity growth plays an important role. Studies have indicated the clear link between poverty reduction and productivity growth via economic growth.

Economic growth and poverty reduction.¹⁶ According to a World Bank study,¹⁷ an increase in one percent in the growth of per capita consumption is associated with about a 2 percent decline in the \$1 a day poverty incidence. Another study (Bruno et al., 1998¹⁸) uses data for 20 countries from 1984 to 1993 to study the relation between poverty and economic growth. Their study obtains point elasticity estimates of -2.12 for the headcount poverty measure and -3.46 for the squared poverty gap measure.¹⁹ These results are similar to those obtained by Adams and Ravallion for different samples for different years.

Another study, by Christiaensen, Demery, and Paternostro²⁰ in 2002 examines the impact of household income growth on eight African countries – Ethiopia, Ghana, Mauritania, Uganda, Madagascar, Zambia, Nigeria, and Zimbabwe. Using a poverty headcount measure based on a minimal food basket, the authors found that growth in mean income is responsible for most poverty reduction during times of economic growth. Besley and Burgess,²¹ studying the relationship between the level of GDP per capita and the incidence of \$1 a day poverty, found across the countries in their sample estimate a poverty-growth elasticity of -.73. This means a 1 percent increase in GDP per capita would lead to a 0.73 percent decline in the poverty rate. For Mozambique, Bolnick estimated that for every 1 percent decrease in economic growth, there was a 5 percent increase in the poverty head count over a ten-year period.²²

Even as development economists search for conclusive evidence of the link between inequality reduction and income growth, a consensus on the relationship between economic growth and poverty reduction in developing countries strongly indicates that economic growth reduces the incidence of poverty.

¹⁵ Schumpeter, Joseph A., *Capitalism, Socialism and Democracy*, Harper & Brothers Publishers, 1942.

¹⁶ For a recent survey analyses of the between poverty reduction, economic growth, and productivity growth, see Productivity Growth and Poverty Reduction in Developing Countries, CSLS Research Report 2003-06.

¹⁷ The World Development Report (WDR) 2000/2001, based on the paper by Chen and Ravallion.

¹⁸ Bruno, Michael, Martin Ravallion and Lyn Squire. (1998) "Equity and Growth in Developing Countries: Old and New Perspectives on the Policy Issues." in Vito Tani and Ke-Young Chu (eds.), *Income Distribution and High Quality Growth*. Cambridge, MA:MIT Press.

¹⁹ The concept and consequent definitions and empirical methods used to measure poverty are often a matter of dispute. For a good overview of poverty measurement issues, see Griffin (2003).

²⁰ Christiaensen, Luc, Lionel Demery and Stefano Paternostro. 2002. *Growth, Distribution and Poverty in Africa. Messages from the 1990s*. World Bank, Working Paper no. 2810, March 21.

²¹ Besley, Timothy and Robin Burgess. 2003. Halving Global Poverty. *Journal of Economic Perspectives*: 17 (3), pp. 3-22.

²² Bolnick, Bruce R. 2003. A Simple Model of Poverty Projections in Mozambique. *South African Journal of Economics*.

Link Between Economic Growth and Productivity

While studies have focused on links between productivity growth and poverty, we explore this connection via economic growth. The CSLS²³ study offers an excellent discussion on measurement issues, a literature survey, and original regression analyses exploring the relationship between poverty, inequality, income growth, and productivity.

Breaking down growth in income per capita into growth in output per worker and growth in the employment to total population ratio, the CSLS study found that growth in output per worker (macro measure of productivity growth) accounted for slightly more than half of GDP per capita growth. The same study found that in Asia, productivity gains accounted for almost all the growth in living standards.

Productivity growth can make significant advances in fighting poverty. Even a 2 percent increase in worker productivity could result in a 1 percent increase in GDP per capita. Assuming a Besley and Burgess growth-poverty elasticity of -0.73, this would imply a reduction of poverty by 0.7 percent. In absolute terms, this implies a possibility of more than 120,000 people moving above the poverty line annually. All these figures are at best rough estimates, but there is little doubt that productivity growth translates into economic growth and poverty reduction.

Concept and Measurement of Productivity

Productivity can be defined as a ratio of a volume measure of output to a volume measure of input use, (e.g., labor). Thus in a textile garment factory in Maputo, a productivity measure for workers would be the number of T-shirts produced in a given day, or the dynamics of an activity (e.g., number of cuts) in a given unit of time. While this conceptual approach is innocuous enough, a reading of the productivity literature as well as any application and empirical analyses of productivity soon reveals that there is neither one single measure of productivity nor a unique use for one.

The choice between the many different productivity measures depends on the purpose of the productivity measurement and often on availability of data. The approach to productivity measures depends on whether one is interested in single-factor productivity measures (relating a measure of output to a single measure of input such as labor or capital) or multiple-factor productivity measures (relating a measure of output to a bundle of inputs). Another classification issue of particular importance at the firm or industry level is the distinction between productivity measures relating a measure of gross output to one or

²³ Productivity Growth and Poverty Reduction in Developing Countries. 2003. Centre for the Study of Living Standards.

several inputs, and those that use a value-added concept to capture movements of output. Table 2-1, based on the OECD manual²⁴ on productivity measures, presents the most frequently used productivity measures with these two criteria. The list is incomplete to the extent that single productivity measures are defined over intermediate inputs, and labor-capital multiple-factor productivity can, in principle, be evaluated by gross output.

Table 2-1
Overview of Main Productivity Measures

| | Single-factor Productivity Measures | | Multiple or Total Factor Productivity (MFP or TFP) Measures | |
|----------------------|--|--|---|---|
| | Labor | Capital | Capital and Labor | Capital and Labor and Intermediate Inputs |
| Gross output measure | Labor productivity (based on gross output) | Capital productivity (based on gross output) | Capital-labor MFP or TFP (based on gross output) | KLII MFP (TFP) |
| Value-added measure | Labor productivity (based on value added) | Capital productivity (based on value added) | Capital-labor MFP or TFP (based on value added) | KLII MFP or TFP (based on value added) |

The gross output measure, single-factor and total or multiple-factor, attempts to quantify gross output of the factor(s). The value added, on the other hand, seeks to understand the contribution (productivity) of a factor or multiple factor to the value added of a product or service.

Measuring productivity growth has been a growth industry. Purposes and definitions proliferate, as do a host of data measurement issues including the following:

- **Differences between single-factor and multiple factor productivity.** Where productivity measures firms' efficiency in combining inputs such as labor, capital, and raw materials to generate products or services, the multiple factor or total factor productivity is more illustrative.
- **Firm-level Productivity.** At the firm level, productivity comprises a variety of factors including labor skills, managerial skills, and the quality and availability of capital, technology, and innovation. The microeconomic foundations of productivity according to Michael Porter,²⁵ rest on two interrelated areas: the sophistication with which domestic companies or foreign subsidiaries operating in the country compete, and the quality of the

²⁴ Measuring Productivity, Measurement of Aggregate and Industry-Level Productivity, OECD Manual. Available at www.source.oecd.org.

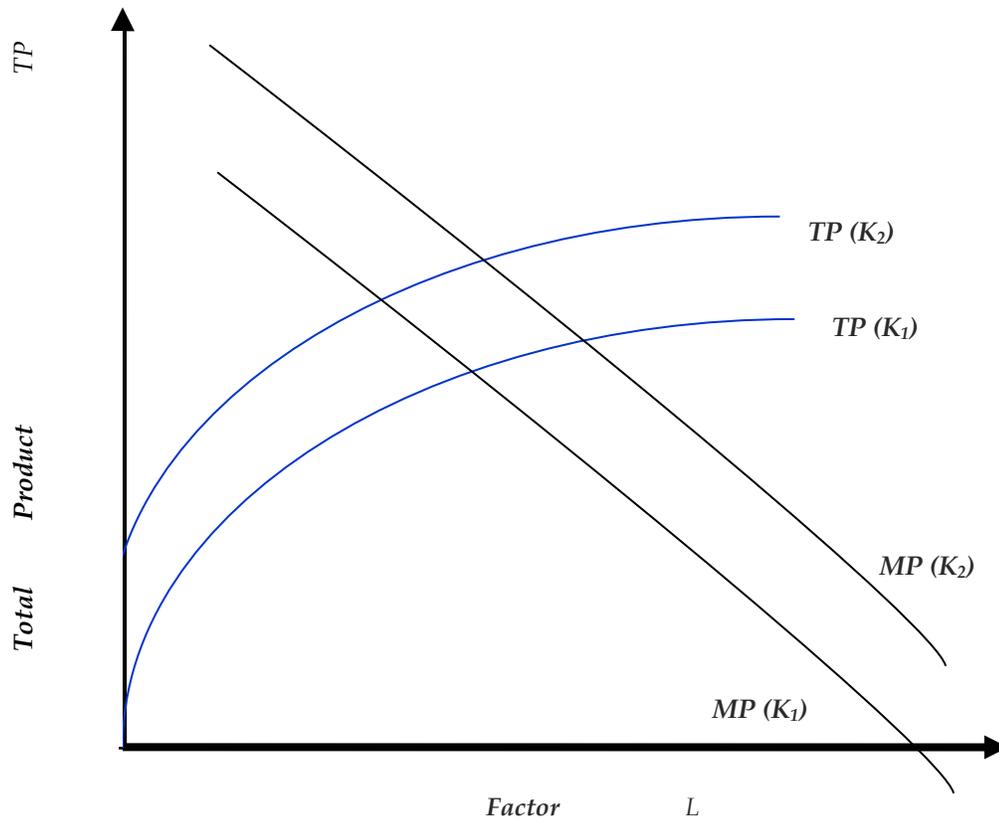
²⁵ Building the Microeconomic Foundations of Prosperity: Findings from the Business Competitiveness Index. In *Global Competitiveness Report 2003-2004*. World Economic Forum.

microeconomic business environment. Thus, other factors such as availability of finance, reliable electricity, and the general business environment may affect productivity. For instance, flexible labor markets and an investment-friendly fiscal system can all contribute to enhancing firm level productivity. In Figure 2-1 the total product curve TP (K_1) gives the relationship between total output and units of labor. This relationship is based on given endowments of physical capital, technology, raw materials, managerial and entrepreneurial skills, etc. The downward-sloping marginal product curve shows incremental output because of an additional unit of labor. When any of the factors (e.g., capital) increases, then total output increases for a given amount of labor input, reflecting the upward shift in the total product curve TP (K_2). Productivity of labor increases, with the MP curve shifting to the right.

- **Productivity Calculations.** Productivity is easier to measure in some sectors or activities than others. However, for many activities, especially in the service sector, measuring productivity is not easy. For instance, productivity measures in the public services sector, in education, and banking are all difficult to measure, given that the notion of output or its value is not as tangible as in the industrial or agricultural sector. In addition, one must take care in that if the value of goods and services is used instead of physical output, changes in price would reflect changes in productivity measure, even though actual productivity may not have altered.

Productivity growth, specifically in the manufacturing sector, can have many positive effects besides reducing poverty and promoting GDP growth. First, because of the constant improvements in technology, the manufacturing sector has historically witnessed rapid gains in productivity and hence real wages. Second, growth in the manufacturing sector can have positive spillover effects, as manufacturing goods tend to have a strong technology transfer component. The growth of this sector often implies an increase in managerial and technical skills, creating the base for an entrepreneurial class in Mozambique, as in the manufacturing sector boom in countries of East Asia. Also, the manufacturing sector can have strong backward linkages, which stimulate upstream industries.²⁶ For example, in apparel, backward linkages can go from cotton-growing to textile manufactures to ancillary industries such as buttons, zippers, thread, etc. Growth of the manufacturing sector, specifically productivity growth, can promote growth of supporting industries.

²⁶ Albert O. Hirschman, in *The Strategy of Economic Development* (1958), chap. 9, stresses the importance of the linkage effect for development.

Figure 2-1*Determinants of Productivity and Productivity Growth*

Mozambique's Industrial Sector

The industrial sector in Mozambique is characterized by its small industrial base and an industrial sector highly skewed in its sectoral composition, in the predominance of mega projects and the spatial concentration of industrial location. According to IMF data, industrial value added (including mining, electricity and water and construction) accounted for 30.6 percent of GDP in 2002; the manufacturing sector contributed 11.4 percent. Table 2-2 compares the industrial sector and manufacturers value added of Mozambique with those of several other countries and regions. While Mozambique seems to fare well against some of its neighbors and selected regional averages in industrial composition of its GDP, the figures only tell half the story. First, because in Mozambique, industrial output figures are distorted because of the \$2.2 billion Mozal aluminum smelting plant near Maputo.

Table 2-2*Comparisons of Industrial Sector and Manufacturing Value Added*

| Country/Region | Industry Value Added as % of GDP (2002) | Manufacturing Value Added as % of GDP |
|----------------------|---|---------------------------------------|
| Mozambique | 34 | 12.6 |
| Thailand | 43 | 34 |
| Namibia | 31 | 11 |
| Malawi | 15 | 10 |
| Low-income | 30 | 17 |
| Middle-income | 34 | 21 |
| Sub-Saharan Africa | 29 | 15 |
| Low-income countries | 30 | 18 |

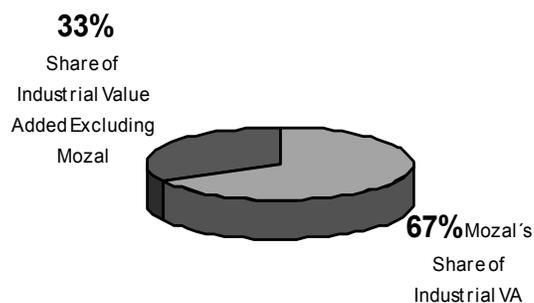
SOURCE: Data – World Development Indicators.

Table 2-3 and Figure 2-2 show an instance of the statistically distortionary ‘Mozal effect’ relative to industrial output.

Table 2-3*Mozal’s Share of Industrial Output, 2003*

| | Industrial Output | Share of Total Ind. Output (%) |
|------------------------|-------------------|--------------------------------|
| Total Output | 20,616,643 | 100 |
| Mozal Output | 13,852,442 | 67 |
| Output excluding Mozal | 6,764,201 | 33 |

NOTE: All figures are in millions of meticais. Based on industrial sector (other than mining, construction, water and electricity) survey data collected by the MIC. Note that there are discrepancies between the Ministry figures and those of INE.

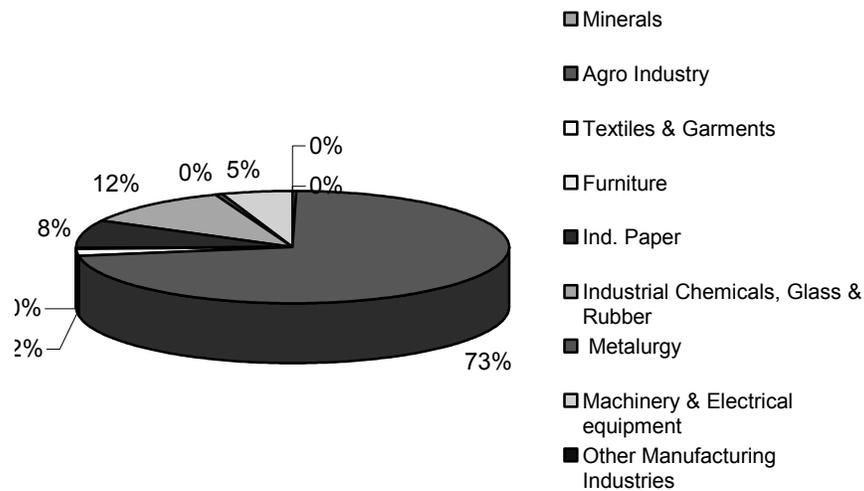
Figure 2-2*Share of Mozal in Industrial Value Added of Mozambique, 2003*

Besides Mozal, there is also a high concentration of industrial output in the top ten firms in Mozambique.²⁷ Based on survey data from MIC, if the chart excludes Mozal, the top ten firms produce more than 67 percent of total industrial output (excluding water and electricity and construction. Including Mozal, the top 11 firms account for more than 90 percent of industrial output.

Figure 2-3 presents the composition of the industrial sector. Agro-industry represents almost 64 percent of industrial output, mostly for domestic consumption, while the garment subsector accounts for only about 12 percent of industrial output by value.

Figure 2-3

Sectoral Share of Industrial Value Added



SOURCE: Based on information provided by the MIC.

The industrial sector is highly concentrated in the Maputo area. Table 2-4 illustrates this geographic concentration of industry in Mozambique. The Maputo region accounts for slightly more than 80 percent of all industrial activity in the country. Thus any productivity growth and welfare increase arising from the industrial sector would also favor Maputo and its neighborhood.

²⁷ While the IMF includes mining, electricity and water, manufacturing, and construction as industrial subsectors, the Ministry of Industry and Commerce (MIC) has electricity and water as part of a different ministry. The data obtained for the industrial sector came from MIC and to be internally consistent with other data, industrial sector output thus excludes electricity and water.

Table 2-4
Spatial Distribution of Industrial Activity

| | Annual Growth, 2002-2003 | % Share 2003 |
|-----------------------------------|-------------------------------------|---------------------|
| Maputo City | 12.1 | 11.9 |
| Maputo- Province (includes Mozal) | 42.8 | 80.8 |
| Sofala | 3.1 | 3.9 |
| Nampula | -11.4 | 1.7 |
| Manica | 13.0 | 1.2 |
| Zambezia | 6.3 | 0.4 |

SOURCE: MIC.

The study of the industrial landscape of Mozambique reveals a small industrial base with a predominance of mega projects and a few large firms. Data also reveal a spatial concentration of industrial location. Any policy of promoting productivity growth in the industrial sector has to consider the implications of this concentration before designing a policy strategy.

3. How Productive are Mozambican Firms?

Given its weak industrial base, Mozambique can only attract investment by increasing its competitiveness. To achieve this goal, Mozambique must have a productive workforce, promote economic growth, and lift thousands from poverty. A productive workforce can also attract foreign investment, especially in labor-intensive manufacture industries, where low wages and productivity growth can give Mozambique a competitive edge over the many countries vying for investment. Rapid integration of world markets could attract many 'footloose' labor-intensive industries to Mozambique for its attractive business environment with low costs and productive labor.

The industrial base must be one driven not just by increasingly higher value added production, but an increase in workers' productivity and the efficiency of production. The latter aspect would imply focusing on the business environment of competitiveness (see section 4), and issues such as enhancing managerial and technical skills in the industrial sector. Some policy changes may be necessary to promote a productivity enhancement strategy.

A World Bank study of industrial performance and investment climate found that Mozambique has the lowest labor productivity, as measured by value added per worker, of the sample of eight sub-Saharan African countries represented in the study.²⁸ Table 3-1 shows the distribution of value added per worker, based on firm size. Mozambique fares poorly in worker productivity.

²⁸ Mozambique Industrial Performance and Investment Climate 2002, CTA and World Bank, 2003.

Table 3-1*Distribution of Value Added per Worker*

| | Cameroon | Cote d'Ivoire | Ghana | Kenya | Tanzania | Zambia | Zimbabwe | Mozambique |
|----------------|----------|---------------|-------|-------|----------|--------|----------|------------|
| Median by size | 9,656 | 1,122 | 1,304 | 3,337 | 1,862 | 2,962 | 3,999 | 977 |
| Micro | 0.501 | 0.242 | 0.588 | 0.478 | 0.784 | 0.601 | 0.544 | 0.45 |
| Small | 0.731 | 0.959 | 0.919 | 1.000 | 0.758 | 1.050 | 0.772 | 1.00 |
| Medium | 1.988 | 1.251 | 0.868 | 1.011 | 1.220 | 1.017 | 0.970 | 1.53 |
| Large | 2.011 | 1.860 | 1.899 | 1.395 | 1.117 | 1.392 | 1.000 | 2.06 |
| Very Lg. | 1.784 | 1.85 | 2.656 | 0.848 | 2.016 | 1.576 | 1.230 | 0.89 |

SOURCE: Mozambique Industrial Performance and Investment Climate 2002, CTA and World Bank, 2003.

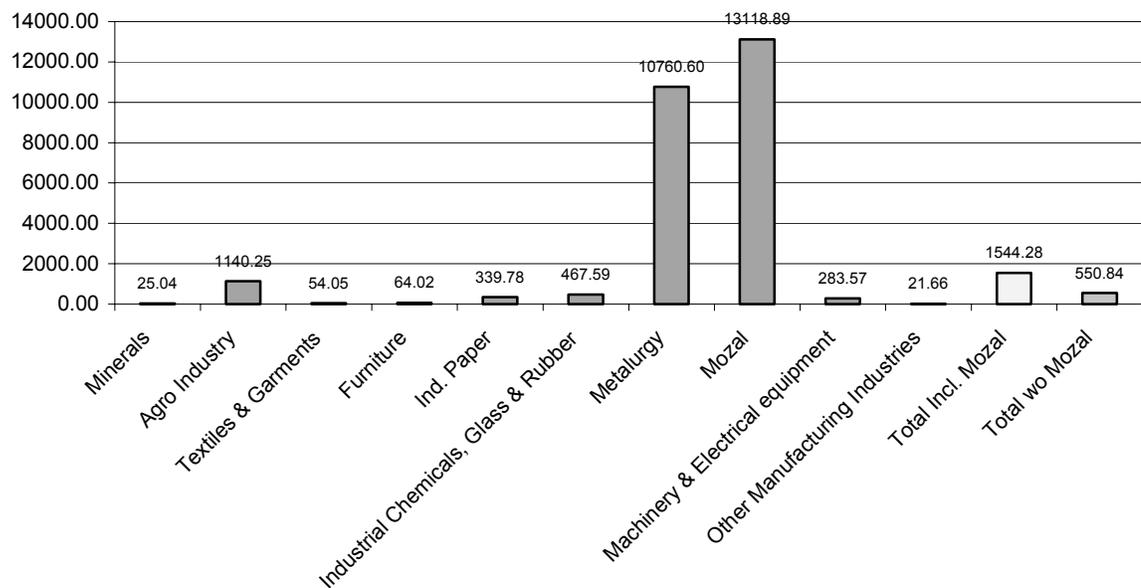
Sectoral Productivity Analyses

We used data from the Ministry of Industry and Trade (MIC) of Mozambique to calculate industrial sector productivity by distribution of its value added per worker for each major industrial subsector. Table 3-2 presents the breakdown of value added, the total workforce wages and value added per worker for each major industrial subsector in the year 2003. Figure 3-1 offers a succinct overview of the sectoral productivity scenario.

Table 3-2*Distribution of Value Added per Worker in Industrial Subsectors, 2003*

| Sector | Share in Ind. Value Added | Output Value (Q) | Workforce Level (N) | Total Wages | Productivity (Q/N) | Avg. Wages |
|---|---------------------------|------------------|---------------------|-------------|--------------------|------------|
| Minerals | 0,05 | 9966 | 398 | 599893 | 25,04 | 1507,27 |
| Agro-industry | 23,78 | 4506285 | 3952 | 23323742 | 1140,25 | 5901,76 |
| Textiles and garments | 0,61 | 116001 | 2146 | 3613231 | 54,05 | 1683,71 |
| Furniture | 0,11 | 21447 | 335 | 614798 | 64,02 | 1835,22 |
| Industrial paper | 2,61 | 495404 | 1458 | 6119263 | 339,78 | 4197,03 |
| Industrial chemicals, glass, and rubber | 3,77 | 714484 | 1528 | 5149464 | 467,59 | 3370,07 |
| Metallurgy | 67,29 | 12751316 | 1185 | 19075197 | 10760,60 | 16097,21 |
| Of which Mozal | 67,15 | 12725325 | 970 | 18208869 | 13118,89 | 18772,03 |
| Machinery and electrical equipment | 1,76 | 332908 | 1174 | 4001315 | 283,57 | 3408,28 |
| Other manufacturing industries | 0,01 | 2058 | 95 | 243677 | 21,66 | 2565,02 |
| Total, including Mozal | 100,00 | 18949869 | 12271 | 62740580 | 1544,28 | 5112,92 |
| Total, excluding Mozal | 32,85 | 6224545 | 11300 | 44531712 | 550,84 | 3940,86 |

NOTE: Output value is in millions of meticaís. Total wages, productivity, and average salary are in thousands of meticaís.
Source: Ministry of Industry and Trade (MIC) Mozambique.

Figure 3-1*Output per Worker: Industrial Subsectors, 2003*

SOURCE: Ministry of Industry and Trade (MIC) Mozambique.

Section 2 presented the dimensions and the sectoral composition of the industrial sector. As noted, Mozal accounts for 67 percent of total industrial value added. As Table 3-2 shows, labor productivity measured by value of total output per employee is widely dispersed, with very low productivity in minerals, textiles and garments, furniture, and other manufacturing categories. Labor productivity is highest in Mozal, doubtless because of its high capital intensity.

Another of Mozal's effects on the industrial sector is that value added per worker excluding Mozal appears to be a third less than when Mozal is included. Value added per worker in Mozal is about 24 times higher than the industrial sector average without Mozal, again because of Mozal's high capital intensity.

Looking at the efficiency of production, or total factor productivity, the CTA/World Bank study on Mozambique's industrial climate found the average efficiency of firms very low – 0.38 for the entire sample, (on a scale of 0 to 1). Table 3-3 reproduces the total factor productivity calculations by firm size from the CTA/World Bank study. Not surprisingly, export firms, privatized firms, and foreign-owned firms fared better. The distribution in efficiency among the firms is explained by an industrial sector where inefficient enterprises survive alongside efficient firms.

Table 3-3*Total Factor Productivity by Firm Size*

| Firm Size | Mean Efficiency (range = 0 to 1) |
|------------------|---|
| Micro | 0.38 (0.24) |
| Small | 0.36 (0.23) |
| Medium | 0.45 (0.26) |
| Large | 0.41 (0.22) |
| Very large | 0.28 (0.23) |

SOURCE: Mozambique Industrial Performance and Investment Climate 2002, CTA and World Bank, 2003.

FURTHER CALCULATIONS OF LABOR PRODUCTIVITY – FIRM LEVEL

From our visits to firms and analyses of MIC data, we calculated partial labor productivities for the sample of firms. We obtained a mix of quantitative and qualitative information from personal interviews with managers; occasionally we revisited firms. In some cases, firms did not have or were reluctant to submit data required to calculate the value added chain. We also conducted a diagnostic survey.

Thirty firms were analyzed for this study—18 from the manufacturing sector and 12 from agro-industry. Some of these participated in our study; for the rest we relied on data from MIC. All analyses were based on year 2002 data and are actual revenues and costs incurred in that year reported by the firms to MIC.

We performed correlation analyses for the following variables: total number of employees, wages/employee per month, value added per worker, revenue per worker, ratio of administration employees to workers, and ratio of technical staff to workers. Value added was calculated as the sum of total wages, total taxes paid, amortization, and financial (interest) payments. Table 3-4 shows the matrix of the correlation coefficients among the variables for manufacturing and agro-industry. For the 18 firms in the manufacturing sector, it shows a positive correlation between technical staff per worker available and value added per worker. Conversely, for agro-industry, there appears to be little significant correlation among variables.

Table 3-4*Correlation Matrix, Manufacturing and Agro-industry*

| | Total Employees | Wages/Employee/mo | VA/Worker | Rev/Worker | Admin/Worker | Tech/Worker |
|----------------------------------|------------------------|--------------------------|------------------|-------------------|---------------------|--------------------|
| M A N U F A C T U R I N G | | | | | | |
| Total # employees | 1,00 | | | | | |
| Wages/Employee/mo | -0,09 | 1,00 | | | | |

| | Total Employees | Wages/ Employee/mo | VA/Worker | Rev/Worker | Admin/ Worker | Tech/ Worker |
|----------------------------------|------------------------|---------------------------|------------------|-------------------|----------------------|---------------------|
| VA/Worker | -0,05 | 0,86 | 1,00 | | | |
| Rev/Worker | -0,19 | 0,83 | 0,89 | 1,00 | | |
| Admin/Worker | -0,18 | 0,15 | -0,03 | -0,17 | 1,00 | |
| Technical/Worker | -0,24 | 0,45 | 0,51 | 0,50 | -0,12 | 1,00 |
| A G R O - I N D U S T R Y | | | | | | |
| Total # employees | 1,00 | | | | | |
| Wages/Employee/mo | -0,20 | 1,00 | | | | |
| VA/Worker | -0,06 | 0,19 | 1,00 | | | |
| Rev/Worker | -0,32 | 0,06 | 0,22 | 1,00 | | |
| Admin/Worker | -0,23 | -0,12 | 0,15 | -0,16 | 1,00 | |
| Technical/Worker | -0,08 | -0,39 | -0,05 | -0,33 | 0,73 | 1,00 |

We calculated labor productivity (including technical and administrative staff) for the 18 firms in the manufacturing subsector and 12 agro-industry firms in our data sample. Table 3-5 gives the summary statistics of labor productivity as measured by value added per worker. In the manufacturing sector, value added per worker approximately equals 109.04 million meticaís, which works out to around \$4,741. This is significantly higher than the RPED study's average estimates, but the fact that our sample included large firms may explain the difference. In agro-industry, value added per worker is significantly lower, at slightly less than \$3,000. Some firms in our sample, in manufacturing and agro-industry, had negative value added because of losses incurred outweighing other value added components.

Table 3-5

Mean and Standard Deviations of Productivity for Manufacturing and Agro-industry

| | Manufacturing | Agro-industry |
|--|----------------------|----------------------|
| Average Productivity (VA/Worker) in 1,000 Mt | 109042,08 | 68894,70 |
| Standard Deviation | 304953,32 | 324938,63 |
| Minimum | -322061,65 | -849592,68 |
| Maximum | 1218425,66 | 320978,84 |

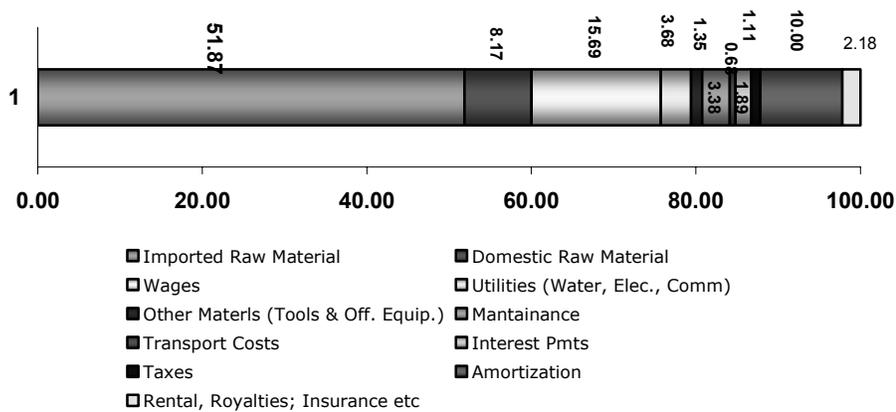
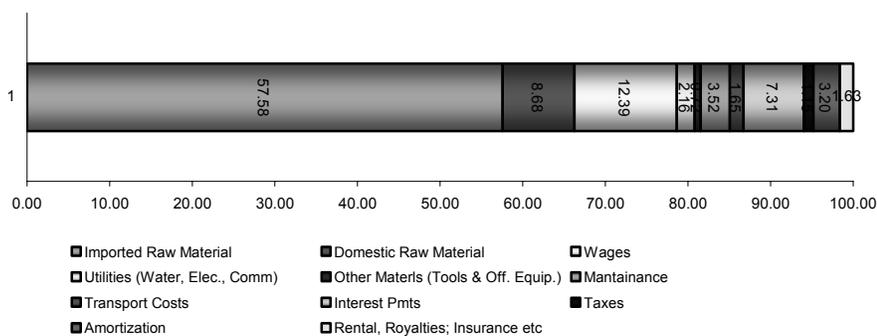
Our study next analyzed individual firms' cost structure, including taxes, in our sample. We calculated 11 cost variables as a percentage of total costs for each of the 18 firms in manufacturing and 12 firms in agro-industry. In addition to production costs such as labor, capital, raw materials (disaggregated into domestic and imported), communications, transport, and interest payments, we included taxes in the total cost calculations. Summary statistics for each of both subsectors are presented in Table 3-6.

Table 3-6*Cost Components of Manufacturing and Agro-industry*

| | Imported Raw Material | Domestic Raw Material | Wages | Utilities (Water, Elec., Comm.) | Other Materials (Tools & Off. Equip.) |
|----------------------------------|------------------------------|------------------------------|--------------|--|--|
| M A N U F A C T U R I N G | | | | | |
| Mean | 51,87 | 8,17 | 15,69 | 3,68 | 1,35 |
| Standard deviation | 6,89 | 4,16 | 3,03 | 1,00 | 0,31 |
| Minimum value | 25,55 | 0,00 | 2,37 | 0,25 | 0,00 |
| Maximum value | 89,86 | 46,18 | 32,28 | 9,89 | 3,50 |
| A G R O - I N D U S T R Y | | | | | |
| Mean | 57,58 | 8,68 | 12,39 | 2,16 | 0,72 |
| Standard deviation | 8,49 | 3,05 | 4,03 | 0,47 | 0,23 |
| Minimum value | 3,07 | 0,53 | 0,66 | 0,17 | 0,20 |
| Maximum value | 81,55 | 29,20 | 40,53 | 6,41 | 2,83 |

| | Maintenance | Transport Costs | Interest Payments | Taxes | Amortization | Rental, Royalties; Insurance etc |
|----------------------------------|--------------------|------------------------|--------------------------|--------------|---------------------|---|
| M A N U F A C T U R I N G | | | | | | |
| Mean | 3,38 | 0,68 | 1,89 | 1,11 | 10,00 | 2,18 |
| Standard deviation | 1,14 | 0,36 | 0,71 | 0,39 | 3,89 | 1,14 |
| Minimum value | 0,09 | 0,00 | 0,00 | 0,08 | 0,41 | 0,00 |
| Maximum value | 1,74 | 4,00 | 6,59 | 4,15 | 38,40 | 13,03 |
| A G R O - I N D U S T R Y | | | | | | |
| Mean | 3,52 | 1,65 | 7,31 | 1,15 | 3,20 | 1,63 |
| Standard deviation | 0,93 | 0,53 | 3,48 | 0,32 | 0,54 | 0,58 |
| Minimum value | 0,82 | 0,14 | 0,00 | 0,02 | 0,75 | 0,20 |
| Maximum value | 9,98 | 4,77 | 37,38 | 3,42 | 6,08 | 6,42 |

Figures 3-2 and 3-3 illustrate average cost structure in manufacturing and agro-industry.

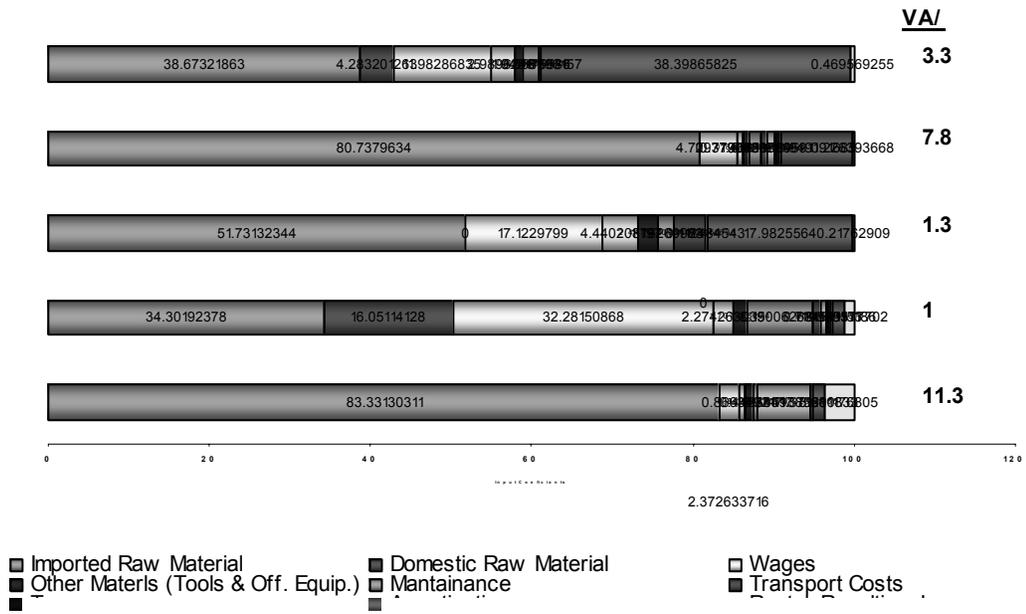
Figure 3-2*Cost Chain: Manufacturing Sector***Figure 3-3***Cost Chain: Agro-industry*

Imported raw materials are the largest cost component for manufacturing and agro-industry, accounting for approximately 52 and 58 percent of total costs, respectively. However, a large distribution exists in the imported raw material cost ratio among firms. When firms are grouped into like activities, the dispersion is smaller and the extent to which imported raw material is important for the firms remains consistent. The next largest cost components are wages, at 15.39 and 12.39 percent of total costs for manufacturing and agro-industry respectively. While interest payments are higher for the sample firms in agro-industry, at 7.31 percent of total costs compared to 1.89 percent for manufacturing, in the latter amortization payments are higher at 10 percent compared to 3.2 percent in agro-industry. In both subsectors, taxes make up little more than 1 percent of total costs.

BENCHMARKING CALCULATIONS OF LABOR PRODUCTIVITY – FIRM LEVEL

Further analyses of some clusters in each sector are revealing. For instance, in manufacturing, a study of five firms in similar activity shows the dispersion in costs and value added. Consequently, labor productivity within this cluster is also very different. Figure 3-4 summarizes the differences in cost structure. The productivity (value added per worker) also varies widely despite the similar activities, as associated value added figures of each firm show. The firm with highest labor productivity is 11 times more productive than the firm with the lowest productivity. As the numbers indicate, there is a wide dispersion in the cost structure and labor productivity of firms with similar activities.

Figure 3-4
Comparative Cost and Productivity of Firms in Cluster



Our calculations of labor productivity used value added figures. Firm-level data using output figures for some firms in similar activities are equally revealing in terms of the low productivity and the wide dispersion in output per worker.

During interviews conducted for this study, a lack of awareness of productivity as an issue for domestic firms in Mozambique emerged. Few firms had installed human resource training and skills investment or a system of productivity enhancement wage schemes. Firms do not appear to practice the payment of piece rate, which links pay to productivity in most labor-intensive industries. In Section 4, we continue our productivity analyses with further study results and a study of factors inhibiting productivity and competitiveness in Mozambique.

4. A Productive Wheel in a Competitive Cart

The results of our study reconfirm previous studies' conclusions that productivity and growth in Mozambique must be analyzed in the wider context of the business environment and competitiveness. As the World Bank's Investment Climate study rightly pointed out, in Mozambique firm-level productivity and productivity growth were low primarily because of the business environment. A favorable business environment can support productivity growth. Second, in promoting investment and growth at the firm and sectoral levels, competitiveness is immensely important. Labor component and consequently labor productivity are only part of competitiveness in the value chain. In this section, we focus on business environment and competitiveness issues and link them to the productivity debate.

The Ministry of Industry and Trade Capacity has reported utilization of Mozambican manufacturing firms at between 25 and 30 percent.²⁹ In the sample of firms in our study, capacity utilization varied between 40 to 70 percent. The majority of respondents mention poor demand to explain low capacity utilization. Firms in our sample mainly serve the domestic market and are subject to its demand conditions.

The issue of productivity growth must be seen in the context of business growth. If firms are unable to fulfill orders because of poor infrastructure, bottlenecks in the supply chain, or red tape, then an improvement in worker productivity achieved through reducing the workforce can increase unemployment in a country already suffering from high unemployment rates.

Factors that Influence Productivity, Competitiveness, and Business Environment

As countries compete to attract investment, especially in labor-intensive sectors, wages are among the most significant costs. As mentioned earlier, rapid integration of economies could

²⁹ Ministry of Industry and Commerce, DIC document: Balanço da Produção Industrial Referente ao Ano 2002.

make Mozambique attractive to labor-intensive industries seeking an attractive business environment with low-cost, productive labor.

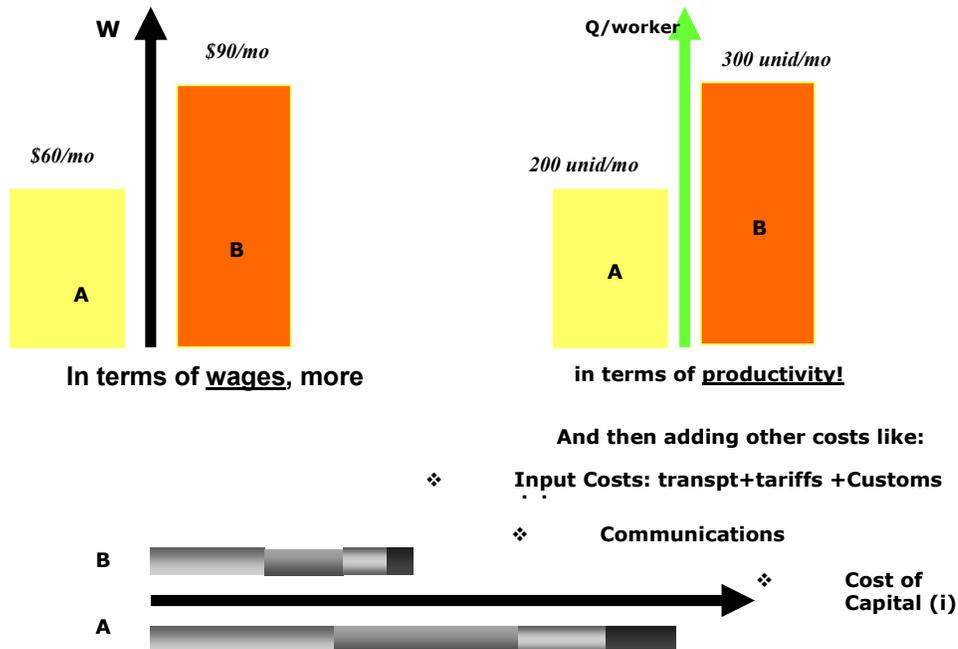
Wage rate is an important variable in firms' investment decisions. Other things being equal, lower wages in a country like Mozambique present an enormous investment incentive to footloose industries. However, two factors can offset lower labor costs: first, productivity of its workers, and second, a business environment fraught with red tape and various transaction costs that add significantly to the cost of doing business. These other quantifiable and non-quantifiable costs can more than offset any competitive advantage cheap labor may offer. Exhibit 4-1 illustrates the importance of productivity and a competitive business environment.

Workers' productivity does not just directly relate to their roles in the production process, but to inputs' effect on the final output and the business environment. However, as many factors may influence productivity as determine competitiveness.

The quality of its workforce, which includes skills and technical ability, can make the difference between a business enterprise's success or failure. In this, Mozambican workers seem to fare poorly, as do the managers in the few incentives they seem to offer. In personal interviews conducted during the course of the study, firms were ambivalent about the need to train workers, accepting the need for it but unwilling to pay for training outside of on-the-job training. However when it came to skilled personnel, opinion seemed unanimous on the need for a skilled workforce. Respondents cited on-the-job training as the most common method of staff training. This could also indicate lack of any specific plan to give workers technical skills.

Exhibit 4-1*Productivity, Competitiveness, and the Business Environment*

A simple example illustrates the importance of productivity and other factor costs in determining firms' competitiveness. Workers in country A have a wage rate of \$60/ month, while those in country B get 50 percent more. Once we take productivity levels into account, the wage competitiveness of country A is lost, and workers in country B are 50 percent more productive than workers in country A. Thus the labor cost of producing, say, one shirt in country A is \$.03, exactly the same as in country B. Factor in other costs, such as transportation, import tariffs, communication, cost of capital, and red tape, then as the figure illustrates country B is far more competitive than country A, which has a poor business environment. This exercise illustrates that although low wages are important in the competitiveness scale, factors like productivity and other factor costs and the costs of working in a poor business environment can overwhelm advantages of cheap labor.



Our research appears to corroborate the findings of the World Bank study on Mozambique's poor business environment. While our interviewed sample was too small to give robust quantitative results, a clear sense emerges that not only are workers poorly trained, but worker training does not seem to be a high priority for business. Table 4-2 summarizes the Mozambican business perspective on skilled workers.

Table 4-1
Factors Underlying Lack of Training

| Response | % of firms |
|---|-------------------|
| Cannot define/prioritize training needs | 98.9 |
| Lack of government incentives for training | 52.4 |
| Cannot afford formal internal or external training | 49.5 |
| No need – staff can train on the job | 43.9 |
| Too risky – trained staff may leave | 21.7 |
| Staff are uninterested in learning new skills | 17.9 |
| Cannot identify competent trainers for internal training | 12.3 |
| Lack of training by chambers of industry, business associations | 10.2 |
| Lack of training institutions for external training | 8.4 |
| No need – can hire staff from other firms | 4.8 |

SOURCE: Mozambique Industrial Performance and Investment Climate 2002, CTA and World Bank, 2003.

Our interviews reinforce the investment climate study findings that most firms were unable to even define or prioritize training needs. We strongly propose that worker training become a priority for firms, towards which we make specific recommendations in Section 5.

Absenteeism and the lack of skilled workers impede productivity growth in Mozambique. While absenteeism in our sample varied widely, employees cited family health problems as the major cause, especially for female workers. The high HIV infection rate could be a factor; critical steps must be taken at the firm and government policy levels to combat it. While innovative bonus schemes at the firm level and incentives at the government level are called for, all must fight the larger war against AIDS.

The AIDS epidemic shows no signs of slowing in Mozambique, as in most other African countries, despite various government programs. Official statistics indicate that more than 14 percent of the adult population is HIV-positive, with an infection rate exceeding 25 percent in some provinces of the country. Creative and effective measures have to be taken to address what is not just an economic problem, but a broader social malaise.

The AIDS epidemic has direct consequences for firms and productivity. A firm's direct costs include reduced productivity, absenteeism, and higher medical and insurance premiums. Indirect costs include low morale, a declining workforce, and other factors. AIDS incidence can be viewed as a business tax, as research conducted by the Center for International Health of Boston University shows. The ongoing research covers six formal-sector enterprises in South Africa and Botswana that provide detailed human resource, financial, and medical data. The study found an 'AIDS tax' on firms of 3 to 11 percent of revenues in 1999 and estimated to reach 2–8 percent of revenues in 2010. Business must join forces with the government against the spread of HIV infection.

Besides workforce skills, management skills are another issue affecting the organizational environment in general and worker productivity in particular. Our research showed disparities in indicators such as worker-to-administrator ratio, administrator-to-worker ratio among firms engaged in similar activities, and indicators of possible organizational problems. One firm specifically requested we perform firm-level diagnostics, in recognition of organizational problems.³⁰

To illustrate firms' need to consider organizational issues, Figure 4-1 shows the value chain for two firms in a similar industry. Although issues of organizational problems are difficult to capture quantitatively, the way the firm is structured in terms of sourcing of materials and composition of human resources may determine the value added. The two firms have very different cost structures and value added, as Table 4-2 and Figure 4-1 illustrate.

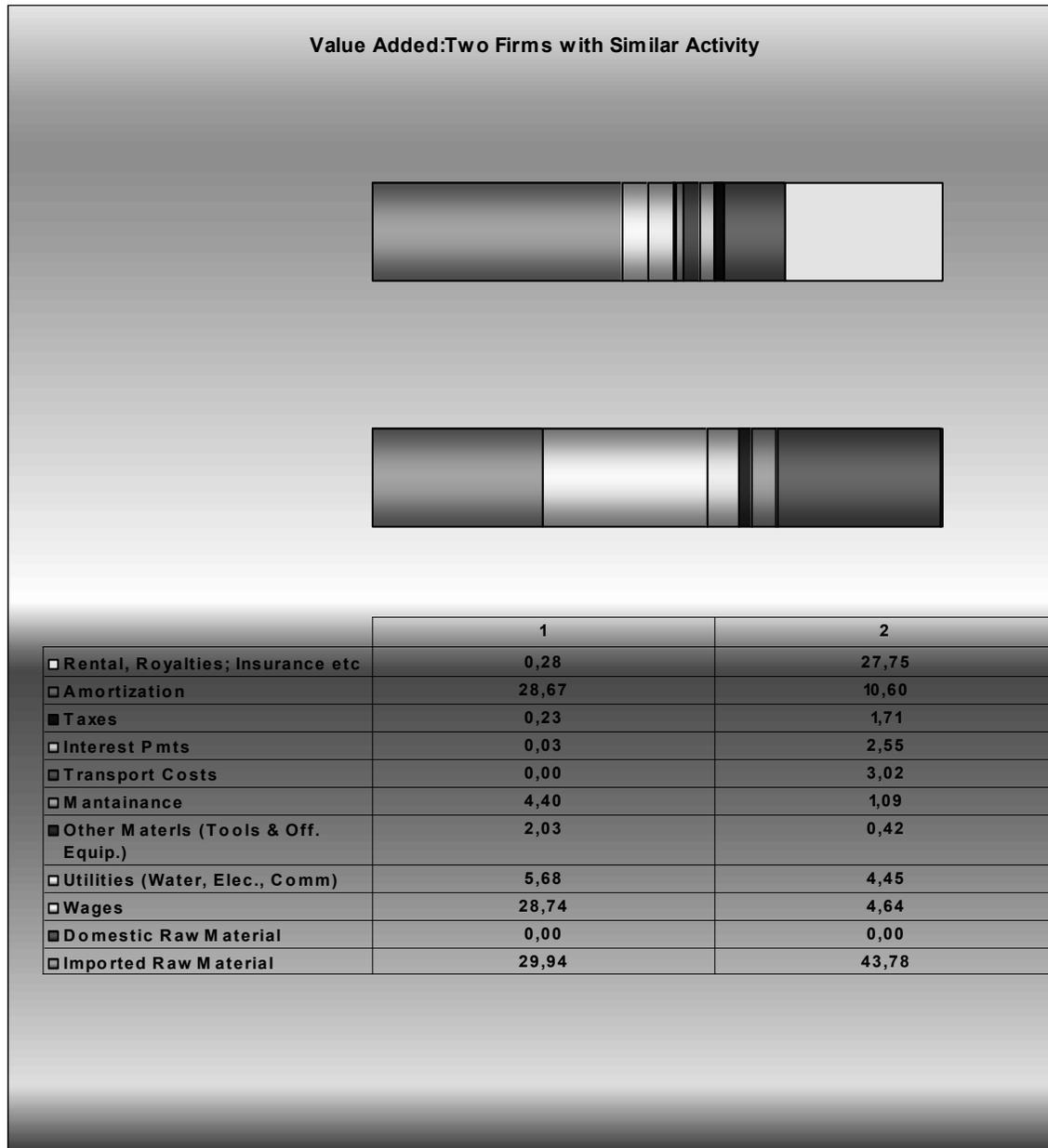
Table 4-2

Difference in Performance Indicators of Two Firms in Similar Activity

| | Firm 1 | Firm 2 |
|--|---------------|---------------|
| Total workforce (workers, technical, administrative) | 75 | 128 |
| Value added (2002) per worker (million metcals) | -10 | 114 |
| Output/ employee: tons/employee | 3.2 | 37.9 |

Initial diagnosis of the two firms' differences appears to lie in their internal organization and management and in economies of scale. Anecdotal evidence indicates lack of initiative in seeking new markets outside of Mozambique; Firm 2 exports to some sub-Saharan countries. The manager of Firm 2 complained mostly about customs as a major bottleneck, not labor productivity.

³⁰ Firm-level diagnosis of productivity and organization is a complicated and time-consuming process. For the firm that made this request, we provided an example of a diagnostic questionnaire and promised to carry out an analysis once the firm responded to the questionnaire.

Figure 4-1*Difference in Cost Structures of Two Firms in Similar Activity*

Investment Climate and Productivity. In a recent paper, researchers found that for garment firms total factor productivity was linked to investment climate indicators. Using data from surveys of establishments in Bangladesh (924 firms), China (1,500), India (1,900), and Pakistan (965), the authors examined business regulation indicators such as customs and tax administration, provision of infrastructure of power supply, and telecommunication and financial services to determine firms' performance. They found a positive business climate was linked to firm performance indicators. Two measures of productivity—total factor productivity and wage rate—were found to correlate to investment.

While good infrastructure in road and rail transport network and ports determine economic growth, reliable and cheap electric power supply is crucial for business success. Dollar et al. established an empirical link between power supply reliability and business success. It is therefore disturbing that Mozambique's poor infrastructure continues to hamper business operations. This problem has been mentioned elsewhere, but is worth attention given the critical relevance good infrastructure, particularly electricity, has to firms' efficiency.

In a World Bank study on Mozambique's investment climate, infrastructure, specifically electricity, emerged as a serious problem, with 60 percent of survey respondents citing interruptions in electricity as an impediment.³¹ In the survey, the median firm in the sample reported having suffered power interruptions about five times per month in 2002, and the median loss to production from power outages was 2 percent of sales. Table 4-3 summarizes the major business complaints relating to energy supply.

Table 4-3
Infrastructure Indicators

| | Mozambique | Small | Large | Foreign-Invested | Domestic | Exporter | Non-Exporter | Low-Capacity | High-Capacity |
|---|-------------------|--------------|--------------|-------------------------|-----------------|-----------------|---------------------|---------------------|----------------------|
| Freq. of power outages (times 2002) | 192,69 | 204,77 | 160,28 | 300,7 | 165,04 | 600,00 | 154,6 | 159,1 | 236,16 |
| Percent of production lost because of power outages | 5,09 | 4,81 | 5,90 | 3,85 | 5,42 | 13,14 | 4,33 | 4,97 | 4,32 |
| Have own generator (%) | 23,30 | 22,66 | 25,53 | 37,14 | 20,00 | 20,00 | 24,05 | 20,00 | 26,92 |
| Percent of production lost in shipment | 0,58 | 0,73 | 0,19 | 1,21 | 0,43 | 0,50 | 0,59 | 0,54 | 0,66 |
| Number of days to obtain a telephone connection | 21,20 | 20,43 | 23,00 | 18,07 | 22,01 | 32,75 | 20,15 | 19,95 | 24,87 |
| Number of days to obtain an electricity connection | 29,23 | 32,36 | 20,15 | 26,25 | 30,00 | 34,17 | 29,08 | 28,08 | 29,69 |

SOURCE: Derived from the World Bank's Investment Climate Assessment for Mozambique.

While the frequency of power outages varies by firm size and capacity, the survey noted that the most heavily penalized are the export-oriented firms, potential drivers of economic growth in Mozambique, with 600 outages reported in 2002. While infrastructure reforms are being undertaken, especially by introducing competition in telecommunications, it is important to quicken the pace of energy reform, as a reliable and adequate supply of electricity is a major input in the industrial sector. Reform can give a direct thrust to productivity growth as few other government policy measures can.

³¹ Mozambique Industrial Performance and Investment Climate 2003. August 2003. World Bank.

In our research two firms mentioned unreliability of the electricity supply as the most important problem. Whenever there was an electric outage, severe damage was done to production deadlines, as it took a few hours *after* the restoration of electricity for machines to reach production readiness.

Other transaction cost factors. The influence of other factors that increase the transaction costs of business, especially those that negatively influence the business climate, is important for productivity growth and firm efficiency. These factors include issues related to business licensing, access to finance, labor regulations, costs of finance, delays in VAT refunds (see Exhibit 4-1), and regulatory environment. However, detailed study of these factors is beyond the scope of the present study and has been documented by the World Bank/CTA's Investment Climate study and elsewhere. Tables 4-4 and 4-5 list constraints faced by business operators in Mozambique.

Table 4-4
Major Concerns of Firms in Mozambique

| | Percent of Firms Evaluating Constraint as "Major" or "Very Severe" | | | | | | | | |
|--|--|-------|-------|------------------|----------|----------|--------------|--------------|---------------|
| | Mozambique | Small | Large | Foreign-Invested | Domestic | Exporter | Non-Exporter | Low-Capacity | High-Capacity |
| Telecommunications | 20,65 | 22,79 | 15,22 | 19,44 | 21,23 | 20,00 | 20,61 | 24,60 | 10,91 |
| Electricity | 64,02 | 63,31 | 66,67 | 61,11 | 64,24 | 68,75 | 63,91 | 66,41 | 58,18 |
| Transportation | 27,03 | 26,47 | 27,66 | 31,43 | 25,50 | 25,00 | 27,27 | 30,00 | 19,23 |
| Access to land | 26,99 | 25,83 | 29,27 | 24,00 | 27,74 | 33,33 | 26,53 | 25,64 | 32,56 |
| Tax rates | 54,84 | 54,35 | 56,52 | 58,33 | 54,73 | 50,00 | 54,82 | 57,81 | 50,91 |
| Tax administration | 47,31 | 48,53 | 43,75 | 41,67 | 48,65 | 31,25 | 48,80 | 46,51 | 50,00 |
| Customs and trade regulations | 49,11 | 46,03 | 58,54 | 55,56 | 46,56 | 53,85 | 48,03 | 49,57 | 47,06 |
| Labor regulations | 38,25 | 38,52 | 39,13 | 47,22 | 36,55 | 31,25 | 39,88 | 40,63 | 32,69 |
| Skills and education of available workers | 33,51 | 30,88 | 40,43 | 41,18 | 31,54 | 43,75 | 32,73 | 36,72 | 22,22 |
| Business licensing and operating permits | 28,02 | 26,47 | 33,33 | 32,35 | 27,40 | 12,50 | 29,45 | 29,60 | 25,93 |
| Access to financing (e.g., collateral) | 75,43 | 77,78 | 68,09 | 68,97 | 76,55 | 60,00 | 76,28 | 80,00 | 63,83 |
| Cost of financing (e.g., interest rates) | 83,80 | 86,15 | 76,60 | 91,18 | 81,82 | 80,00 | 83,75 | 86,29 | 78,85 |
| Regulatory policy uncertainty | 58,01 | 58,33 | 57,45 | 65,71 | 55,56 | 37,50 | 59,63 | 59,68 | 55,56 |
| Macroeconomic instability (inflation, exchange rate) | 62,84 | 63,70 | 60,87 | 55,56 | 64,14 | 62,50 | 62,58 | 65,60 | 56,36 |
| Corruption | 63,74 | 61,94 | 69,57 | 86,11 | 57,64 | 56,25 | 64,42 | 64,80 | 61,11 |
| Crime, theft, and disorder | 54,10 | 53,73 | 55,32 | 63,89 | 51,37 | 43,75 | 55,21 | 57,69 | 48,00 |
| Anti-competitive or informal practices | 60,24 | 57,02 | 69,77 | 58,06 | 60,45 | 57,14 | 60,81 | 65,79 | 44,90 |

NOTE: Survey data by the World Bank/CTA enumerates the litany of problems that firms cite as being impediments to their business operation. These impediments act as constraints that also restrict productivity growth. Many of these bottlenecks were also cited as major problems to productivity growth in our study, and we identify some of these issues in this report as problems that need to be addressed for Mozambique to become more competitive.

SOURCE: Investment Climate Assessment: Mozambique (World Bank)

Table 4-5*Some Problems Identified During Study*

| Factor | Issues |
|---|---|
| Labor | Productivity is low |
| | Absenteeism is a problem for some but not all firms. |
| | Problems in firing workers |
| | Little incentive schemes |
| | Workers often come very tired |
| | Difficulty in getting technical people from abroad because of visa restrictions |
| | Low capacity utilization: 40-70% |
| | Technology |
| Production | Innovation in business process/organization: poor |
| | Energy supply not reliable |
| | Poor infrastructure makes importing and transportation expensive |
| Transaction costs | Customs: not a very big problem |
| | High interest rates |
| Financial Costs-Taxes | Fiscal system complicated |
| | Business licenses |
| Business friendly operating environment | Visas for expatriates |
| | Land regulation |

5. A Roadmap to Productivity Growth

Since it gained independence in 1975, Mozambique's economic march has been impressive. Growth has been robust since the mid-1990s and democracy seems firmly well-established. In most respects Mozambique can be considered a success story, especially so in the context of many other African countries still struggling to shake off the colonial past and become nation-states amid ethnic, religious, and tribal infighting.

If Mozambique has become a favored nation for the international donor community and multilateral institutions, it has done much to deserve it. Credit is due to policymakers for their vision in trying to promote market-friendly reforms, often despite resistance and criticism at home.

If Mozambique has come far, it needs to go further still if it is to rid itself of its stigma as one of the world's poorest countries. Mozambique is still recovering from the collapse of production and infrastructure after the departure of the Portuguese, who took with them the technical, managerial, and entrepreneurial classes a market economy needs. This study has focused on productivity enhancement, and conclusions that much work remains to be done are consistent with other studies. We suggest policy changes to promote productivity growth and increase Mozambique's competitiveness. We suggest specific policy changes and recommend other studies, namely the World Bank's Investment Climate Assessment and Nathan Associates' Diagnostic Trade Integration Study, among others, for a wider range of policy suggestions.

Recommendations for Immediate Attention

We recommend two approaches to policy initiatives: first, measures requiring immediate consideration and directly affecting promoting productivity; and second, measures involving more diffuse payoffs and requiring more time to implement, but that will ensure the long-term sustainability of economic growth and competitiveness.

ENHANCE AND ENLARGE POOL OF SKILLED TECHNICAL AND MANAGERIAL LABOR

Entrepreneurial, technical, and managerial skills are essential to developing technological capability for industrial growth.³² The 'miracle' economies of East Asian countries have all emphasized education and training, and have made enormous progress over several decades by developing a skilled workforce. In contrast, most countries in sub-Saharan Africa still suffer from an insufficient supply of technically proficient labor.³³ The problem is especially acute in Mozambique, and was frequently cited during interviews for this study.

Development programs have to include effective measures to enlarge the pool of technical, professional, and managerial labor as a complement to their emphasis on primary education. Part of this involves public-sector initiatives, but the private sector also plays a major role. For the industrial sector, much training occurs on the shop floor or through specialized in-house programs. Since trained workers are mobile, companies do not necessarily gain full benefit from such training activities. This externality or "leakage" of training benefits to other employers (possibly rivals) is a form of market failure, often leading private employers to under-invest in training their employees. Some countries have adopted measures to strengthen education and training programs for employees.³⁴

The Mozambican government already has fiscal incentives in place for employers to provide more education and training for their Mozambican employees. However, it appears that firms are not taking advantage of the incentives offered. Given the importance for productivity growth of skilled technical personnel with the potential for entrepreneurship, we suggest a review of incentives in place and consultations with firms to develop an incentive scheme that works and would ultimately repay the foregone public revenue with higher productivity, growth, and job creation.

An alternative or simultaneous approach is for the government to encourage employers to establish industrial and vocational training centers. For instance, once a critical mass is established, the apparel industry could start a training center, paid for by a small levy on members of the producer's association and workers who have benefited from the training.

³² Sanjaya Lall in "Building Industrial Competitiveness in Developing Countries" 1990, OECD, studied the determinants of technological capabilities for ten developing countries, including the importance of education and skills. Another survey of US-sourced FDI in clothing and electronics found that local labor and management skills were an important determinant of location choice. See HIID, "Promoting Foreign Direct Investment in Labor-Intensive Manufacturing Exports in Developing Countries," CAERII Discussion Paper No. 42, July 1999.

³³ Survey results from Ghana, Kenya, and Zimbabwe, reported in Howard Pack and Christina Paxson, "Is African Manufacture Skilled Constrained?" (Policy Research Working Paper 2212, Development Research Group, World Bank, Washington, 1999), suggest that the gains from higher education and technology inflows are constrained by the lack of a competitive environment. Richard Freeman and David Lindauer in "Why Not Africa?" NBER Working Paper No. W6942, February 1999, reach a similar conclusion.

³⁴ South Korea "insisted that companies spend at least 5 to 6 percent of their total budget on education and training programs, involving the private sector in a meaningful way," (Lall, p. 48).

CREATE COUNCIL FOR PROMOTION OF PRODUCTIVITY AND COMPETITIVENESS

We propose the creation of a council to promote productivity and competitiveness. Many countries have used national competitiveness and productivity councils to foster productivity awareness and promote productivity growth among firms. One study of five national productivity councils³⁵ suggests that they have been used to good effect in countries that have achieved high growth rates. Many developed and developing countries have used these councils for dialogue between firms and government ministries to promote economic competitiveness. In Asia, almost every country has a national productivity council. In Africa, Mauritius (National Productivity and Competitiveness Council), Botswana (The Botswana National Productivity Centre–BNPC), South Africa (The National Productivity Institute–NPI), and Lesotho (through the National Development Council) among others have instituted some form of national productivity council. Elsewhere, many European countries (one of the fastest-growing economies in the region, the Republic of Ireland, has had a National Competitiveness Council since 1997) and the United States have established productivity councils.

The proposed council may be an agency of the national government or a statutory body. It would perform a variety of tasks to promote productivity growth and competitiveness of firms. Services the council could provide include

- Reports and data analyses of the different sectors under its statutory preview,
- Benchmarking,
- Diagnostic studies of firm efficiency and organizational issues,
- Seminars and workshops,
- Short training courses on productivity and innovation,
- Raising awareness and assisting certifications such as quality and workplace security,
- Awards and recognition of productive enterprises, and
- Other measures to improve awareness and make Mozambican firms more competitive.

One of the council's most important tasks, at least in its initial phase, is to be an 'Observatório de Indústria e Comércio.' The council can serve as a repository of unified and consistent data. Through direct policy recommendations based on studies, the council could provide the Mozambican government with clear, well-defined policy advice to enhance Mozambican firms' competitiveness. Exhibit 5-1 discusses other countries' experiences with productivity councils.

Given the importance of a business-friendly environment to promoting productivity growth in Mozambique, the proposed council should therefore promote productivity as well as competitiveness. While the study did not have the time to dedicate that creation of a council

³⁵A Study of Five National Competitiveness and Productivity Councils. J.E. Austin Associates, Inc.

merits, certain guidelines should be followed in setting up such a council. We suggest the following:

- **Transversality.** The council should include representatives of various ministries and other agencies or groups on its board, for example, the Ministry of Industry and Trade, Ministry of Agriculture, Ministry of Tourism, representatives of dynamic associations of private sector firms (e.g., the CTA), trade unions, and possibly from academia.
- **Institutionality.** We do not propose that the council should have an institutional character from the start. First we will study the existing agencies in this country that have similar aims, or whose charters can be expanded, to avoid unnecessary costs and duplication of effort. Studying existing institutions in Mozambique will determine the necessity and feasibility of creating another institution. It is also important to undertake a type of SWOT analyses, if any institutional character is contemplated.
- **Sustainability.** Any new state agency or organization that does not benefit its client will not survive, or may become a “white elephant” that does not serve anyone’s interests beyond its office holders and employees. Therefore, we urge caution in studying all aspects of the council’s functioning to ensure that it is sustainable, including analyzing other agencies’ failures. Such a council can only be sustainable if it serves the purpose for which it was created.

FACILITATE RESIDENCE AND WORK PERMITS

Delays and refusals to grant visas and work permits to expatriates in key positions convey a strong message to investors that their investment is welcome, but they are not. At the same time, there may be legitimate concerns about the potential abuse of expatriate work permits. A balance must be struck between investors' prerogative to hire the people they consider best for key positions, and the country's legitimate interest in ensuring that good jobs go to local workers. These two objectives are complementary. Liberalizing permits for expatriates almost always creates *more* jobs and *more* training for Mozambicans. Serious investors face built-in incentives to hire Mozambicans wherever possible, because of the huge cost differential. If the government is uncomfortable leaving this entirely to the market, then the best approach is to strengthen the incentives, rather than impose bureaucratic controls.

The following recommendations emerged from the study findings:

- For investments (domestic or foreign) that will create jobs for Mozambicans, residency and work permits should be granted automatically and promptly to expatriates in key technical, professional, and managerial positions, once the project is approved. We propose that the law be amended to allow expatriates to comprise up to 10 percent of the workforce.

Exhibit 5-1*International Experiences of Productivity Councils*

SOUTH AFRICA'S NATIONAL PRODUCTIVITY INSTITUTE (NPI), established in 1968, has conducted awareness campaigns and efforts to promote productivity growth. Every year, the NPI launches nationwide National Productivity Week and sponsors the National Productivity Award. NPI promotes awareness campaigns through public presentations of scholars with extensive public media coverage and also sponsors TV and radio spots. During the 1990s, the NPI developed restructuring plans for industries and conducted projects to introduce new concepts in plant layout and production process improvement. The main areas of focus of the NPI are now in productivity promotion, training, education, and consultancy. NPI projects have included assisting firms in obtaining ISO certifications and supporting the quality circle movement in South Africa. It has carried out a benchmarking program for textile, clothing, lumber, and other industries. To promote the quality of human resources, NPI offers on-the-job training programs on a commercial basis to interested companies. It also has comprehensive management training programs for supervisors and senior management.

Under the guidance of the Ministry of Industry (MOI), the Thai Government approved establishment of the **THAILAND PRODUCTIVITY INSTITUTE (TPI)** in 1994, a successor to the Thailand Management Development and Productivity Center (TMDPC) founded in 1962. Although the TPI reports to the Ministry of Industry (MOI), it is a non-governmental organization to ensure its flexibility, speed, and

customer orientation. Its board of directors is composed of senior government representatives, business officials, trade union leaders, and scholars. Its many activities include inviting international experts to train and develop TPI professionals in training and consultancy; providing consultancy service to firms, and promoting productivity awareness campaigns. It also provides government agencies with productivity statistics, information, and guidance on national policy in productivity promotion.

The **BOTSWANA NATIONAL PRODUCTIVITY CENTER (BNPC)** was established in 1993 to create awareness and promote firms' productivity growth. Some of the center's activities include providing managerial and interpersonal skills training, consultancies to provide technical support and expertise to firms, productivity and quality awareness campaigns, and reports and productivity analyses.

Other productivity promotion organizations in Africa include

- Egypt – Productivity & Vocational Training Dept., Ministry of Industry & Mineral Resources,
- Ethiopia – Ethiopian Management Institute,
- Ghana – Institute of Management & Public Administration,
- Mauritius – National Productivity & Competitiveness Council,
- Nigeria – National Productivity Center,
- Tanzania – National Productivity Council,
- Zambia – Ministry of Labor and Social Security, and
- Zimbabwe – National Productivity Center

- Expatriate workers should receive appropriate visas pending approval of their work permits.
- The government could impose an expatriate levy on a sliding scale, as a function of time, to strengthen incentives and screen out abuse. For example the levy could be set at \$10,000 for every position filled by expatriate workers after a grace period of 5 years for midlevel positions and 8 years for senior positions, with the amount doubling after another similar

period of time. This measure would offer incentives to transfer sorely needed skills and knowledge to Mozambicans.

These proposals would (1) eliminate obstacles to investment, (2) make genuine investors feel welcome by allowing them to take control of their operations, (3) make it expensive to obtain "camouflage" residency and work permits, (4) strengthen inherent incentives for hiring and training Mozambicans, (5) reduce red tape, and (6) reduce the time to start full-fledged operations, all while generating revenue.

EXPEDITE VAT REFUNDS

The Ministry of Planning and Finance is responsible for collecting import duties and taxes, as well as refunding VAT. Long delays in obtaining VAT refunds are a problem for many firms, exporters, and other qualified producers. The World Bank's Investment Climate Assessment noted serious delays, even up to a year, in getting refunds; sometimes this may even involve bribes.

An earlier study noted this as a serious problem.³⁶ Systems must be developed to facilitate rapid VAT refunds as an integral part of promoting export-oriented investments. In the short run, this can be done by establishing a special registry of export enterprises and providing fast-track claims handling along with proactive assistance to clients in completing required paperwork correctly.

Any such system must include appropriate risk management procedures to prevent fraud and abuse. To the extent possible, this must be achieved without impairing the flow of goods. The solution may include predetermined agreement on eligible inputs for registered exporters, random physical checks and financial audits, and heavy penalties for invalid or fraudulent claims. Fast-track procedures for exporters can be extended to other VAT refunds as administrative resources permit.

This study further recommends that performance targets be set for handling VAT refunds and customs clearances. For registered exporters who face these procedures regularly, we propose that VAT refunds be processed within one week, and customs clearances completed within 48 hours for imported inputs and exported products. (These are targets for short-run performance; the medium-run program should set tighter targets.) Performance times should be monitored and reported monthly, and explanations should be required whenever targets fall short. These monitoring reports should be made public. Exhibit 5-2 discusses the delay in VAT refunds as a kind of additional import tax on firms.

³⁶ Soumodip Sarkar. 2000. Mozambique Too Can Compete! In Labor Intensive Manufactured Exports.

Exhibit 5-2*Delays in VAT Refunds as an Import Tax*

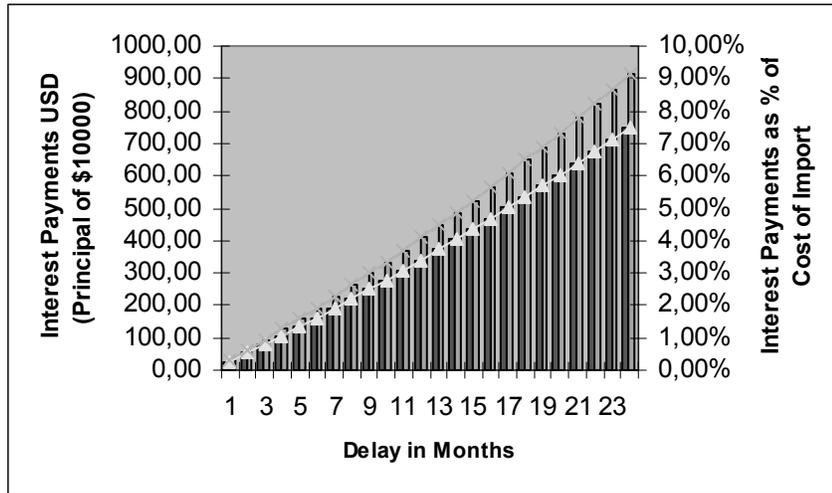
In Mozambique as in most countries, certain activities are exempt from value added tax, or IVA. These include flour, maize, rice, bread, agricultural activities, health services, and education. Also exempt are imports of raw materials for production and exports of goods and services. In theory, firms apply to the government for tax rebates on exempt items. In practice, rebates involve a great deal of time-consuming paperwork and bureaucracy. Concerns about fraud are genuine, as exporters or others eligible for refunds apply for excessive refunds on the basis of false invoices for input purchases. Fraud may also occur when businesses export goods and receive a refund for input taxes, but then smuggle the goods back into the country to sell domestically without paying import duties and taxes. Thus, tax administration has to decide between the probability of fraud and the firms' need for quick refunds so as not to freeze much-needed capital. One study^a discusses some countries' innovative approaches to arriving at this optimal point. In our study, delays in receiving IVA rebates were reported as a serious problem, with the World Bank Investment Climate Assessment reporting up to

one-year delays. These delays freeze working capital for firms. A simulation analyses reveals the costs firms incur because of delays in IVA refunds. An importer who brings in raw materials worth \$10,000, has to pay a 17 percent VAT to be refunded later. Assuming a 90-day delay in the VAT refund paid, \$1,700 is held up from the firm's working capital. The delay in VAT refund amounts to a transaction (import) tax on the firm, depending on the loan interest rate and the time of delay. Assuming interest rates on short-term commercial loans of 20 percent, this amounts to a refund delay tax of \$79.3 in the form of interest payments, ignoring costs of paperwork and applicable loan charges. This amounts to an import tax (tariff) rate of 0.8 percent on import cost. Figure 5-1 shows the result of a simulation analysis assuming interest rates of 20 percent and 24 percent. For instance, a one-year delay in VAT refund amounts to a refund tax of 3.4 percent and 4.08 percent, assuming interest rates of 20 percent and 24 percent respectively. Factoring in the costs of bureaucratic hassle, paperwork etc. pushes costs even higher.

^a *Promoting Export-Oriented Foreign Direct Investment in Developing Countries: Tax and Customs*, Glenn P. Jenkins & Chun-Yan Kuo, CAER II Discussion Paper No. 65, 2000.

SOURCE: <http://www.iva.mz/isencoes.htm>.

Figure 5-1
Costs of Delay of VAT Refund



Recommendations for Medium-Term Action

In this section, we discuss steps of secondary urgency to be undertaken to improve Mozambique's business climate and make recommendations to improve productivity and economic growth.

MAINTAIN COMPETITIVENESS OF LABOR AND REDUCE LABOR MARKET RIGIDITIES

For Mozambique to take advantage of its fundamental competitive advantage in labor-intensive manufactures, the government should avoid artificially increasing production costs, especially labor costs.

The large annual increases in the minimum wage that are continuously approved are disturbing. For instance, it has increased 21 percent from April 2002 to April 2003, and recently increased again in 2004, as illustrated by the data in Table 5-1. If this trend continues, Mozambique may price herself out of the competition to attract investment in labor-intensive production of goods and services unless higher wages are matched by productivity growth. Mozambique would then lose out on investments that could create tens of thousands of jobs. Workers who already have wage jobs would benefit, but at the expense of the rest of the labor force. (This outcome is clearly observable in South Africa.) To avoid this problem, wage increases should depend on productivity increases. This was the policy adopted in Lesotho, as part of its effort to become the largest garment exporter in SSA.³⁷ Mandated wage increases in

³⁷ World Bank, *Findings* Number 103, "Lesotho's Garment Exports," January 1998.

excess of productivity should be assessed carefully for their impact on job creation. (See Exhibit 5-3 for a brief discussion of the minimum wage.)

Table 5-1

Minimum Wage in Mozambique

| Ano | Ministerial Decree(DM) | Valor (Mt) | |
|------|---|--|--|
| | | Workers in Industrial Sector, including Commerce | Workers in Agricultural and Agro Fishing Sectors |
| 2001 | DM n.º 91/2001 de 30 de Maio ³⁸ | 665.707.00 | 459.270.00 |
| 2002 | DM n.º 72/2002 de 15 de Maio ³⁹ | 812.163.00 | 560.309.00 |
| 2003 | DM n.º 45/2003 de 07 de Maio ⁴⁰ | 982.717.00 | 700.386.00 |
| 2004 | DM n.º 75/2004 de 28 de Abril ⁴¹ | 1.120.297.00 | 805.444.00 |

Second, the government should review labor laws and regulations to minimize the burden on employers. Essential rules must be enforced to protect workers' basic rights. Labor laws in Mozambique appear to be more rigid and cumbersome than in most other countries competing for investments.

One instance of how corruption and uncertainty are generated is the power vested to the Labor Inspectorate. This is a powerful department; its inspectors have free access to any premises of an employer and may demand to see any records they consider necessary.⁴² In a poor country, power of this kind can generate abuses. One such potential abuse is the discretion that the law allows labor inspectors in the gradation of fines. For example, Decree 25/99, governing the employment of foreign workers in Mozambique, allows inspectors to impose fines between 10 and 80 minimum salaries.⁴³ These can serve as parameters for bribes. The extensive study on the labor law by the consulting firm of SAL and the recommendations therein should be due consideration.

³⁸ Publicado no BR n.º 22, I Série, Quarta-feira, 30 de Maio de 2001, pg. 111.

³⁹ Publicado no BR n.º 20, I Série, Quarta-feira, 15 de Maio de 2002, pg. 178.

⁴⁰ Publicado no BR n.º 19, I Série, Quarta-feira, 07 de Maio de 2003, pg. 148.

⁴¹ Publicado no BR n.º 17, I Série, Suplemento de Quarta-feira, 28 de Abril de 2004, pg. 146 (3).

⁴² Decree 32/89, Article 4, paragraph 1.

⁴³ The Legal and Administrative Framework for Labor Relations in Mozambique, SAL Investimentos e Consultoria LDA, 2003.

CONTINUE TO IMPROVE CUSTOMS

While improving the functioning of customs goes beyond the scope of this study, delays in customs clearance continue. For export-oriented producers, one of the most important factors between profit and loss, and rapid expansion into foreign markets or cancellation of export orders, is speed and reliability in adhering to delivery schedules. One reason investors have hesitated so far to sign onto AGOA in Mozambique may be fear of delays. The time for clearance is also very relevant for the firms geared toward the domestic market, as our study shows the large share of imported material in the production process. Thus customs plays a vital role in facilitating or deterring rapid clearance of imported inputs and export of outputs. Although the functioning of customs has greatly improved, survey respondents mentioned several times that delays and frustrations in trying to clear goods remain a problem.

IMPROVE INFRASTRUCTURE AND REDUCE TRANSACTION COSTS

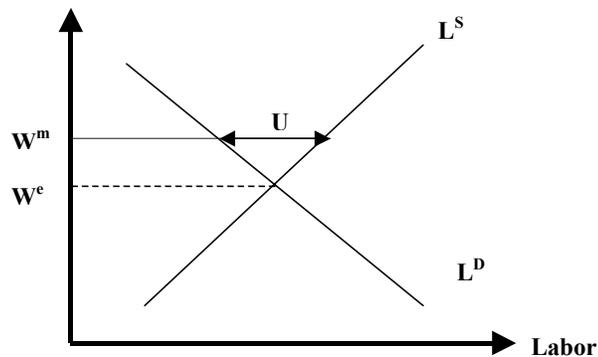
As cited in the World Bank's Investment Climate Assessment, poor infrastructure affects business productivity and competitiveness in Mozambique. Reform intended to increase private sector participation in the delivery of infrastructure services is welcome and the government should hasten this process, define priorities, and channel donor funds into this sector to a much larger extent. Providing reliable electricity must be among the priorities.

Exhibit 5-3

Minimum Wage and Minimum Employment?

Minimum wage regulation was first developed in New Zealand (1896), then Australia (1899), and later Britain (1909). Minimum wage regulation had adopted both by industrialized and developing countries as a social policy tool to protect low-skilled workers by guaranteeing a minimum return on labor. Although many economists view minimum wage as a cause of unemployment and increased poverty, empirical analyses have been inconclusive so far. One problem is that labor is not homogenous as assumed by the microeconomic models. In many countries, minimum wage covers a very small portion of the unskilled workforce.

Classical microeconomic theory predicts that minimum wages cause unemployment, as shown in the figure below, where minimum wage W^m set above the market equilibrium wage, creates an excess supply and



consequently unemployment levels of U.

In Mozambique, the government has pursued a policy of continuous increase in its minimum wage which has risen continuously as illustrated earlier in table 5-1. Increase in the minimum wage, which does not reflect an accompanying rise in labor productivity, could hurt Mozambique's competitiveness as a destination for investment in labor-intensive activities. Given that many factor prices are linked (as a multiple of the minimum wage), there would be a continuous upward pressure on wages in the economy as a whole, unaccompanied by corresponding increase in factor productivity. Besides inhibiting job creation, continuous rises in the real minimum wage rate may drive even more activity into the informal sector. Based on preliminary figures from the National Statistics Institute, the formal private sector hires fewer than 300,000 people, a small fraction of the labor force. It is estimated that the informal sector represents 40.3 percent of the Mozambican economy ("Doing Business in 2004 Understanding Regulation"). With such a sizeable informal sector, high unemployment rates in the formal sector Mozambique should study its minimum wage policy carefully. Separating minimum wage rises from productivity increases can have serious negative repercussions. The proposed Council for Productivity and Competitiveness could serve to study such policy measure

FOSTER COMPETITION AND LOWER FINANCIAL COSTS

The greatest number of complaints came from the *Registration, Entry, and Exit*. Open economies, where firms can easily enter and exit, have higher growth rates than less dynamic ones. Competition fostered by new entrants forces existing firms to increase productivity and improve their competitiveness or be driven from the market.

Interest rates in Mozambique remain high, even adjusting for inflation. Bank lending to the private sector makes up a small part of the banking portfolio, with credit expansion in nominal terms in 2003 reported at around 1 percent. There should be more competition in the banking sector, which would force lower lending rates and competition to lend to the private sector. We agree with the World Bank's recommendations in this regard.⁴⁴

REDUCE OTHER COSTS OF DOING BUSINESS

Other factors that increase the cost of doing business in Mozambique, and hinder the country's attractiveness as an investment destination include: weak infrastructure; poorly functioning legal and judicial system; widespread health problems that increase labor costs, including HIV/AIDS and malaria; and corruption. These issues fall beyond the scope of this report, but clearly the government program must address them seriously over the medium term, to improve the investment climate, increase efficiency, and stimulate sustainable growth and poverty reduction.

⁴⁴ Country Assistance Strategy (CAS) for Mozambique Private-Sector Development Strategy, 2003. The World Bank.

NURTURE DOMESTIC ENTREPRENEURS

For growth to be sustained and broad-based over the long run, Mozambique not only needs to attract foreign investment, but also to nurture a class of domestic entrepreneurs able and willing to take risks and capitalize on the country's advantages for export development and job creation. Table 5-2 lists observations on the mutual advantages to business-government partnerships, and Exhibit 5-4 discusses the impact of productivity-enhancing measures on firms.

Attracting foreign investment can help to foster the emergence of domestic entrepreneurs, particularly when accompanied by incentives for companies to strengthen their training programs. The mega projects will create a well-trained class of middle managers, with excellent knowledge of production management, personnel management, financial markets, and international standards. These people can become the leading domestic entrepreneurs of the future. To further foster the development of such an entrepreneurial class, the government should also investigate the possibility of creating international link-ups, with foreign funding, to strengthen high-level technical and managerial education, including MBA programs.⁴⁵

Table 5-2

Observations on Business Government Partnership in Promoting Productivity

| Measures | Responsibility | | Observations |
|---------------------------------|----------------|----------------------------|--|
| | Firm | Business-Govt. Partnership | |
| L A B O R | | | |
| Training to improve skill level | xx | X | Fiscal incentives and pooling resources |
| Lower absenteeism | x | X | Incentives+ supports+fight Against AIDS |
| Motivation | xxx | | Incentive schemes |
| Flexible labor regulation | | Xxx | Legislation |
| Capital goods (machinery etc) | x | | |
| P R O D U C T I O N | | | |
| Technology | x | | Support of Productivity Council |
| Innovation in business process | xx | X | Better organizational and management techniques |
| Reliable energy | | xx | Partnership with private sector |
| Better infrastructure | | xx | Better roads/ railways/ ports; significantly reduces transport |

⁴⁵ One such example is the Fulbright Program in Ho Chi Minh City in Vietnam, which has been successful in training about 50 middle and senior managers drawn from all over the country, every year since 1995.

| Measures | Responsibility | | Observations |
|--|----------------|----------------------------|--|
| | Firm | Business-Govt. Partnership | |
| | | | costs |
| L O W E R T R A N S A C T I O N C O S T S | | | |
| Efficient Customs | | Xx | |
| Reduction in corruption | x | xxx | Reduce myriad incentives for corruption; message from the top? |
| Competitive banking system | | xx | |
| L O W E R F I N A N C I A L C O S T S | | | |
| Simpler and efficient fiscal system | | | Legislation |
| Business licenses | | xxx | |
| B U S I N E S S - F R I E N D L Y O P E R A T I N G E N V I R O N M E N T | | | |
| Visas for expatriates | | xxx | |
| Land regulation | | | Legislation |

Exhibit 5-4*Impact of Productivity Enhancing Measures: A Simulation*

Assume that a manufacturing firm has the following production cost structure for a unit product that costs \$100. Then assume changes in policy that directly affect labor productivity (e.g., training, managerial skills, incentive structure) and that improve productivity by improving infrastructures, changing labor law, and improving the operating environment are implemented. Efficiency gains decrease firms' costs from \$100 to \$88.21.

| <u>Production Factors</u> | <u>Before</u> | <u>Changes</u> | <u>Costs After Changes</u> |
|---------------------------------------|---------------|--------------------|----------------------------|
| Imported raw material | \$17 | Decrease by 10% | \$15.30 |
| Domestic raw material | \$8 | Decrease by 10% | \$7.20 |
| Wages | \$22 | Prod. Increase 1.4 | \$15.71 |
| Utilities (water, elec., comm.) | \$7 | No change | \$7 |
| Other materials (tools & off. equip.) | \$8 | Increase by 25% | \$10 |
| Maintenance | \$13 | No change | \$13 |
| Transport costs | \$15 | Reduction by \$3 | \$12 |
| Interest | \$10 | Reduction by 20% | \$8 |
| Total costs | 100% | New Costs | \$88.21 |