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PRODUCTIVITY PERFORMANCE IN DEVELOPING COUNTRIES

Country case studies

Morocco

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Executive summary

Improving productivity is the key determinant of any national development strategy on account of its role in economic and social progress through its impact on competitiveness and efficiency. This report analyses the productivity changes in Morocco and presents its main determinants. Results show that, over the past four decades, Morocco's growth performance has been characterized by high fluctuations. Compared to many other developing countries, the growth rates in Morocco have been remarkably volatile in general, and at times, lower than those of poorly performing countries in the Sub-Saharan Africa. During the past four decades, the GDP growth rates of Morocco may be classified into three distinctive periods: The first period from 1960 to the early 1980s was characterized by positive growth rates with moderate fluctuations averaging 6.4% per year. The second period from the early 1980s to the early 1990s was marked by slower growth as GDP fluctuated considerably and showed poor expansion rates, averaging 4% per year. During the third period from the early 1990s onwards, growth rates were much more volatile with sharper declines, resulting in an average annual increase of only 2.5%. Part of the decline in the average GDP over the three consecutive periods may be attributed to capital deepening which declined considerably during the different growth periods, moving from an annual increase of 5.8% during the first period, an average annual decline of 1.2% during the second and 0.2% during the third periods. Another factor that contributed to the decline in GDP growth was the decline in labour productivity which fell from 3.8% during the first period to 1.4% in the second, with constant labour productivity rates in the third period compared to the previous ones. However, annual growth in total factor productivity (TFP) increased from 0.9% during the first period to 2.1% during the second and then dropped to only 0.1% during the last periods.

There are a number of factors behind Morocco's poor performance in terms of economic growth and productivity changes. In this context and despite the recent economic reforms implemented by the Moroccan government in the last few years and in the mid-1990s in particular, many problems still face the economy. Regarding investment, procedures are still cumbersome, official decrees take a long time to be enacted and laws do not seem to be applied. The free zones are still at the early stage, held up by delays in renovating ports and other infrastructures. Land-ownership is also complicated by outdated practices and buying building land may take months or even years, depending on its legal status. The private sector complains about unreliable legal guarantees for investments due to corruption. The weight of bureaucracy and its inefficiency remain major obstacles to the country's development. Thus, a more institutionalized, participatory, modern political system is crucial for continued economic growth. Weak social indicators and deficient human capital investments constitute a threat to development.

Given the high levels of poverty and unemployment in Morocco, there is an urgent need to improve productivity in the country. In order to address this problem, Morocco will Morocco will have to reduce unnecessary restrictions on trade to allow the allocation of resources in the economy in line with market forces. While it is reasonable on the basis of accepted economic theory to expect reforms to have some positive effect on the level of productivity, it much more uncertain whether the changes associated with economic such initiatives can lead to a permanent increase in the growth rate. Indeed, it is difficult to identify the exact economic mechanisms through which a permanent increase in productivity growth will occur. Literature suggests two ways through which economic

reform might have an impact on productivity growth, at least in the medium term, if not permanently. The first of these is through the exposure of Moroccan firms to increased competition, both internationally via the reduction of protection and domestically, via competition policy The second suggestion is based on the belief that Moroccan firms have the incentives and the abilities to exploit "catch-up" opportunities. The basic idea is that, in many Moroccan firms and industries, the methods of production (e.g. management practices, capital equipment etc.) are below current "best practice" in other countries. If Moroccan firms are given the necessary incentives and opportunities to adopt continuously evolving world "best practices", this should have a significant effect on domestic productivity growth, at least during the catching-up phase. For this reason, targeted actions at both sectoral and enterprise levels are believed to be more efficient means of improving productivity.

Given the variability in the agricultural GDP, which remains sensitive to climatic conditions, the manufacturing sector in Morocco has to boost productivity to remain competitive in the global economy. Productivity improvements could be the key element of success in the new Moroccan economic policy based on trade liberalization and competitiveness. In order to achieve this objective , the Moroccan manufacturing sector needs upgrade its primary production technology. Technology can help to improve the overall productivity in different ways through the reduction in production cycle time and costs, better production and process control and, innovative advances that can enhance competitive advantages. Manufacturing firms must achieve a degree of innovative capability in production operations, processes and capital equipment. UNIDO could contribute in this area by helping the Moroccan firms to develop and adopt good management systems and practices such as Total Productivity Maintenance, Total Quality Management, etc. Furthermore, there is an urgent need for the manufacturing sector in Morocco to move up the value chain if it is to remain competitive in the global economy. Innovation, leading to new product development and production process will also crucial to raise productivity levels through higher value added. The Moroccan manufacturing sector also needs an injection of advanced technology and expertise through technology transfer and foreign direct investments to support its growth. Improving private spending in R&D activities will be a necessary input to achieve this transformation and must be accompanied by ongoing human resource development through extensive training and investments in higher education Workers with a new set of skills and education are needed to meet the demands of the modern economy given that the new competitive challenges and productivity concerns are knowledge-based. The case of textiles and clothing sector in Morocco after the removal of the multi-fibre agreement is an example of the urgent need to foster research and development at enterprise level to protect both domestic and international market shares. Relying on low labour costs is no longer the key determinant of competitiveness for Moroccan products on the European market. Product differentiation and productivity improvement are now seen as the new driving forces behind industrial development in the country.

I. Introduction

Productivity growth is the main channel for long-term improvement of the real income and the standard of living. Productivity gains increase economic wealth and free up additional resources that can be invested to satisfy the needs of the population in many fields such as healthcare, education, the environment and public infrastructure. Both theoretical and applied economic research has shown the importance of productivity growth for long-term economic prosperity on account of its impact on inflation. Studies on productivity patterns are essential to understand economic growth changes due to its importance for the overall economy.

This report analyses the productivity changes in Morocco and presents its main determinants. Over the past four decades, Morocco's growth performance has featured high fluctuations. The results have been disappointing compared with other developing countries and economic growth rates in Morocco have been remarkably volatile in general and, at times, lower than those of poorly performing economies in Sub-Saharan Africa. The GDP growth rates of Morocco over the past forty years may be classified into three distinctive periods. The first period from 1960 to the early 1980s is characterized by healthy growth rates with moderate fluctuations averaging 6.4% per year. The second period from the early 1980s to the early 1990s was marked by slower growth as GDP fluctuated considerably and showed poor expansion rates, averaging 4% per year. During the third period from the early 1990s onwards, growth rates were much more volatile with sharper declines, resulting in an average annual increase of only 2.5%.

Part of the decline in the average GDP over the three consecutive periods may be attributed to capital deepening which declined considerably during the different growth periods, moving from an annual increase of 5.8% during the first period, an average annual decline of 1.2% during the second and 0.2% during the third periods. Another factor that contributed to the decline in GDP growth was the decline in labour productivity which fell from 3.8% during the first period to 1.4% in the second, giving way to constant labour productivity rates in the third period. However, annual growth in total factor productivity (TFP) increased from 0.9% during the first period to 2.1% during the second and then dropped to only 0.1% during the last periods.

A detailed analysis of the correlation between growth achievement and economic policies implemented in the country was conducted for the three periods under review. The different trends in productivity (labour, capital, TFP) and the variation in the respective contributions of labour, capital, and TFP to GDP growth were also analysed. The analyses were based on UNIDO's estimates of changes in different levels of productivity.[1]

[1] Data on productivity and GDP growth are provided by UNIDO. The production function used has GDP as output and labour and capital as input; data were taken from Penn World Tables 6.1. Data on capital were generated from investment data (using PPP investment deflators, assuming 13.3 % depreciation rate following Leamer). To compute TFP growth, the Data Envelopment Analysis (DEA) was used to obtain the change in technical efficiency and technical change, and the Malmquist index to obtain TFP growth. The advantage of this method is that it does not assume any functional form and no assumptions about perfect competition, profit maximization, etc are needed. Technically, DEA involves the use of linear programming methods to construct a non-parametric piece-wise frontier (or surface in the case of several outputs).

The breakdown of TFP into technical efficiency change and technological change is very useful to distinguish innovation or adoption of new technology by state-of-the-art industries from the diffusion of technology. For example, a high rate of technological progress together with a low rate of change in technical efficiency may reflect failures in achieving technological diffusion. Such analysis adds a further dimension to the policy relevance of TFP in Morocco.

As one of the objectives of this report is to provide evidence on the correlation between industrial productivity and the performance of the Moroccan economy, the productivity analysis was also conducted at industry level when data were available. In this context, it is important to note that there were positive TFP growth rates between the years 1960 and 2000 rates, while Morocco registered the lowest growth rate (approximately only 3% annually) in the Middle East and North African (MENA) region during the period 1981-1999. Overall, Morocco's industrial production performance was better in the pre-1980 period relative to the post-1980 period.

Analyzing the main determinants of the recent declines in productivity performance is a first step toward identifying what needs to be done to make productivity and growth more sustainable. Recent empirical literature has suggested a wide range of productivity correlates including:

- Research and development (R&D),
- Technology transfer mainly through foreign direct investment (FDI),
- Population growth and unemployment rates,
- Human capital development, physical investment and rates of return thereon,
- Infrastructure and financial market development,
- Degree of factor allocations, government size,
- Natural resource endowment, institutions, policies, technical barriers,
- Income distribution, economic base,
- Integration in the world economy,
- Level of development of market institutions.

These ultimate determinants of productivity have been shown in the literature to be as important as the proximate factors of growth, namely physical capital, labour and the efficiency with which these factors are combined. A detailed analysis of the contribution of each determinant to the productivity achievements in Morocco was also conducted.

Growth and productivity patterns are believed to be inextricably linked to fiscal, labour trade, exchange and interest rate and competition policies and to government expenditure on human capital and infrastructure development, among other factors. In this regard, Morocco has introduced substantial reforms since the 1980s. It commenced its economic reform programme in 1986, and has since undertaken a number of policy and regulatory changes to liberalize a previously highly protected and centrally planned economy. Measures that have particularly influenced productivity at both national and industry levels include the introduction of a marked-based foreign exchange system, liberalization of trade policy, privatization of state-owned enterprises and fiscal policy reform.

II. Morocco's productivity experience

2.1. Growth of national and manufacturing GDP

As is reflected in the GDP growth during the period 1960-2000, Morocco's economy was highly unstable with fluctuations largely due to its agriculture sector. Overall and during the period 1960-2000, the total output in Morocco recorded healthy growth rates at an average of 4.8% per year. As in many of the MENA countries, economic growth slowed down after the 1980s.

The evolution of the GDP growth rate in Morocco can be divided into three different periods of economic expansion: (a) 1960 to the early 1980s, characterized by a positive growth rate with very moderate fluctuations; (b) from the early 1980s to the early 1990s, characterized by greater fluctuation in growth patterns and generally negative rates and, finally, (c) the period from the 1990s onwards which was marked by higher volatility in economic growth. Overall, and since the beginning of the 1960s, the GDP growth rates were weaker during the 1990s compared to the previous decades, following a sluggish trend over a long period of time. Table 2.1 provides the yearly economic growth rate during the third period, which is almost equal to one-third of that of the first period.

Table 2.1 Trends in the real GDP growth rate during the different phases of economic growth in morocco since 1960

	Average annual growth rate of GDP (percent)			
	1960-2000	1960-1980	1981-1990	1991-2000
GDP at national level(i)	4.80	6.42	4.04	2.47
GDP at manufacturing level	4.44	5.88	4.34	2.70

Source: Calculations using UNIDOs data for total GDP growth rates and the World Development Indicators (World Bank, 2004) for manufacturing GDP growth rates.

During the period 1967-2000, total industrial production in Morocco registered good growth rates with an average annual growth rate of 4.44%. In general, the percentage of manufacturing GDP growth represents the growth of total GDP – which decreased after the 1980s. Furthermore, during the three periods, the manufacturing output grew at about the same average rate as total GDP.

2.2. Sources of economic growth

The growth accounting approach suggests that GDP growth may be broken down into three elements, i.e. the contributions of: (a) capital, (b) labour and (c) TFP, which is often referred to as Solow's residual. The latter is computed as the residual of GDP growth once capital and labour contributions are removed. In order to estimate the contribution of each one of the three elements of the GDP growth rate, it is necessary to calculate the capital elasticity measuring the importance of physical capital in output. Most of the literature set the capital elasticity at a value of one-third, which assumes technology to be the same across countries – a questionable assumption according to Sekkat (2004). Recently, Senhadji (2000) relaxed the assumption of identical technologies across

countries by estimating separate production functions for 88 countries, including Morocco. By using the traditional constant return to scale Cobb-Douglas production function in per capita form, he found significant differences across countries. In fact, the long-term coefficient for Morocco was found to be below the different regions' average, indicating that capital is inefficiently used in Morocco compared to other countries. Senhadji's (*op. cit*.) estimates on capital elasticity were used in this paper to compute the contributions of capital, labour, and TFP to the GDP growth in Morocco during its three periods of economic growth. The real yearly GDP growth rate is provided by UNIDO. The capital stock computation follows Sekkat's formula (2004) and labour is approximated based on the total workforce from the World Development Indicators (World Bank, 2004). Results are given in Table 2.2.

Table 2.2 Contribution to Growth

	Average yearly growth rate of GDP	Average yearly growth rate of capital	Average yearly growth rate of labour	Contribution of capital to growth	Contribution of capital of labour to growth	Contribution of TFP to growth
1960-2000	4.80	6.42	2.53	48.10%	33.80%	18.10%
1960-1980	6.42	8.25	2.55	46.30%	25.40%	28.30%
1981-1990	4.04	4.95	2.31	44.10%	36.60%	19.30%
1991-2000	2.47	3.59	2.20	52.20%	57.10%	-9.30%

Source: Author's own calculations using capital share equal to 0.36.

Generally speaking, the labour contribution to GDP growth increased sharply from 25.4% in the first period to 57.1% in the third period. Similarly, there was a steep rise in the contribution of capital sharply while that of TFP declined. The contribution of TFP in economic growth showed a rapid decrease, even becoming negative during the third period. Theoretically, if a Ramsey growth model were considered, in the long-run equilibrium, the contribution of capital might be expected to decline as diminishing returns on capital deepening occur when the country is reaching its long-run equilibrium. Labour's contribution remains almost unchanged to increasing as the level of labour productivity of labour benefits from capital deepening. In this case, it can certainly be expected that TFP's contribution will rise. However, this is not the case for Morocco as evidenced in the declines in real GDP growth rates observed in the country since the 1980s.

These results are almost identical to those obtained by Sekkat (2004) and Senhadji (2000) which confirmed almost the same trends in the evolution of the contributions of the three sources of economic growth. Furthermore, the study conducted by Gray (1990) also established a dramatic decrease in the TFP contribution from 1.8% during the period 1961-68 to 1.4% between 1968 and 1976 and only 0.4% for the period 1976-1987. More recently, Bouhia (2000) conducted a similar exercise and found a slight decrease in the labour contribution and a significant decline in those of capital and TFP. The TFP contribution fell from 0.7% during the period 1960-1975 to 0% during the period 1991-1998.

2.3 Factor accumulation and economic growth

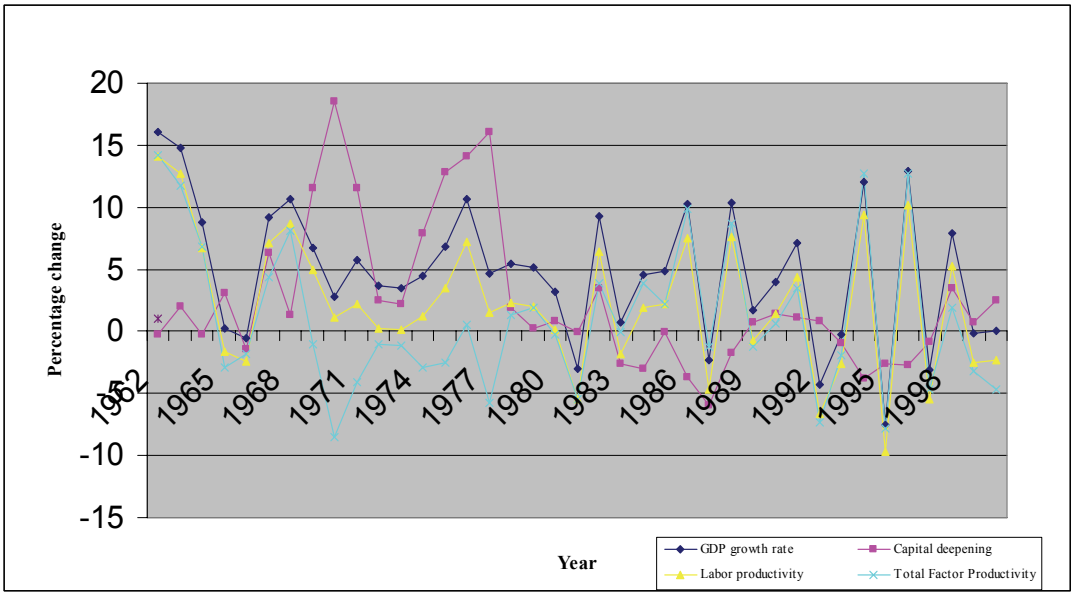
The Moroccan growth rate for capital accumulation declined throughout the three consecutive periods of economic growth, while the rates of expansion of the labour force were almost constant throughout the same periods, leading to a decline in the level of capital per worker. In the light of these trends in capital growth rates per worker, the decline of output observed is not surprising, given the significant role played by capital in economy-wide output growth.

The breakdown of economic growth into factor accumulation and productivity growth is important as the bulk of the cross-country differences in GDP growth rates are not the result of factor accumulation, but of the differences in TFP growth. Morocco exhibited a pattern of high TFP growth in the 1960s, followed by a dramatic decline over the 1970s, which continued throughout the 1980s. Growth rates in Morocco during the 1960s were among the highest in the world. Fuelled by revenues from worker remittances and external financing flows, the country began a two-decade period of massive public investment in infrastructure, health and education, which, in this early period of development, translated into high growth. In addition to high levels of spurring growth, TFP growth over the 1960s was also high, with large-scale public investments in critical infrastructure generating a significant expansive trend. However, by the 1980s, with eroding macroeconomic balances, rising debt burdens and despite both strong external assistance and low oil prices, investments declined dramatically. In the 1990s, private sector investment slowed down and Morocco's economic growth prospects were dampened by recurring droughts.

2.4 Changes in productivity

Analyzing the role of overall productivity as a major source of output expansion is a key element of any analysis focusing on the sources of economic growth.

Figure 2.1 GDP and productivity change



While TFP increased at an average annual rate of 1.01% over the period under review, it rose by only 0.89% during the first period to 2.1% in the second and fell to just 0.12% during the last period (Table 2.3). The decline in the average annual total TFP growth over the three periods led to a drop in its contribution to labour productivity expansion. The decrease in the average yearly capital accumulation may also explain the decline in labour productivity observed over the last four decades.

Table 2.3 Changes in productivity during the different phases of economic growth Morocco

	1960-2000	1960-1980	1981-1990	1991-2000
Capital deepening	2.50	5.84	-1.15	-0.22
Labour productivity	2.21	3.78	1.42	0.00
Total Factor Productivity	1.01	0.89	2.12	0.12

Source: Author's calculations using UNIDO's data

It is well known that the growth of labour productivity is affected by growth in the capital to labour ratio and to the TFP expansion rate. An increase in capital deepening tends to improve labour productivity, since capital productivity is relatively slow to change. This provides a direct link between physical investment and labour productivity. If investment in physical capital is low, this will eventually triggered a decline in the growth rate of the capital stock and in capital deepening, particularly if the labour input is rising steadily. However, the relatively higher population growth rate and lower level of capital productivity in Morocco, compared to the USA for example, means that Morocco needs to maintain an investment to GDP ratio above the American average. Regarding changes in labour productivity in Morocco, there was a very slight improvement during the period 1961-2000 compared to the trend in the USA. Estimates made by UNIDO show that labour productivity in Morocco has remained very low compared to the US level, showing an increase from 13.82% of this level in 1961 to 14.41% in 2000. Three main reasons explain this difference: firstly, TFP was low in Morocco and capital deepening in the production of final goods (not government investment in services) fell short of what it should have been which undoubtedly depressed labour productivity levels. Total factor productivity and capital deepening were low as result of the weight of the government in the Moroccan economy that may have crowded out private investment and possibly led to industrial concentration. The second reason could be related to the only partial convertibility of the Moroccan Dirham, which could have limited FDI, thereby affecting both total factor productivity and capital deepening. Trade barriers imposed by the European Union, the major trading partner of Morocco, have reduced potential Moroccan exports of labour and water-intensive goods, such as agricultural produce. This has prevented Morocco from increasing its imports of intermediate capital-intensive factors of production. The third and last reason behind the low labour productivity in Morocco compared to the US undoubtedly lies in the fact that Morocco has been less successful than the United States in setting up institutions conducive to economic development.

An estimate of TFP growth in manufacturing sectors was carried out by Zaimi (2002) for the period 1983-2000. Its results show that changes in industrial sector TFP can be divided into two phases. The first one took place between 1983 and 1989, when the growth rate was on the decline. This slowdown at an average annual rate of -3.1% was essentially attributable to the decrease in labour productivity and, ultimately, to the

decline in capital productivity. The contributions of these two components to the TFP industrial sector growth were, respectively, -2.4 and 0.7 percentage points. The results of the estimate indicate that the labour productivity in the manufacturing industries decreased yearly by 4% on average during this period. This deterioration is principally observed in the food-processing sector (-5%), the textile and leather industries (-4%) and the chemical industries (-1%). As for the other manufacturing activities, although their productivity levels rose, they were not significant enough to influence the overall industrial performance.

This period was also characterized by a surge in new labour-intensive entrepreneurial activities and the number of companies went from 3281 in 1983 to 5398 in 1989, recording an annual growth rate of 9%. Employment rose at a more accelerated pace (11% on average per year) than the increase in value-added (6%) with a resulting drop in labour productivity.

Concerning the second period (1990-2000), industrial sector TFP recorded a positive average growth of 1.4% and generated productivity gains. This was essentially due to the improved labour productivity with a positive TFP contribution estimated at 1.8 percentage points. Furthermore, the author argues that the improvement observed in manufacturing productivity during this period could also be attributed to the economic reforms implemented in the country during the 1990s mainly through initiatives taken to create an enabling business environment and investment climate.

With regard to the capital stock, its contribution remained negative (-0.4 percentage points). The improvement in the labour productivity contribution was mainly driven by the food processing, textiles and leather and chemical industries, which recorded growth rates, respectively, of 5%, 2% and 3%. This resulted essentially from the slowdown in the level of job creation in all manufacturing activities. The number of businesses created rose from 5729 in 1990 to 6705 in 200,0 recording an average annual growth rate of 2%. There was a slight downward shift (from 6% to 5%) in industrial value added during the period.

Given the importance of the agricultural sector in the Moroccan economy[2], an estimate of TFP growth in non-agricultural sectors was also carried out by Zaimi (2002) for the period 1982-2000. Results show that changes in TFP could be divided into three different periods. During the first period (1982-1991), TFP improved by an annual average rate of only 0.7%. This can be attributed to structural reforms adopted by Morocco during this

[2] Agriculture drives Morocco's GDP as it accounts for nearly 20 percent of the country's its total and employs around 40 percent of the local labour force. Thus, when annual growth in agricultural GDP averaged 6.7 percent between 1980 and 1990, annual growth in total GDP averaged 4.2 percent and when growth in agriculture dropped to -1.3 percent between 1990 and 2000, growth in total GDP averaged 2.2 percent. Furthermore, in 1999 and 2000, average growth rates in agricultural GDP were -19.8 and -14.0 respectively as result of draught conditions,Total GDP declined accordingly by 0.7 in 1999 and grew only by 0.8 percent in 2000. Azzam and Sekkat (2002) analyzed the changes in productivity in the agricultural sector during the period 1980-1995. Their estimate covers two sub-periods: 1980-85 and 1986-1995. The two periods correspond to low and high variability in agricultural GDP. The results of their estimates show that the average annual rate of total factor productivity was negative for the whole sample period, positive for the1980-1985 period, and negative for 1986-1995. Given this high variability in agricultural productivity and the importance of the sector in the Moroccan economy, any analysis of productivity changes in Morocco should focus on non-agricultural sectors in order to be able to explain changes by determinants other than climatic conditions.

period to promote macro-economic stabilization, improve the business enterprises environment and boost industrial competitiveness. By contrast, the TFP was negatively affected by the unfavourable economic situation in Europe between 1992 and 1995, when it declined by an average annual rate of 0.4%. Finally, during the third period, TFP improved at an average annual rate of 0.3% because of the recovery in both the international economy and labour productivity.

2 .5 Technological change and change in technical efficiency

The distinction between technical efficiency change due to variations in the method of application of inputs, and the technological progress in the varying coefficient approach are a further important dimension of the relevance of TFP studies for policy-making. Technical efficiency change measures whether the output gap between state-of-the-art techniques and actual production methods is diminishing or widening over time. This effect may be substantial, and may also outweigh gains from the physical technical progress itself. It is important therefore to know how far away the production (technology) frontier is at any point in time, and how quickly it can be reached. For instance, in the case of developing economies where technology is largely, failure to acquire and adapt new technology to the country's socio-economic development will be reflected in the lack of shifts in the frontier over time. Technological progress, on the other hand, measures the movement of the production or technology frontier over time. It reflects the success of explicit policies to facilitate the acquisition of foreign technology, and may be interpreted as providing a measure of innovation (Gaofeng *et al*., 2001). The breakdown of TFP growth into technical efficiency change and technological improvement is, therefore, useful in distinguishing innovation or the adoption of new technology by state-of-the-art industries from the diffusion of technology. The combination of a high rate of technological progress and a low rate of change in technical efficiency may reflect failures in achieving technological mastery or diffusion. Table 2.4 below presents estimates on changes in technical efficiency and technology growth during the different phases of economic growth in Morocco.

Table 2.4 Changes in technical efficiency and in technology growth rates during the different phases of economic growth in Morocco (percent)

	1960-2000	1960-1980	1981-1990	1991-2000
Changes in technical efficiency	-0.68	1.82	1.33	-7.42
Changes in technology	1.95	-0.85	0.84	8.38
Total Factor Productivity	1.01	0.89	2.12	0.12

Source: Author's calculations using UNIDO's data

During the whole period, the average yearly change in technical efficiency was negative, and outweighed the positive contribution of technological progress, leading to lower TFP growth. In the first period of economic growth in Morocco, technical efficiency change was positive while technological efficiency change was negative, and TFP growth rates were consequently lower than efficiency changes. This result suggests that Morocco's economic growth for this period of analysis was attributable mainly to the input growth. It may also be argued that the accumulation of human capital increased labour resources, which may be gauged by the technical efficiency improvements, but that this did not keep

pace with that of physical capital during this period in Morocco. In the subsequent period, changes in technical efficiency and technological progress were positive, suggesting that Morocco's economic expansion in this period was mainly attributable to the input growth. During the last period, technical efficiency changes were negative and technological improvements were positive. It is plausible to relate these changes in the economy to policies implemented in the country over this period.

Overall, this analysis of changes in technical efficiency and technical progress shows that former decreased sharply from 1.82% per annum from the 1960s to the 1980s to -7.42% during the last period. This development may be explained by at least two major reasons. Firstly, Morocco experienced a steady decrease in its total output growth during the three periods while stocks of inputs, and capital in particular, did not fall to the same extent. Secondly, it is commonly argued that the full exploitation of any newly implemented technology takes time (Helpman and Rangel, 1999).

Part of the decline in productivity over the last two decades may be explained by Morocco's reluctance to make its currency, the Dirham, convertible and open its domestic capital markets to other international financial intermediaries. This would have required a change in banking regulations and forced the government to borrow from domestic markets at world real interest rates. The failure to achieve this objective meant that the foreign capital inflow was very low and the accompanying new technologies did not materialize. A country such as Morocco on the doorstep of Europe should have much larger capital inflows. Another problem that may be cited is the imposition of trade barriers on its agricultural sector by its major trading partners. Another problem affecting productivity changes in Morocco is bureaucracy.

The following discussion presents a detailed analysis of the main determinants of the poor productivity performance in Morocco and outlines the obstacles brought about by its economic policy.

III. Major factors determining Morocco's productivity patterns

Identifying and analyzing the main determinants of the recent declines in productivity performance is a first step toward identifying measures to enhance the sustainability of productivity and growth. Recent empirical productivity literature has suggested a wide range of determinants of productivity levels, including

- Research and development (R&D);
- Technology transfer mainly through foreign direct investment (FDI);
- Population growth and unemployment rates;
- Human capital development, physical investment and rates of return thereon;
- Infrastructure and financial market development;
- Degree of factor allocations, government size;
- Natural resource endowment, institutions, policies, technical barriers;
- Income distribution, economic base;
- Integration in the world economy;
- Level of development of market institutions.

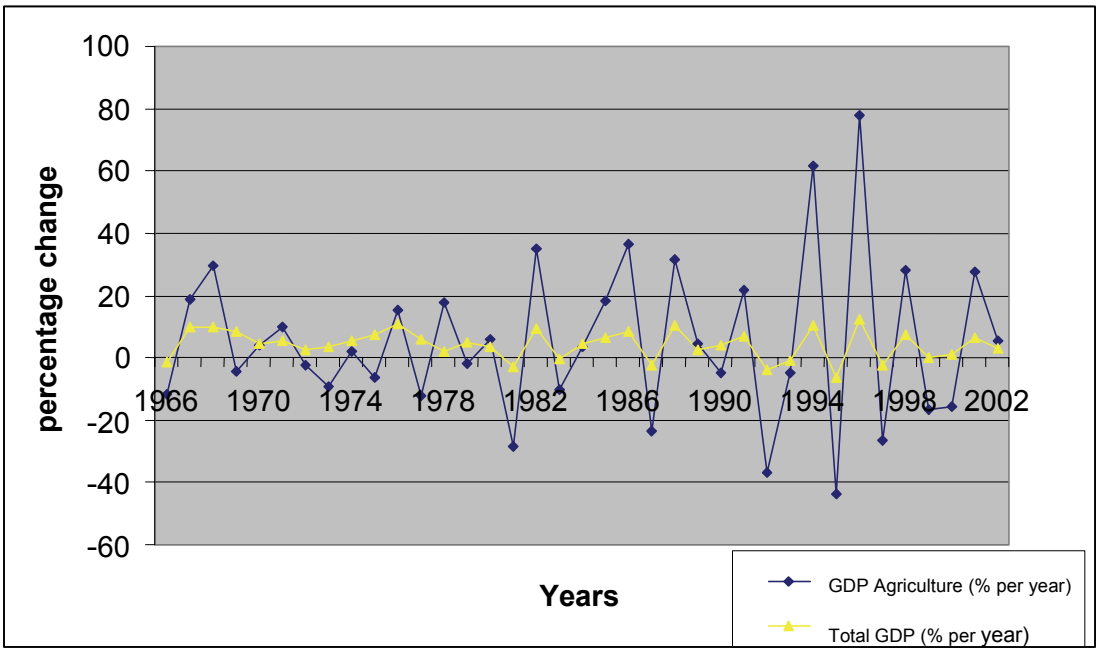
These ultimate determinants of productivity have been described in the literature being as important as the proximate factors of growth namely, physical capital, labour, and the efficient combination of both.

3.1 High sensitivity of economic growth to agricultural output and climatic conditions

The first determinant of Moroccan economic growth and productivity changes is the performance of its dominant agricultural sector that accounts for 16% of domestic value added and employs 48% of the working population. This dependence on agriculture has hampered economic growth as Moroccan agricultural output is very reliant on weather conditions, particularly on rainfall. During the last four decades, periods of low economic growth are always correlated with years of drought.

The figure below shows the trends in real GDP yearly changes at national level and for the agricultural sector. It is clear that both curves follow almost the same trend, which confirms the importance of agriculture output in the country's macroeconomic performance. Although the effects of change in agricultural value added on the economic growth of the country as a whole are evident, an attempt was made by Mansouri (2004) to measure the effect of drought on the agricultural value added and on the economic growth of Morocco. He found a high correlation between economic growth and drought. The semi-arid climatic conditions in the country explain the high instability in agricultural output growth. Thus, growth in agricultural value added, which is conditioned by climatic conditions, is one of the most specific determinants of economic growth and productivity changes in the country. For illustrative purpose, the declines in GDP growth rates in 1995 and 1999 for example, coincide with the periods of drought in the country.

Figure 3.1 GDP agriculture *vs.* total GDP



3.2 Mismatch between the education and training system and firms' needs.

In general, workforce development leads to stronger economic growth, enhanced productivity and increased employment, opportunities by allowing new workers to join the labour market, bringing new skills and boosting entrepreneurship. In this regard, Mankiw, Romer and Weil (1992) presented evidence that variations in human capital are an important determinant of cross-country differences in income per capita. There is also evidence to suggest that the very high rates of growth in some East Asian countries are primarily attributable to human capital accumulation (Lucas, 1993). Otto (1997) argued that individuals could acquire human capital through two basic channels: formal schooling and by on-the-job training, e.g. "learning by doing". While both are likely to be important, the latter appears to provide the most likely explanation for persistently high rates of growth in productivity. Otto's basic idea is that as individuals produce goods, they tend to think of ways of improving the production process, hence productivity rises without any evident changes in the process. With "learning by doing", knowledge accumulates, not by deliberate effort, but as a by-product of economic activity. If "learning by doing" is an empirically important phenomenon, then the rate of productivity growth depends on the amount of new knowledge generated by conventional activities.

Regarding the accumulation of human capital through formal schooling and, despite a great improvement in average primary school enrolment - which has doubled since the 1960s, Morocco's performance in education is far behind that of countries with similar income levels. Morocco's illiteracy rate is one of the highest in the Arab world reaching nearly 50% among adults, compared to 27% in Tunisia. Illiteracy among the youth population (ages 15 to 24) is also very high in Morocco reaching 30% in 2002, compared to less than 6% in Tunisia. Rural areas are far behind in school enrolment of children between the ages of seven and 13, with 26.9% never having been to school compared

with 3.3% in the towns. The most vulnerable Moroccans are women and girls in rural areas. Only 51% of girls between the ages of seven and 12 attend school, compared with 74% of boys. Overall, the quality of education leaves many graduates poorly equipped with modern skills. Enrolment explosions, poorly trained teachers and the lack of educational materials seriously weaken the educational system.

The determination of the level of "learning by doing" in a particular industry or economy is an unresolved question. Lucas (1993) argues that, if "learning by doing" is itself subject to diminishing returns on scale, a sustained rise in the growth rate of productivity will require the continued introduction of new products rather than just ongoing learning on a given set of products. One way in which a small economy can expand the range of goods it can (potentially) produce, is selling on the world market. Thus, a relatively open economy seems to be an important pre-condition for learning-based growth. Professional training is always considered as an indirect way of "learning by doing".

In Morocco, the professional training system, which is less than 20 years old, was largely designed to meet the needs of an economy based on low-wage enterprises supplying agricultural products and assembled manufactured goods with low local value added. Since the early 1980s and mainly after the creation of the WTO, the country's workforce development and job creation systems needed to be reformed in order to deliver products and services able to compete with those of the highly industrialized nations or lower labour-cost countries. The education and training system is now not able to build up a workforce with high skills to meet the challenges to diversify the Moroccan economy and produce new high-quality and lower-cost goods. For more details on the education and training system in Morocco, see for instance USAID (2003).

3.3 Weak institutions and administrative rigidity

The literature on growth and productivity focuses increasingly on the role of institutions on growth. Institutional factors – such as the degree of regulation and corruption of the government – have become ever more recognized as critical factors that can either advance or impede sustained economic expansion. In this context, an important element of a good investment climate is a sensible governance system, which ensures that contracts and property rights are respected and corruption reduced.

Surveys of existing enterprises and potential investors consistently rank various elements of institutional capability among the major factors determining the attractiveness of developing economies for new private investment (Dasgupta *et al*., 2002). Along these lines, the work of Gwartney *et al.* (2004) show that investment rate of countries is higher and the productivity of that investment greater in countries with top-quality institutions.[3] Such institutions affect performance primarily by fostering better policy choices, which may partly reflect their in enhancing the sustainability of policies. Weak institutions may tend to foster bad policies and undercut the resilience of economies to exogenous shocks. This, in turn, may lead to more volatile, crisis-prone economies than is the case when

[3] According to North (1990), institutions are defined as the formal and informal constraints on political, economic, and social interactions. From this perspective, good institutions are viewed as establishing an incentive structure that reduces uncertainty and promotes efficiency – hence contributing to stronger economic performance.

better-developed institutions are in place. Good governance is fostered through regulatory institutions that promote competition, support efficient resource allocation and protect property rights. These institutions have to be able to operate without interference and corruption. Furthermore, empirical studies show the strong effect of institutions on volatility: the better they are, the lower the volatility of growth. The role of institutions has become a stronger determinant of growth and productivity now as investors are well equipped with information about other countries and therefore demand better performance from their institutions than in the past.

In Morocco, the quality of institutions is considered to be one of the main important determinants for growth and productivity because the state is present in all areas of the economy, leading to corruption and unfair competition. Many indicators of the institutions' quality and governance standards are available for such assessments. The World Bank suggests evaluative and quantitative measures that are available for a large selection of countries, including Morocco. However, given the fact that the reliability of these measures depends on data accuracy and whether or not subjective perceptions are at play, rating measures seem to be the most indicative tool to assess both actual and potential performance and risk. Many institutions have developed such measures including Freedom House, Transparency International and the Heritage Foundation.

Private investment, including foreign direct investment, is directed at countries with high returns, transparent investment procedures and regulations, low political risk and accountable economic regimes and institutions. The Heritage Foundation (2003) publishes the Index of Economic Freedom in an attempt to understand the relationship between economic freedom and growth. The Index of Economic Freedom seems to be the most appropriate index with which to assess the quality of institutions in Morocco. The coverage of the Index is extensive across countries with a low level of specificity. The overall country index is composed of 10 elements, namely: trade, fiscal burden, government intervention, monetary policy, foreign investment, banking/finance, wages/prices, property rights, regulation, and black market. These elements encompass measures of governance.

Table 3.1 indicates that Morocco is among the highest-risk Arab countries along with Egypt, Yemen and Syria. Scores for property rights, fiscal burden and trade are among the highest in the Arab region and only monetary policy seems to be very sound in the country. The score for foreign investment appears also to be high with the lowest risk in the region but still highly correlated to privatization efforts.

Table 3.1 Index of economic freedom for selected Arab countries (2002)

Country	Overall score	Trade	Fiscal burden	Government Intervention	Monetary policy	Foreign Investment	Regulation	Property rights	Black market
Algeria	3.10	4.00	4.00	4.00	1.00	2.00	3.00	4.00	3.00
Egypt	3.55	4.00	5.00	3.00	2.00	3.00	4.00	3.00	3.50
Jordan	2.70	4.00	4.00	3.00	1.00	2.00	3.00	3.00	3.00
Kuwait	2.75	3.00	2.50	4.00	1.00	4.00	3.00	2.00	2.00
Lebanon	3.15	4.00	3.50	3.00	1.00	3.00	4.00	4.00	5.00
Morocco	3.05	5.00	4.50	3.00	1.00	2.00	3.00	4.00	3.00
Syria	4.10	5.00	5.00	4.00	1.00	4.00	4.00	4.00	5.00
Tunisia	2.85	5.00	4.00	3.00	1.00	2.00	3.00	3.00	2.50
UAE	2.15	2.00	1.50	3.00	1.00	3.00	2.00	2.00	1.00
Yemen	3.75	3.00	4.50	3.00	3.00	4.00	4.00	4.00	5.00

Source: The Heritage Foundation, 2003

Although Morocco is a member of the World Intellectual Property Organization (WIPO) and party to a number of other international agreements and conventions dedicated to the protection of intellectual property due to its membership to WTO since 1995, it still has various obligations to set up a consistent package of laws for property rights. The Commerce Law of May 13, 1996 did not include any provisions to strengthen intellectual property rights. Furthermore and according to the Heritage Foundation, the absence of transparency in judicial decision-making and predictability in judgments, the inability to enforce judgments and incompetence in matters of commercial law has affected the business environment and negatively influenced private initiatives. A survey of businesses by the American Chamber of Commerce in Morocco revealed that corruption in the legal system is regarded as a major impediment to entrepreneurship. Furthermore, The Economist Intelligence Unit[4] reports that corruption is widespread throughout the bureaucracy and that government procedures are not always transparent, efficient or quick. Routine permits, especially those required by the local authorities, can be difficult to obtain.

More specifically, many surveys conducted in Morocco show that private sector development continues to be hampered by a number of institutional constraints, which exacerbate the costs of factors of production in particular and the investment climate in general. The restructuring of the administration, tax and judicial systems and the streamlining of procedures, especially with regard to business creation, are still incomplete. Furthermore and as Charkaoui and Ben Ali (2003) point out, the problems of the central administration are well known and include corruption, the high degree of centralization, inefficiency, lack of transparency in operations, inertia, the plethora of unmotivated public sector employees, the absence of evaluation, ineffective control mechanisms and the lack of cooperation among different offices etc. Economic actors are frequently uncertain about what precise regulations apply to their activities. They complain that information does not circulate and even potential investors find it hard to determine how many documents are required to open a business or from which area of the labyrinthine bureaucracy these documents can be obtained.

[4] Economist Intelligence Report are available online: www.eiu.com

3.4 Inadequate infrastructure

Equally important for productivity improvement is an adequate infrastructure to allow private entrepreneurs and their employees to operate effectively. While the degree of consensus on the effects of infrastructure quality on productivity is still a subject of debate in literature, recent work by De la Fuente (2002) offers some clarification on this issue. De la Fuente surveyed available evidence and concluded that there are sufficient indications that public infrastructure investment contributes significantly to productivity growth, at least in countries where a saturation point has not yet been reached. The returns on such investment are probably quite high when infrastructural facilities are scarce and basic networks incomplete, but fall sharply thereafter. Hence, appropriate infrastructure provision is probably a basic ingredient for a successful development policy, even if it does not hold the key to rapid productivity growth in advanced countries where transportation and communications needs are already adequately served.

According to the World Bank (1997), there is an urgent need to provide Moroccan producers in the primary, secondary and tertiary sectors with the infrastructural services they need to become or remain internationally competitive. Thus, and while there has been massive public investment in infrastructure over the last four decades, the country still lags behind in the provision of these services. This explains the low level of economic diversification and poor productivity performance observed in the country mainly over the last two decades. Infrastructural facilities in Morocco are still characterized by public ownership, monopolies, and stifling regulations. The situation is particularly difficult in Morocco because it needs not only to maintain, but indeed often to replace and expand existing infrastructure to cope with the requirements for faster economic growth. During the last decades, the inadequate infrastructure in Morocco has paralyzed economic activities due to traffic bottlenecks, port congestion, stalled manufacturing processes because of breakdowns in the overloaded electricity supply networks due to difficulties in complying with international quality standards, longer transit times and lower productivity. These problems could be explained by the economic policy implemented in the country since the early 70s. In fact, the government invested intensively in the water infrastructure and irrigation, but three decades later, all these investments to mobilize and distribute water are now at risk as result of the deterioration of the networks in the absence of adequate maintenance. Despite the need for investments in other key sectors, government policy has been highly oriented towards improving agricultural production through massive public investment in water mobilization and other transfers to this sector. In fact, the inadequate infrastructure in Morocco in the context of its efforts to further open up to the world economy is particularly reflected in the transport infrastructure. Effective provision of transport services to enterprises is crucial to develop domestic and foreign trade, raise the productivity and competitiveness of enterprises and returns on their investments and attract further foreign direct investment into the country. According the African Development Bank (2003), in the strategic area of transport, the country's performance does not yet measure up to international competitiveness standards. The transport costs for private operators are high (e.g. long delays in the ports generate high costs). The high air transport costs, for example, are among of the constraints preventing the key tourism sector from achieving its potential. Furthermore, in the past few years, due to financial constraints on the State, the transport infrastructure has not had adequate resources for its restructuring and maintenance. The resulting deterioration in the facilities generates additional costs and undoubtedly reduces the competitiveness of products. All these factors tend to make

Morocco's industries and services less competitive in foreign markets. As reported by the Moroccan Chamber of Commerce, many local exporters have already reported losing some of their European outlets because of their failure to meet delivery dates.

3.5 Innovation and technological progress

It is widely recognized that innovation is a necessary pre-condition for the improvement of productivity. Technological progress has been, and remains the motor of economic growth in industrialized countries. It creates a vital circuit through which the population can be encouraged to accumulate knowledge and the contractors motivated to establish new activities. Observers agree on the fact that a developing country can promote economic growth by following the example of and economies that are more advanced. This process requires a framework that encourages diffusion and technology transfer. In order to have the necessary internal capacities for the effective use of technology, it is essential to improve the level of competencies and knowledge of the population. These capacities can be put in place only after a certain level of development has been achieved.

In addition, technological progress could enable Morocco to be competitive in other sectors other than those which are labour-intensive or require a specific endowment in natural resources. Given the nature of knowledge, its benefits to society – e.g. through research and development (R&D) or education - may go beyond those directly obtained by the firm or individual actually involved in its generation. Consequently, the generation of knowledge may be less than optimal if it is left entirely to market forces and there may therefore be a role for governments to subsidize investment in R&D, education and training. To the extent that the growth rate of technology is affected by the amount of resources devoted to knowledge generation, government policy may be able to influence the economy's long-run expansion.

The analysis of Morocco’s position in the field of technological development and management shows that the country is not yet able to generate its own R&D activities at an acceptable level and relies almost exclusively on foreign technologies. Its R&D system should complement and support the technology obtained through transfer or imports of capital goods. The adoption of foreign technologies requires a cadre of skilled workers to adapt these technologies to the characteristics of the national economy, and then to improve industrial competitiveness by raising the level of productivity.

In Morocco, both the investment policy on technological development (low public expenditure on R&D) and the quality of services delivered by the responsible institutions remain poorly adapted to the real needs of economic development for the country and for an acceleration of its productivity level. In fact, and despite that Morocco has excellent scientific and technical talent to draw on from a young and vigorous population trained in world-class centres, their work and achievements rarely find practical application due to the many drawbacks affecting the R&D sector. Morocco’s R&D sector suffers numerous deficiencies, attributable mainly to the lack of a clearly defined research policy, funds and structures to guide, plan, coordinate, evaluate, and promote activities. In this respect, one of the great failings of R&D in Morocco is the lack of connection and coordination between research units and laboratories and the production sector. Researchers work in isolation, due to the lack of infrastructure to permit cooperation and partnership between the various sectors either directly or indirectly involved in research. Furthermore, the

failure to exploit the results of research is due to the lack of clear national policy on this area and national agency to assume this responsibility and secure the transfer of technology from the researcher to the producer. The research work being done in the various establishments is marginal, uncoordinated and dependent and these constraints prevent R&D from playing its full part in the economic development of Morocco[5].

Morocco's total expenditure on R&D has tended to be below the regional average and is low relative to other MENA countries. According UNESCO's[6] figures, in 1998, Morocco's gross expenditure on R&D was estimated at $50 million, which represents 0.14% of GDP and only 10% of the world average relative to the world GDP, which is about 1.4%. This is partly because private sector R&D investment in Morocco has also been low by world standards. For example, in 1998 only about 10% of total R&D expenditure was attributable to the business sector, which, in most developed countries, is ahead of the public sector in this area. In particular, there is a view that the performance of the Moroccan private sector in the commercial application of basic research has been poor. This has been attributed to a number of factors, including the role of protection in reducing competitive pressures on domestic industry, the lack of adequate managerial skills, an inadequate exchange of information between basic researchers and industry and the shortage of venture capital to fund innovative ideas and companies.

A number of authors have developed models in which the growth rate of technological progress (roughly speaking, the growth rate of TFP) is a function of the existing level of technology and the quantity of resources (labour and capital) devoted to the generation of new ideas and inventions - i.e. the share of the economy's resources devoted to R&D - (see for instance Romer, 1990 and Grossman and Helpman, 1991). Under certain conditions, these models imply that an increase in the fraction of a country's resources devoted to R&D will raise the growth rate of TFP and, as a consequence, the growth rate of output per capita. What the models do not directly identify are the influences behind the amount of resources devoted to R&D, which are likely to include:

- public (or private) funding of pure (or fundamental) scientific research;
- private R&D incentives, and
- opportunities for talented individuals.

There are of course other ways to derive benefits from R&D. Businesses can, for example, buy the technology directly or indirectly (through a license or by purchasing the product that embodies the desired technology) so that a low level of R&D does not necessarily imply technological inferiority. As Lattimore (1991) points out, it is important to measure not just expenditure on R&D but also the incidence of joint ventures, licensing, and borrowed (or copied) technology. Given the external effects that are generally associated with the generation of knowledge, firms engaged in R&D may not be able to appropriate all the benefits from their expenditures and this can provide a basis for government intervention, e.g. subsidies or tax breaks. For a small, relatively open economy like Morocco, another means of encouraging innovation is through increased international trade, which is also a way of benefiting from overseas R&D activities.

[5] For more information on R&D policy in Morocco, see Khrouz, D., A. Hajj, and M. Bousetta (2004). "The Development Research Environment in Morocco: Situation and Prospects". http://web.idrc.ca/es/ev-41633-201-1-DO_TOPIC.html

[6] UNESCO's reports are available online www.unesco.org.

3.6 The financial system

A sound financial sector is important for productivity growth and is required to enable firms to enter the market and operate effectively and to help restructure failing firms. An important task of the financial sector is to support the entry of promising firms and re-allocate resources away from failing or under-performing firms to more promising ones. A well-functioning financial sector operating at arms-length from political and corporate interests is crucial for competition and productivity growth.

A large body of literature on financial intermediation shows the crucial role played by the financial sector in improving an economy's savings, investment, productivity, and growth. In this regard, developing the financial sector might boost the level of savings, which will most likely raise investment levels and growth. In addition, a well-performing financial sector contributes to higher growth through better allocation of resources and sound financial markets will channel resources to users with the highest return and, through the monitoring of creditor's performance, ensure continued efficient use of productive assets (Jbili *et al*., 1997).

Until the early 1980s, Morocco pursued an inward-looking economic expansion strategy, emphasizing the key role of the state in economic activity to accelerate development and ensure government control over "strategic" sectors. These objectives were to be achieved through direct government investment in key productive sectors, the provision of generous incentives (such as interest rate subsidies) to private investment in priority sectors and through a complex system of trade and exchange controls designed to protect local industries. The strategy inflated the public sector. Financial resources were allocated to achieve the planning objectives and first given to government and public enterprises and secondly, to key private sectors mostly producing for the local market and benefiting from a high border protection. The remaining financial resources were allocated to private sectors with high interest rates. In addition, the inefficiencies in direct government supervision of credit allocation contributed to the accumulation of non-performing loans in most banks in Morocco, and mainly the development banks. This weak financial system in Morocco until the early 1980s did not facilitate private sector investment in activities in which the country has a comparative advantage, thus affecting both the levels of economic growth and productivity.

Faced with increasing economic difficulties in the mid-1980s and influenced by the worldwide trend toward financial liberalization and deregulation, Morocco embarked on a wide-ranging structural reform programme that included liberalization of its financial system. The objectives behind the financial sector reform were to reduce direct government intervention and strengthen the role of market forces in the allocation of financial resources, improve the capacity of financial institutions to mobilize domestic savings and promote competition among banks.

Thus, the liberalization of the banking sector (abolishing credit control in 1991, liberalizing interest rates on overdrafts in 1992 and on accounts in credit in 1996) and an expansionist monetary policy (reducing intervention rates of the central bank on the money market and reducing reserve requirements) has substantially cut interest rates.
The financial sector was disconnected for a long time from the real economy and focused on achieving ineffective government objectives such as increased import substitution and enhancing the role of the public sector. However, with the entry of foreign banks to

Morocco and successive liberalization measures implemented progressively since the early 1990s, it should be able to increase its participation in the development strategy by allocating credit to most profitable activities that have higher return rates. Figures 3.2 and 3.3 below show the improvement of both shares related to GDP for private sector domestic loans and the share of domestic savings. With such improvements, the net effect on productivity may be overridden by the shortcomings of many other determinants of productivity in Morocco.

Figure 3.2 Domestic credit to private sector

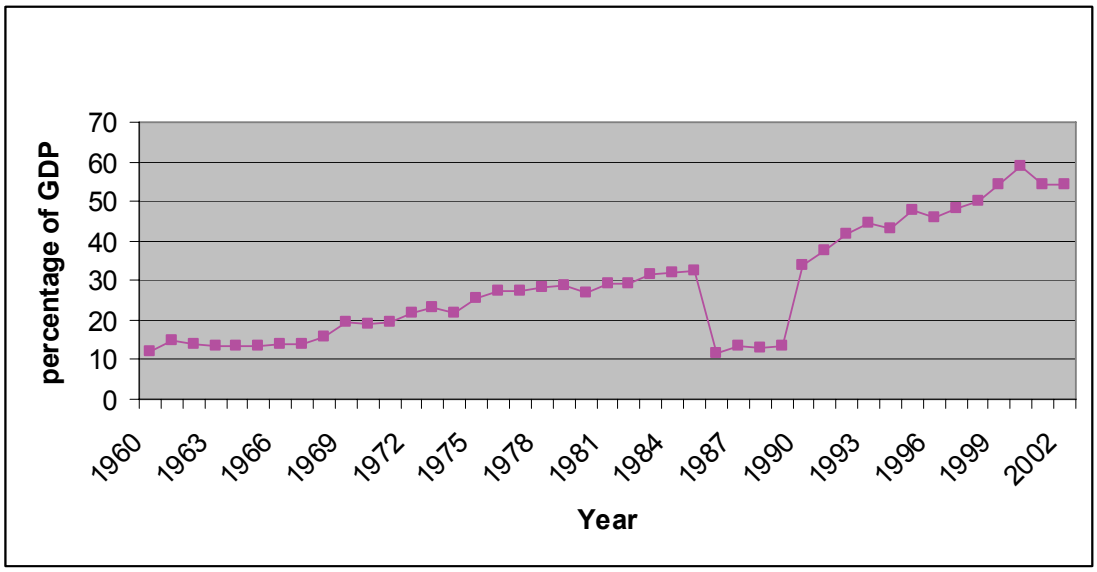
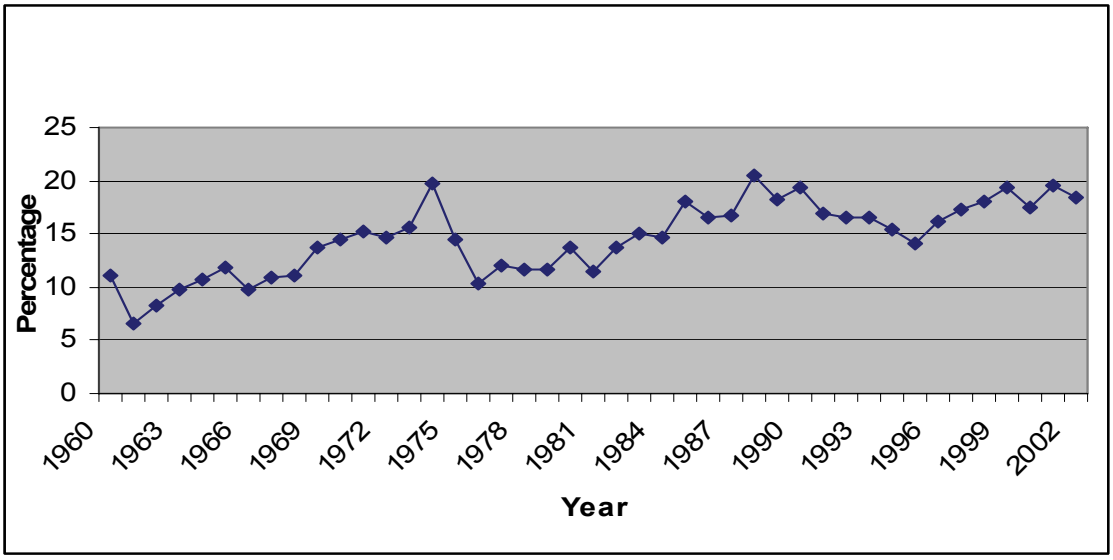


Figure 3.3 Gross domestic savings as share of GDP



3.7 Structural change of production

Two trends are observed from Figure 3.4 On the one hand, the structure of the economy did not change significantly in the period 1960-2000 in terms of sectoral distribution of GDP. However, slight changes are observed for the agricultural and services sectors, with the former slightly losing ground to the latter. On the other hand, most of the decline in the agricultural share of GDP took place during drought years. For a number of reasons the structure of production has not changed much in Morocco. Firstly, the government invested heavily in irrigation systems and this has protected the production of staple crops. Secondly, housing is expensive in urban and surrounding areas and, finally, the Dirham is not fully convertible, or only so at relatively high transaction costs.

It is now important to review to what extent the above trend in the structure of production has been reflected in the structure of employment. The aim here is to identify the cross-sector shift in labour demand that may have been induced by the quasi-constant production structure. Figure 3.5 below shows that, during the whole observation period, the sectoral allocation of the workforce did not change. Contrary to the changes in the production structure, a slight fall in the level of workers in the industrial sector in favour of the agricultural sector is observed starting from the mid-1990s.

These particular trends for both the production structure and sectoral deployment of the workforce show that services and manufacturing – considered to be the driving forces behind economic diversification and development – have not been instrumental in creating more attractive opportunities for the Moroccan labour force. These two sectors are still based on labour-intensive and low-wage activities and this could explain the declining labour productivity and its low level compared to that of the USA.

Figure 3.4 GDP by sector

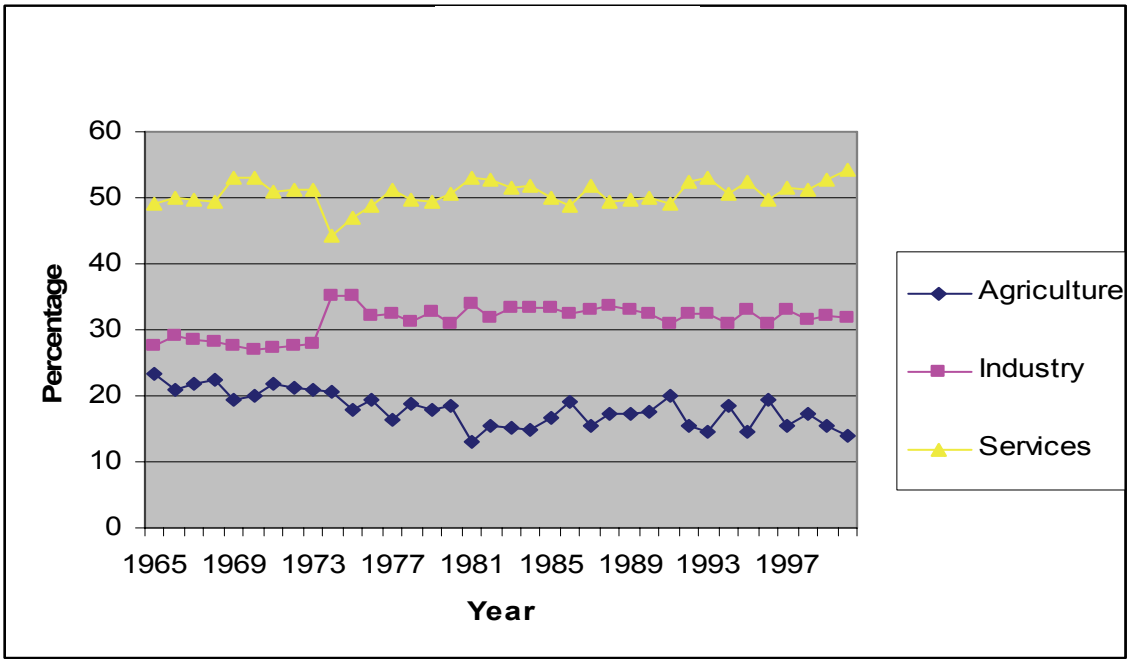
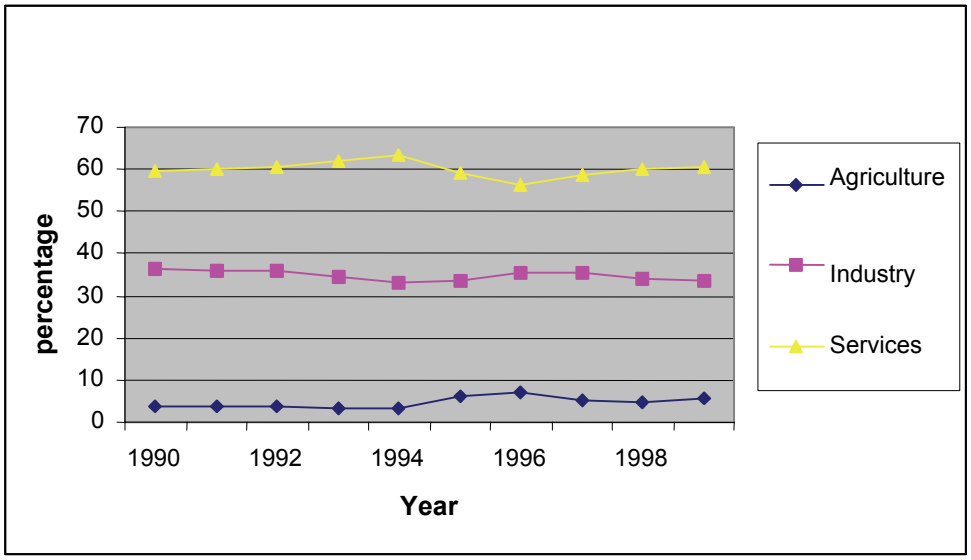


Figure 3.5 Share of labour force by sector



3.8 Integration

The productivity in any country is influenced by the economic relations it maintains with the rest of the world through technological transfers, trade flows and investment. Three elements can be drawn on to evaluate the impact of integration on productivity: (i) a review of the effect of trade agreements signed by Morocco (particularly in respect of activities directly affected by trade liberalization). The main criterion of this review the correlation between the reduction in tariffs and the productivity level, especially for labour; (ii) a comparative study of the productivity levels of Moroccan firms and foreign companies in Morocco and (iii) an analysis of foreign investment, trade, and industrial performance. Theoretical studies argue that trade generates both static and dynamic gains in terms of growth and productivity and the re-allocation of workers and capital to industries with higher productivity levels may be particularly important. So far, available empirical findings have not succeeded in confirming a systematic link either between openness to trade and productivity growth for a given country.

Morocco has made progress both at bilateral and multilateral level. At bilateral level, it has already signed four free trade agreements (FTAs) with its main trading partners, the most important being the FTA with the European Union (EU) in 2000. This agreement provides for a progressive lowering of Moroccan tariffs on industrial imports from the EU and complete liberalization in this area should be achieved by 2012. The liberalization of industrial trade is not uniform. For machinery imports, tariffs were completely liberalized in March 2000.

Agricultural products and services were not within the scope of this agreement, but recently the Moroccan authorities started negotiations with the EU on the liberalization of trade in the services sector and for better access for Moroccan agricultural products to the European market.

In addition to this agreement, Morocco signed a free trade agreement with the United States in March 2004, with three Arab countries (Tunisia, Jordan, and Egypt) in February

2004, with Turkey in April 2004 and previously with the European Free Trade Association (EFTA) in June 1997 that entered into force in June 1999. At multilateral level, Morocco is a member of the WTO. While, it may still be too soon to evaluate the impact of these agreements on the Moroccan economy and on economic growth and productivity in particular, preliminary assessment shows that FDI inflows have not increased. In fact, apart from privatization and franchises, FDI remains low in Morocco and bureaucracy, lack of legal security and political and social uncertainty are cited as the main obstacles to its development (Table 3.2).

Table 3.2 FDI inflows to Morocco and other MENA countries (1991-2002)

	1991-1996		1997-2002		2001		2002	
	Inflows (US$ m)	As a percentage of GDP	Inflows (US$ m)	As a percentage of GDP	Inflows (US$ m)	As a percentage of GDP	Inflows (US$ m)	As a percentage of GDP
Egypt	714	1.4	903	1.1	510	0.6	647	0.8
Morocco	406	1.3	1242	3.6	2808	8.3	428	1.3
Tunisia	425	2.6	562	2.8	486	2.4	710	3.4
Jordan	4	0.1	343	8.5	100	2.3	56	1.3
Turkey	751	0.5	1302	0.8	3266	2.2	1037	0.6

Source: Chemingui and Lahouel (2004)

It may be too soon to evaluate the effect of the FTAs on productivity changes in Morocco. However, it is almost certain that cutting tariffs on capital and consumer goods will reduce the investment cost and improve competition that, in turn, will force local firms to improve their productivity levels. Such effects may be achieved only if trade facilitation measures are introduced to increase the degree of openness of the country. A preliminary assessment of Moroccan integration in the world economy may be made by evaluating the degree of openness of the Moroccan economy and the changes in tariffs and protection levels. Table 3.3 shows that the degree of openness of the Moroccan economy increased slowly between the period 1993-95 and 2002. The reason is that trade liberalization is still limited mainly to capital goods, while tariff rates remain high for other goods and are only beginning to be dismantled.

Table 3.3 Evolution of the degree of openness of the Moroccan economy and other countries (1993-2002)

(Exports & imports of goods and services/GDP in percent)

Country	1993-95		Recent three years
Egypt	52.9	2000-2002	32.7
Jordan	125.2	1998-2000	107.8
Morocco	54.7	1999-2001	57.0
Tunisia	71.2	2002-2004	77.6
Turkey	39.7	2000-2002	60.0

Source: Chemingui and Lahouel (2004) and author's calculations.

The dismantling of tariffs within the framework of the association agreement signed with the European Union has already significantly reduced tariff rates on Moroccan imports, mainly from the EU. In this context, the gap between tariffs applied to imports from the EU and from the rest of the world has widened. Tariff reduction on industrial products

imported from the European Union may the cause of trade diversion, denying the Moroccan producers and consumers the benefit of less expensive imports from outside the free-trade zone with the EU.

Tariff rates in Morocco are still considered among the highest in the world. In 2002, non-discriminatory tariffs reached an average of 31.6% in Morocco, against an average rate of 12.8% in the same year for all intermediate income countries (Table 3.4). In addition, these tariffs have been increasing since the 1990s as result of high fixed MFN (Most Favoured Nation) tariffs under Morocco's commitments to the WTO, although they were reduced by more than 40%, on average, in other countries. Non-discriminatory tariffs applied on manufactured imports are among the highest in the world, amounting to over than twice the average rates in other middle-income countries.

Table 3.4 Average tariff rates (International comparisons) [a]

	All products				Manufactured Products[(b)]		Agricultural Products[(b)]	
	Year	Average tariff rate	Year	Average tariff rate	Year	Average tariff rate	Year	Average tariff rate
Tunisia	1990	28.30	2002	34.50	1999	26.30	1999	30.50
Jordan	1990	12.20	2002	14.90	2001	15.40	2001	21.80
Egypt	1991	42.20	2002	22.00	1998	20.20	1998	22.70
Morocco	1990	24.80	2002	31.60	2001	31.10	2001	36.60
Turkey	1993	26.70	2002	10.20	2000	6.30	2000	16.70
All Middle-income countries	1990 (78 [c])	21.40	2002	12.80	1996-2001 (68 [c])	11.00	1996-2001 (68 [c])	14.30

(a) Simple Averages of MFN Tariffs Rates

(b) Applied Average Rates MFN

(c) Number of countries

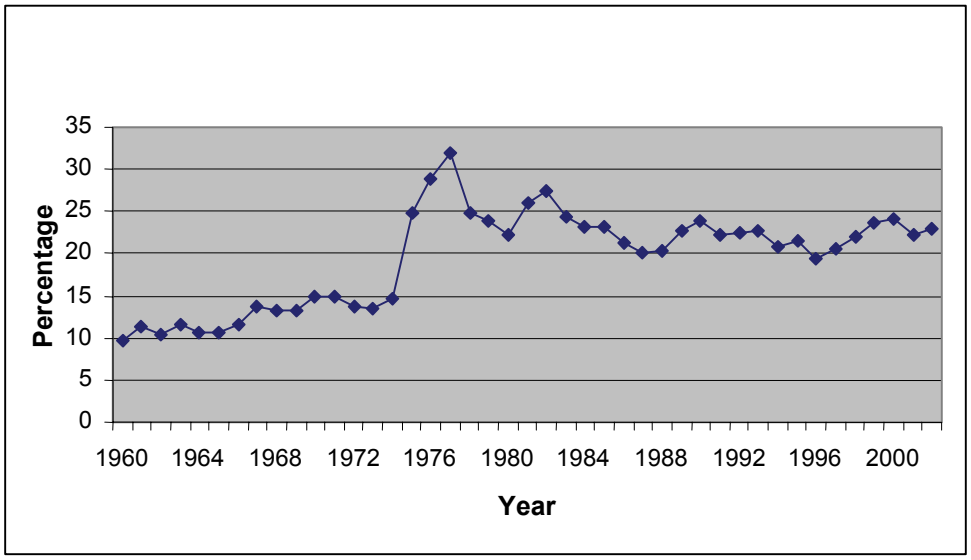
Source: Chemingui and Lahouel (2004)

3.9 Investments and productivity

Following the case of innovation, investment is widely recognized as a basic determinant of productivity growth. Both the neo-classical and new theories of economic growth and productivity highlight the importance of the correlation between investment and productivity, although the theories diverge on the question of the mechanism allowing investment to raise productivity. Thus, the neo-classical approach puts the emphasis on the diminishing returns on capital, which is largely internal to enterprises. By contrast, the new growth theories focus on the increasing returns on capital and the external effects of productivity gains outside enterprises. For these reasons, the two approaches may be considered as complementary because the neo-classical theory is based on inputs accumulation and the internal returns, which could explain a large share of economic growth, while the new growth theory would explain the remainder, i.e. issues associated with technological progress.

Figures from the World Bank (2004) show that rates of both domestic and foreign investment with respect to GDP remain low by international standards, although some improvement has been observed during the last five years.

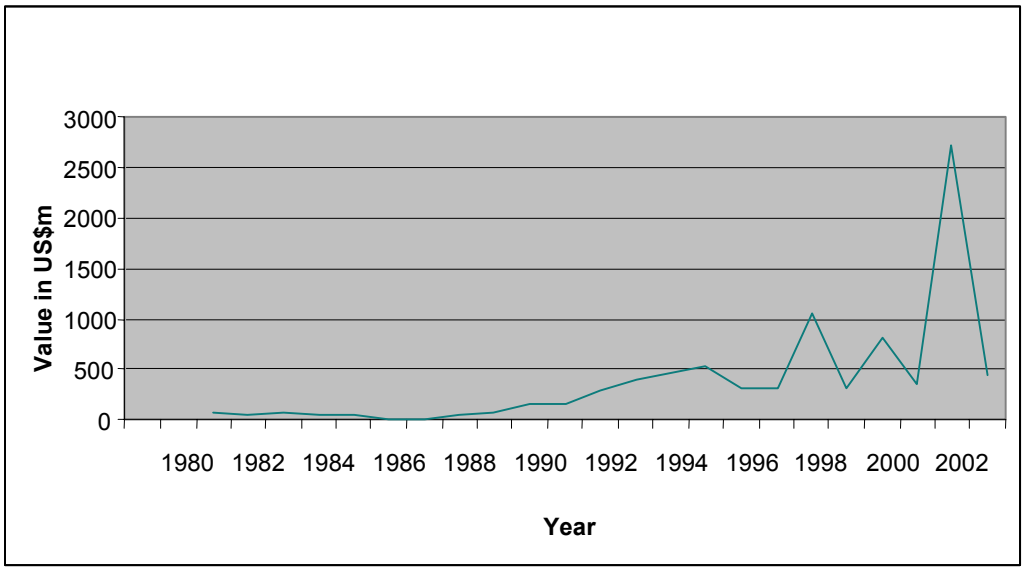
Figure 3.6 Trend in investment as share of GDP



Nevertheless, an analysis of investment volume trends is not alone sufficient to pronounce on the Moroccan economic performance in terms of attractiveness for investment and on the contribution of investment to the productivity changes observed during the last four decades. Thus, special attention must be given to the evolution of the composition of both foreign and domestic investment.

As previously stated in this report, the composition of investment in Morocco shows a very weak level of R&D, which is exclusively financed by the public sector. Private investment is practically absent in the development and diffusion of new technologies, although it constitutes the main component of productivity improvement. Only FDI registered a net increase since the beginning of the 1990s and especially in late 2000s (cf. Figure 3.7). While a high proportion of these FDI inflows is attributable to major privatization initiatives undertaken by the Moroccan government, mainly in the telecommunications sector, FDI is generally on the increase. FDI, in the form of acquisition of local plants and the creation business activities, is considered a catalyst for productivity improvement through the application of new technologies. However, it is still too early to comment on the effect of the increasing inflows of FDI on productivity changes in Morocco.

Figure 3.7 Trend in FDI



Faced with increasing inflows of FDI, domestic investments (private and public) have failed to take off. There is a downward trend in public investment in Morocco relative to total public expenditure. Public investments as share of total public expenditures represented only close to 22% in 1999 as against 26% in 1970 and 31% in 1980. Private investments – as has traditionally been the case to date – are still concentrated on highly labour-intensive activities.

3.10 Absence of a coherent competition policy

It is generally accepted that competition between firms is the best way to provide for optimal allocation of resources, impose pressure on costs and stimulate innovation and consumer satisfaction (Gellhorn and Kovacic, 1994). Furthermore, international experience suggests that competitive and open markets are crucial for the adoption and diffusion of "best practices". Open economies facilitate access to new ideas, products, techniques and methods of operation. Competitive markets generate the incentives to adopt these good practices. It is, however, possible that firms try to eliminate competition by adopting an anti-competitive approach and, by preventing such practices, economic efficiency and productivity can be boosted (Geradin and Petit, 2004 and Lahouel, 2000). July 2001 marked a significant change on competition policy in Morocco with the implementation of new legislation that formally forbids anti-competitive behaviour, creates legal sanctions for such practices and provided for a competition authority. This authority takes the form of a competition council, but does not have any real decision-making power, as the Prime Minister is the sole authority qualified to rule on anti-competitive practices. The control of competition is primarily political and doubts may therefore be raised as to its impartiality.

Historically, Morocco started the implementation of its competition law after its free trade agreement with the EU entered into force in 2000. The agreement stipulates the regulation of competition in trade flows. Before 2000, there was no effective legislation in this area and the regulations in place were dictated by public monopolies and a highly protected local market. Although Morocco has opened up its economy in recent years,

mainly with the implementation of the FTAs with the USA and the EU, there are still many restrictions on both foreign and domestic investments, which are sometimes outright denials of access. When such restrictions exist, the benefits usually accrue to the comparatively large and politically well-connected incumbent firms. Endowed with market power, these firms tend to dominate and consequently undermine competition and reduce productivity growth. Through their political connections, they can protect themselves against failure when they do not perform, often via preferential access to bank credit. Naturally, this generates a vicious circle ─ as entrepreneurial opportunities are reduced, prospective enterprises cannot easily enter the arena and existing dynamic firms may find it difficult to innovate and successfully compete with the less productive, but well-protected enterprises. This is the situation in Morocco and one that it shares with most other Arab countries. However, the situation started changing with the adoption of the Investment Code in 1995 that applies equally to Moroccan and foreign investors, although its ultimate success is linked to the evolution of competition policy.

3.11 Other determinants of productivity

A wide variety of other factors has been proposed as determinants of productivity levels and growth rates. Among these factors are natural resource endowment, the level of dependency on oil imports and geographic position. In the case of Morocco, low oil prices during the 1980s and 1990s did not improve growth and productivity as much as the actual declines in oil prices. The country's geographic position with regard to trading partners, does not seem to represent any important advantage or perhaps only for some commodities requiring rapid delivery from producers to consumers. In many countries such as Morocco, technical barriers to trade and the absence of a coherent trade facilitation policy negatively affect the geographical proximity of Morocco to its main trading partners.

IV. Policies affecting Morocco's productivity performance

Growth and productivity patterns are believed to be inextricably linked to many areas of economic policy such as fiscal, labour trade, competition, exchange and interest rate policies and government spending on social sectors, among others. Morocco has introduced substantial reforms since the beginning of the 1980s. It commenced its economic reform programme in 1986 and has since undertaken a number of policy and regulatory changes to liberalize a heretofore highly protected and centrally planned economy. Measures which particularly impacted on productivity both at national and sectoral levels, include the introduction of a marked-based foreign exchange system, liberalization of trade policy, privatization of state-owned enterprises and fiscal policy reform. The government has also launched a programme to restructure the country's economy, involving a reform of the labour market and FDI promotion measures.

The objective of this section is to outline the policies affecting productivity and economic growth in Morocco and to summarize the main options for a coherent reform to harness productivity in the country.

4.1 Social policy

The bulk of the literature on productivity is concerned with either (a) measuring productivity or (b) attempting to assess the quantitative importance of a set of economic determinants, both at microeconomic and macroeconomic levels. As previously explained, the determinants that have received the most attention and where the linkages with productivity are more evident include investment, human capital, innovation and diffusion of technology, competition, changes in production structure, governance and quality of institutions. Apart from the economic determinants, social factors influence productivity growth, directly or indirectly. Various dimensions of the social determinants of productivity could be explored, but it is a well-established fact that, if it could be ascertained that social determinants constitute a quantitatively important factor of productivity growth, the traditional choice between equity and efficiency would not exist.

According to Harris (2002), assessing the productivity effects of social policy is inherently difficult. Aside from the direct human capital effects, much of the impact is likely to be indirect, working through changes in incentives to invest, save or work or through induced fiscal effects on similar variables. In this respect, literature has investigated two categories of public spending – public investment and public consumption. Generally, the results slightly favour the productivity or growth effects of public sector investment and are distinctly negative with respect to public sector consumption, as is illustrated by social expenditure. The difference between countries in social expenditure is the only form of evidence available so far, to estimate the effects of social policy on growth (Harris, *op cit*.).

Using the public finance classification, Morocco tends to spend little on what might be called public goods or economic services, compared to many other Arab countries. While some convergence has occurred between Morocco and Tunisia in recent years, Morocco continues to spend very little on social services. In 2001, public spending on health represented only 2% of GDP compared to 4.9% in Tunisia. Public spending on education accounted for 5% of GDP in Morocco in 2001 compared to almost 7% in Tunisia. The

gap is much higher in the area of subsidies and direct transfers to households where public spending represented 16% of total government expenditure in 1999, compared to 28% in Tunisia. Thus, social achievements in Morocco are considered poor compared to many emerging countries with a comparable level of development. Giving higher priority to enhancing social services and their availability to the population and the poorest groups in particular, is an essential factor towards improving human capital in the country. Morocco still has a long way to go in this respect and is considered, among Arab countries, to be one of those most highly affected by extreme poverty and high unemployment rates.

4.2 Exchange policy

The exchange rate policy followed by a country affects investment and directly influences the cost of doing business in terms of labour and capital, and demand for these inputs. It determines the costs, expressed in foreign currency, both for foreign investors and local export-oriented entrepreneurs. If a country's exchange rate has appreciated above its equilibrium rate, then its local costs will be higher than usual. Overvaluation of the local currency therefore, may bias investors towards the domestic economy because costs appear higher and it also affects competitiveness through a decline in productivity. When a currency is overvalued, wages and/or returns on capital and on sector-specific resources (e.g. land) are higher in real terms than they should be (when the country has a balanced trade account). This makes investment in a country expensive or relatively costly and the rate of growth in new capital formation will be accordingly low. Outsiders will be more reluctant to invest in the country, as an overvalued currency is an implicit tax on traded goods. To the extent that new ideas are embodied in new capital, some spillover in TFP to domestic firms could be expected which means that both TFP and GDP growth will be lower. More specifically and in the case of Morocco, the Dirham's appreciation has increased the price of domestic non-tradable factors of production relative to the price of tradables, thus lowering the relative domestic price of imported commodities compared with local labour. In foreign exchange terms and viewed from abroad, Moroccan appear more expensive than they would otherwise be and compare unfavorably with the wage/productivity ratios of other countries.

In Morocco, the exchange rate has steadily appreciated over time. An increase of over 20% in the real effective rate was recorded between 1990 and 2000 (IMF, 2001). This raised the cost of doing business in the country in foreign exchange terms because of a decline in competitiveness. In the last decade, this problem has been so critical for the textiles sector in which exports registered a net decline compared to other competing countries in the region, e.g. Tunisia and Turkey. In fact, from 1995 onwards, the Dirham has been gradually depreciating with a resulting fall in the interest rate, which has contributed to higher levels of investment. Private investment accounts for the majority of total investment of which the government contributes roughly 25%. At the same time, the Moroccan government has pegged the exchange rate for the Dirham to a currency basket. It appreciated by about 10% in real effective terms from 1993 to 2001 and subsequently this slowed down the growth of Morocco's exports. In April 2001, the Central Bank changed the composition of the basket to increase the weight of the Euro and devalued the Dirham by 5%. This resulted in a relatively small depreciation of the nominal effective rate, although stagnating economic growth may threaten the future of the pegged system.

4.3 Fiscal and investment incentives policy

In the area of fiscal policy, the Moroccan government has been accumulating fiscal deficits in recent years due to a huge public sector wage bill and external debt repayment obligations. For example, in the period 1999-2000, public expenditure amounted to US$ 13.7 billion or 39% of GDP. Operating costs, comprising mostly wages, constituted 45% of the budget, while 28.5% was devoted to debt repayment. Although the government did succeed in partially raising aggregate demand, it was unable to significantly boost the depressed economic activity. Earnings from privatization were used for fiscal expansion. The stimulus to growth should come from liberalization and modernization of the economy, improved political visibility and credibility, greater transparency and accountability and upgrading in human resources and the institutional framework.

Since the mid-1990s, the government has been promoting local and foreign private investments. This initiative has included the creation of duty-free industrial zones, the launch of an investment charter in 1995, a commerce law in 1996 and a business court in 1997. Legislation grants many tax exemptions to encourage investors, especially foreign entrepreneurs, and formalities have been streamlined.

4.4 Labour policy

In addition to education and training policies which affect both the level of labour productivity and the contribution of labour to growth, the degree to which Moroccan firms rely relatively more intensively on labour *vs* capital, is also shaped by a broad set of policies. The government policies in place concern, among other issues, the minimum wage and non-salary wage costs. As the demand for labour is immediately influenced by its cost, relative to some measure of skill or productivity, the costs to employers are a function of wages and non-salary wage expenses.

In Morocco, minimum wages are negotiated between the government and union representatives. Labour productivity is not tied to minimum wage increases. Guaranteed minimum wages in the industrial (SMIG) and agricultural (SMAG) sectors are increased on an irregular basis. Although the SMIG and SMAG more than doubled in nominal Dirhams between 1985 and 2000, the real increase was about 20% over this period (USAID, 2003). In the context of increasing competition and given that most activities in Morocco are labour-intensive, increasing minimum wages by more than the inflation rate or productivity levels is considered more of an obstacle to economic development. Mostly, minimum wages are increased for political rather than economic considerations.

Non-salary wage costs include general income tax, pension and health insurance contributions. A recent analysis found that non-wage taxes and social costs amount to 18.7% for a minimum-wage worker and 49.4% of wages in the case of senior managers, which causes distortions in the labour market. According to USAID (2003), the marginal cost of labour for a firm is at least twice as important as its social cost for a lead manager and over 42% for an average salaried employee. This distortion of the relative price of labour could explain the inefficient choices made in terms of employment. Firms tend to substitute capital for labour to an excessive degree and to pull back from certain labour-intensive activities.

In this regard, the competitiveness of Moroccan industrial goods has declined in recent years and mainly in the mid-1990s as wage costs rose and the real value of the Dirham increased before the recent devaluation. However, the lack of competitiveness of the local workforce is not so much about wages as lack of skill and Moroccan firms will be in a better position when education and vocational training improve.

4.5 Trade policy

Trade agreements signed by Morocco represent an important step towards its integration within the EU and the world economy as a whole and are a logical extension of a decade of economic reforms that have facilitated economic diversification by reducing domestic and external imbalances, liberalizing trade and incentives and strengthening the financial system. The FTA signed between Morocco and the EU is expected to generate important gains for the country's economy. These should be manifested in mainly static welfare gains because of the elimination of distortions through protectionism, and in dynamic gains resulting from efficiently improved trade with the EU following the harmonization of sanitary and technical regulations and from the expected restructuring of public finances, communications and transport services. The agreement should also improve policies for local and foreign investors through better access for Moroccan exports to the European market and the reinforcement of the credibility of economic reforms undertaken by the country. The agreement also implies transaction costs, which are considered to be less than the expected gains and will be partially offset by financial assistance from the EU. These costs concern the loss of import duties and production in sectors with high import substitution and facing increasing competition from European exporters. Other costs, mainly in the form of economic welfare and, associated with trade diversion, may occur because of the Moroccan preference for European goods which are sometimes more expensive than products imported from the rest of the world. These losses could be limited through a gradual reduction of tariffs on all imports.

In the end, gains in growth and employment should be derived from the re-allocation of production factors towards sectors in which Morocco has a comparative advantage and from the economies of scale associated with Morocco's integration into a larger market. The size of such welfare gains will depend on the pace at which labour and capital are redeployed, on the extent of trade creation or diversion, and subsequently, on the scope of any associated initiative to liberalize imports from non-EU countries. Dynamic gains may result from both the improvement of production capacity and the productivity level. Investments, including FDI, should increase because of the more stable business environment expected following the adoption of EU standards and regulations, and the likely acceleration of Morocco's shift to a fully market-based and open economy. The Agreement would thus enhance existing investment incentives, such as Morocco's relatively low labour costs and its proximity to European markets. Other influences, however, may tend to slow down capital inflows. Productivity growth may be boosted by the erosion of domestic monopolistic rents. The increased openness of the economy may speed up the process of absorption of "best practices" and technologies from abroad, thereby raising Morocco's long-term growth rate.

In addition to trade liberalization, the expected upgrading of telecommunications and transport services are likely to result in better access and prices for Moroccan exports and, thus, additional long-term economic gains. The dismantling of quantitative restrictions

and tariffs may stimulate private consumption by making available a wider range of consumer goods. Investment could increase as a result of higher private capital inflows and efforts to expand or upgrade production capacity. The likely initial deterioration of the external current account will reflect an acceleration in import growth, driven by substitution effects and the increase in overall investment. Since Morocco gains little additional access for its exports, except for a few agricultural items, the expected growth in exports will result mostly from a re-allocation of resources from import-substituting production to export industries, increased investment in these industries, and productivity gains. In the medium-term, however, this could be reversed as increased competition and other effects of the Agreement stimulate faster productivity gains in the tradable goods sectors.

In addition to its accession to WTO in 1995 and the implementation of the FTA with the EU, Morocco has also signed other FTAs with the United States of America, Turkey, the Arab Mediterranean Free Trade Agreements members (Tunisia, Egypt, and Jordan), and with the European Free Trade Association countries. All these agreements will improve the efficiency of the Moroccan economy and boost trade. Trade diversion will also be reduced as result of the generalization of tariff preferences for more partners.

Compared to other MENA countries, Morocco has granted WTO commitments in the area of services related to business, communications, construction and engineering, the environment, the financial sector, tourism, travel and transport. These commitments, if implemented, are expected to deepen Morocco's trade integration and result in higher gains in this area.

Table 4.1 Market access commitments by Morocco by sector under the GATS compared to other countries

	Business services	Communications services	Construction and related engineering services	Distribution services	Educational services	Environmental services	Financial services	Health related and social services	Tourism and travel related services	Recreational, cultural and sporting services	Transport services	Other services not included elsewhere	Total commitments
Turkey	X	X	X				X	X	X	X	X	X	9
Morocco	X	X	X			X	X		X		X		7
Romania	X	X	X	X		X	X		X		X		8
Poland	X	X	X	X	X	X	X	X	X		X		10
Tunisia		X					X		X				3

Source: World Bank (2004)

4.6 Economic reforms and productivity changes

Morocco started to implement many structural reforms back in the 1990s. These reforms were undertaken to promote private sector activity and to enhance the productivity of the economy. They include fiscal, trade and financial sector reforms, reforms of public enterprises, the business environment and the pension system. Given that most of these reforms have been implemented only recently (trade reforms), are still in progress or are undergoing a slow implementation process, it is too early to evaluate their overall effects on productivity changes in the country. In fact, given the importance of the agricultural sector in the economy and its high dependency on weather (draught) conditions, it is difficult to evaluate the impact of some of these reforms implemented in the 1990s. Only an analysis of productivity at sectoral level, and mainly focused on the manufacturing sectors can provide a useful source of information on this issue. Such analysis is given in the section describing productivity changes in the manufacturing sectors.

V. Conclusion and recommendations

It is important to bear in mind that, during the last few years, the Moroccan government has implemented many structural reforms focusing on improving the environment for stronger private sector-led growth and on addressing the weaknesses in the social sectors in the country. Particular emphasis has been placed on upgrading the judicial system, restructuring the financial sector, reorienting education toward basic instruction and higher enrolment, and streamlining the regulatory environment. The legal basis for private sector development has been further strengthened by amendments to corporation laws and bankruptcy procedures.

Despite the success of some structural reforms, mainly in the areas of public finances and the country's debt level, many problems still face the Moroccan economy. Regarding investment, procedures are still cumbersome, official decrees take a long time to be enacted and laws do not seem to be applied. The free zones are still at the early stage, held up by delays in renovating ports and other infrastructures. Land-ownership is also complicated by outdated practices and buying building land may take months or even years, depending on its legal status. The private sector complains about unreliable legal guarantees for investments because of corruption. The weight of bureaucracy and its inefficiency remain major obstacles to the country's development.

A more institutionalized, participatory, modern political system is necessary for continued economic growth. Weak social indicators and deficient human capital investments constitute a threat to development. The level of literacy in the population is not high enough, the quality of life poor and the educated lack employment opportunities. While the effect of many of these variables on productivity is difficult to quantify, it is hard to disagree with the following statement from Hansen and Prescott (1993): "Every nation has a set of rules and regulations that govern the conduct of business. These have consequences for the incentives to adopt more advanced technologies and for the resources required to operate an existing one. Bureaucracies that assist in the adoption of new technologies foster technological growth. Systems that divert entrepreneurial talent from improving technologies to rent-seeking activities have an adverse effect on growth. It seems that the main reason for the huge difference between the United States and Morocco in terms of productivity changes must be that Morocco has been less successful than the United States in setting up institutions conducive to economic development."

Given the high poverty and unemployment rates in Morocco, improving productivity is an urgent need for the country. Morocco must address this problem by reducing unnecessary restrictions on trade (both domestic and international) to allow the allocation of resources in the economy in line with market forces. While it is reasonable on the basis of accepted theory to expect economic reform to have some positive impact on productivity in Morocco (e.g. from the influence of increased competitive pressures), it is much more uncertain whether the changes associated with the reform process can lead to a permanent increase in the growth rate of productivity. Indeed, it is difficult to identify the exact economic mechanisms through which a permanent increase in productivity growth might occur.

Economic literature suggests two ways in which economic reform might have an impact on productivity growth, at least in the medium-term, if not permanently. These are firstly the exposure of Moroccan firms to increased competition, both internationally via the

reduction of protection and domestically, via competition policy. According to Dao, Ross and Campbell (1993), competitive pressure that makes effective use of high-quality productive resources is a strong formula for improving productivity. In addition, Filmer and Dao (1994) argue that a more market-friendly and pro-competition economy in product markets and enhanced cooperation in labour markets provide a better basis for productivity growth overall. The second suggestion is based on the belief the Moroccan firms have the incentives and the abilities to exploit "catch-up" opportunities. The basic idea is that, in many Moroccan firms and industries, the methods of production (e.g. management practices, capital equipment etc.) are below current "best practice" in other countries. If Moroccan firms are given the necessary incentives and opportunities to adopt continuously evolving world "best practices", this should have a significant effect on domestic productivity growth, at least during the catching-up phase.

With the implementation of the different FTAs signed between Morocco and its main trading partners and in the context of the Doha Round of WTO talks, the country is coming up against stiffer competition in domestic and foreign markets. This may well lead to better resources allocation and faster economic growth in the medium to long-term.

Despite the role of economic reforms in improving productivity for any economy, more targeted actions at sectoral level are believed to be more efficient. In this respect, the manufacturing sector in Morocco has to boost productivity to remain competitive in the global economy. Raising productivity levels could be the key element of success in the new Moroccan economic policy based on trade liberalization and competitiveness. In this regard, the Moroccan manufacturing sector needs to improve productivity by upgrading its primary production technology. Technology can help to improve the overall productivity in different ways through the reduction in production cycle time and costs, better production and process control and innovations that can improve competitive advantages. Manufacturing firms must achieve a degree of innovative capability in managing production operations, processes and capital equipment. UNIDO could contribute in this area by helping Moroccan firms to develop and adopt good management systems and practices such as Total Productivity Maintenance, Total Quality Management, etc. Furthermore, there is an urgent need for the manufacturing sector in Morocco to move up the value chain if it is to remain competitive in the global economy. Innovation, leading to new product development and production processes will also be a key factor in improving productivity through higher value added. The Moroccan manufacturing sector also needs an injection of advanced technology and expertise through technology transfer and foreign direct investments to support its growth. Improving private spending in R&D activities will be a necessary input in this transformation process and must be accompanied by ongoing human resource development and extensive training and investments in higher education. Workers with a new set of skills and education workers are needed to meet the demands of the modern economy given that the new competitive challenges and productivity concerns are knowledge-based. The case of textiles and clothing sector in Morocco after the removal of the multi-fibre agreement is an example of the urgent need to foster research and development at enterprise level to protect both domestic and international market shares. Relying on low labour costs is no longer the key determinant of competitiveness for Moroccan products on the European market. Product differentiation and productivity improvement are now seen as the new driving forces behind industrial development in the country.

Bibliography

Azzam, A. and K. Sekkat. 2002. Total Factor Productivity in Moroccan Cereal Agriculture Accounting for Rainfall, Technical Efficiency, Pricing Policy, and Demand Effects. Background Paper for the Project on Explaining Growth in MENA countries, ERF, Cairo.

Bouhia, A. 2000. *Les sources de croissance de l'economie marocaine. Critique Economique* pp: 43-59.

Charkaoui, M. and D. Ben Ali (2003). "Political Economy of Growth in Morocco", memo, mohamed V University, Morocco.

Chemingui, M.A. and M. Lahouel. 2004. *Profil Tunisie: la Politique Commerciale*. Femise, Institut de la Méditerranée et ERF. Forthcoming.

Dao, D., S. Ross and R. Campbell. 1993. Structural change and economic growth. Background paper No.28, EPAC, Camberra.

Dasgupta, D., J. Keller, and T.G. Srinivasan. 2002. Reform and elusive growth in the Middle East: What has happened in the 1990s. Middle East and North Africa Working Paper Series No. 25, The World Bank, Washington, D.C.

De la Fuente, A. 2002. Does cohesion work? Some general considerations and evidence from Spain. Paper presented at the Conference on Income Convergence and European Regional Policy: Impact, Priorities and Prospects for the EU Candidate Countries, jointly organized by the Bertelsmann Foundation and the World Bank, Barcelona, October 10-12.

Economist Intelligence Unit. www.eiu.com.

Filmer, R. and D. Dao. 1994. Economic effects of microeconomic reform. EPAC Background Paper No.38, AGPS, Canberra.

Gaofeng, H., K. Kalirajan and N. Singh. 2001. Productivity, efficiency and economic growth: East Asia and the rest of the world. Memo, University of California.

Gellhorn, E. and W.E. Kovacic. 1994. *Antitrust Law and Economics in a Nutshell.* 4th ed. St.Paul, Minnesota: West Publishing.

Geradin, D. and N. Petit. 2004. Competition policy in the Southern Mediterranean countries. *Review of Network Economics*, Vol.3, Issue 1, March 2004.

Gray, S.C. 1990. *Estimation des sources de la croissance du PIB marocain*. Discussion Paper 324, Harvard Institute for International Development, USA.

Grossman, G. and E. Helpman. 1991. *Innovation and Growth in the Global Economy*. Cambridge : MIT Press, Cambridge.

Gwartney, J., R.G. Holcombe and R.A.Lawson. 2004. Institutions and the impact of investment on growth. Florida State University, memo.

Hansen, G.D., and E.C. Prescott. 1993. Did technology shocks cause the 1990-91 recession? *American Economic Review Papers and Proceedings* 83 (2): 280-286.

Harris, R.G. 2002. Social policy and productivity growth: What are the linkages? Discussion Paper No. 11, Industry Canada: Research Publications Programme, Ottawa, Canada.

Helpman, E. and A. Rangel. 1999. Adjusting to a new technology: experience and training. *Journal of Economic Growth* 4(4): 359-383.

Heritage Foundation. 2003. 2002 Index of Economic Freedom. The Heritage Foundation/ Wall Street Journal, New York.

IMF. 2001. *Morocco: Public Information Notice (PIN) No. 01/80*. The IMF, Washington, D.C.

Jbili, A., K. Enders and V. Treichel. 1997. Financial sector reform in Algeria, Morocco and Tunisia: A preliminary assessment. IMF Working Paper WP/97/81, IMF, Washington, D.C.

Lahouel, M.H. 2000. Competition Laws in MENA: An assessment of the status quo and the relevance of a WTO Agreement. *Paper Prepared for the Third Mediterranean Development Forum*, Cairo, 5-8 March.

Lattimore, R. 1991. Research and development: Hidden investment in Australian industry. In *The Economic Dynamics of Australian Industry*. Edited by C. Hamilton. Sydney : Allen & Unwin.

Lucas, R. 1993. Making a miracle. *Econometrica* 61(2).

Mankiw, G., D. Romer and D. Weil. 1992. A contribution to the empirics of economic growth. *Quarterly Journal of Economics* 107

Mansouri, B. 2004. *Impact of Drought and Fiscal Policy on Private Consumption, Private Investment and Economic Growth in Morocco: An Empirical Analysis.* Islamic Research and Training Institute (IRTI), Saudi Arabia.

Noth, D.C. 1990. *Institutions, Institutional Change and Economic Performance.* Cambridge: Cambridge University Press.

Otto, G. 1997. Productivity growth and economic policy in Australia. , Research Paper 19, 1996-97, Parliamentary Library of Australia.

Romer, P. 1990. Endogenous technical change. *Journal of Political Economy* 98(5): Part 2.

Sekkat, K. 2004. The macroeconomic source of growth in Morocco. Memo, Economic Research Forum.

Senhadji, A. 2000. Sources of economic growth: An extensive growth accounting exercise. IMF Staff Papers, pp-129-157.

UNESCO. www.unesco.org.

UNIDO. Various data.

USAID. 2003. Morocco workforce development assessment. Memo, USAID, Washington, D.C.

World Bank. 2004. *World Development Indicators*. The World Bank, Washington, D.C.

World Bank. 1997. *Kingdom of Morocco: Private Sector Participation in Infrastructure, Synthesis And Summary.* Document of the World Bank No.15059-MOR, Washington, D.C.

Zaimi, K. 2002. "La productivité globale des facteurs." Ministry of Economy, Finances, and Privatization, Working Paper, No.76, Rabat.