

Morocco's Growth and Employment Prospects

Public Policies to Avoid the Middle-Income Trap

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Abstract

This paper studies Morocco's growth and employment prospects in the context of a new growth model aimed at allowing the country, in a rapidly changing international environment marked by increased competition from low-wage economies and growing automation of low-skilled jobs, to avoid falling into a middle-income trap. The first part reviews the growth model that Morocco has pursued in the past few decades and discusses its limitations going forward. The second part characterizes the proposed growth model, which involves, in particular, promoting the transition from labor-intensive imitation activities to technology-intensive innovation activities, increasing public investment in advanced infrastructure, improving the quality of education,

improving productivity and increasing value added in key sectors (including agriculture, high-end tourism, and renewable energy), and implementing measures designed to promote women's participation in the labor force and reduce gender inequality. The third part attempts to quantify the medium-run effects of these policies on growth, employment, and unemployment in Morocco. The paper concludes that to achieve high-income status and reduce unemployment significantly, Morocco will need to implement far-reaching reforms, to increase growth to a range of 6–7 percent and improve employment creation to about 35,000 jobs per percentage point of growth.

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Morocco's Growth and Employment Prospects: Public Policies to Avoid the Middle-Income Trap

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1. INTRODUCTION

Since the early 1990s, Morocco has pursued a growth model based essentially on the sustained expansion of domestic demand, particularly in public investment. This model, in an environment characterized by prudent macroeconomic policies and an improved business climate, has served the country well; between 1990 and 2013 for instance, real GDP growth rates have averaged 3.9 percent annually, life expectancy has increased and (despite persistent unemployment across all categories of labor) poverty has fallen significantly.

However, it has become increasingly clear that this model has reached its limits. Fundamental changes in the international environment in the past two decades (with respect most notably to the international division of labor and global distribution of production, through value chains) have meant that it is imperative for Morocco to think of a new approach to promote growth and employment in the medium and long term and achieve high-income status. Without a fundamental change of direction, it is possible that Morocco, like many other countries before it, may fall into and be stuck in a middle-income trap, from which it may be difficult to escape.¹

Indeed, the international economic environment that Morocco faces now has evolved in at least four dimensions: greater competition now not only from China but also from other low-income countries in Asia and (increasingly) Sub-Saharan Africa in labor-intensive manufacturing goods; continued globalization of value chains and an increase in their role in international trade; continued, and in some ways greater, uncertainty regarding the long-term growth prospects in the European Union following the Brexit vote; and continued move towards automation and digitalization of activity in many economic sectors.

Regarding the first dimension (greater competition from other countries), Morocco – just like many other countries around the world – has faced increased competition from China. In just a few decades, China has become the world’s second largest exporter of goods, with a significant change over time (as a result of rapid technological catch-up and heavy spending on R&D activities) in the composition of its exports. In addition, Morocco – again, like many other countries – faces now increased competition from Asian countries like Bangladesh, Cambodia, Indonesia, the Lao People’s Democratic Republic, and Vietnam. New competitors have also emerged in Sub-Saharan Africa in specific sectors or activities, such as labor-intensive, light manufactured goods. Many of these countries have relatively low labor costs and have experienced a sharp increase in foreign direct investment from China, as that country initiated its own transition to an innovation-based economy. Morocco’s ability to maintain competitiveness in those lines of production and activities has become increasingly tenuous.

Regarding the second dimension (continued globalization of value chains), the trend towards outsourcing and offshoring trade and the development of new information and communications technology (ICT) have led in recent years to increased globalization of value chains, that is, the value added for any activity through different processes or tasks at each

¹ The notion of middle-income traps is discussed in more detail later.

stage of production.² From raw material to the finished product, the whole process of goods production has experienced a fragmentation that today allows each sub-process to be conducted where the skills and raw materials are available at competitive costs. As a result, today almost two-thirds of the world's manufactured imports are intermediate goods, meaning primary goods, parts, components and semi-finished goods. A key challenge for Morocco and other countries is how to insert themselves into these production chains.

Regarding the third dimension (uncertainty regarding the long-term growth prospects in the European Union), Morocco's geographical position and history are such that fluctuations in its economy remain closely linked to activity fluctuations in Europe. This dependence is reflected in the geographical distribution of its imports and exports, and also remittances from Moroccan workers abroad. However, the region continues to face a number of structural problems (OECD, 2014), related in particular to high ratios of public debt, long-term unemployment in some countries, low fertility, aging populations, and high inequality. The recent decision by the United Kingdom to exit from the European Union has added a new layer of uncertainty to the Union's prospects. Except for a few countries, growth prospects for the next two decades are weak. Without continued effort to diversify its trade partners, Morocco may find itself in a situation where its ability to export is constrained by a lack of foreign demand.

Regarding the fourth dimension (continued move towards automation and digitalization of activity), the advances in artificial intelligence and robots' growing abilities and adaptability are dramatically changing society and affecting the future of employment. According to Frey and Osborne (2013) for instance, who examined 702 detailed occupations in the United States, about 47 percent of those – including taxi drivers, accountants, paralegals and loan officers – could be replaced by robots in the next decade or two. These fears may be somewhat exaggerated; while automation may indeed eliminate entire categories of work, it is likely to generate indirect effects that lead to more jobs being created in other sectors and higher demand, generating employment growth across the economy as a whole. In particular, new technologies may generate employment opportunities and better salaries in sectors that use robot-produced products as inputs; And the demand for new robot-produced products may increase the need for upstream products, and the new technology may boost overall demand (Autor and Salomons (2018), World Development Report (2019)).³ Thus, although the net effect in the short and medium term may be to destroy jobs, the longer-term effects on employment may well be positive. Nevertheless, the potential effect of automation and rapid technological advances on jobs means that for Morocco – as for many other countries – a growth model based solely on labor-intensive manufacturing is highly risky and may not help to boost employment sufficiently to absorb new entrants in the labor market and keep unemployment low.

² As noted in Cattaneo *et al.* (2013), global value chains driven by large buyers (*buyer-driven chains*) have become relatively complex in labor-intensive consumer goods sectors (clothes, shoes, toys, furniture, fruits and vegetables, and cut flowers).

³ Autor and Salomons describe these indirect effects in more detail. They look at 28 industries in 19 OECD countries between 1970 and 2007 and find that while employment has fallen by 8.2 percent in industries affected by technological advances, the indirect effects have led to overall increases in employment of 17.8 percent.

The view that Morocco is at a crossroads in terms of its growth model and that a new model is needed was forcefully argued by Agénor and El Aynaoui (2015). In their view a fundamental feature of this new model should be to promote a gradual transition along the world technology frontier through increased productivity and innovation, in order for the country to better position itself in global value chains and be able to compete in the international markets for goods and services that are intensive in skilled labor and technological inputs. In a context of high and persistent unemployment, and continued entry of young job seekers on the labor market, such a strategy is essential to accelerate growth and create jobs. To do so requires implementing a number of policies -- with respect to public investment, policies to raise the quality of education, labor market reforms to reduce the cost of labor, specific policies towards strategic sectors, strengthening the role of the domestic financial sector in the financing of SMEs, and macroeconomic policy reforms (including with respect to the exchange rate regime).

This paper offers a broader proposal for a new growth model for Morocco. While it agrees with the fundamental feature of the new growth model advocated by Agénor and El Aynaoui (2015), it differs in some of the diagnostic of the weaknesses of the current growth model, while extending and complementing the proposed model in several directions. Issues with respect to which the diagnostic differs relate to the importance, alluded to earlier, of the global trend toward automation (which tends to reduce the demand for low-skilled labor around the world), how investment in education can improve the quality of human capital and address the skills mismatch in the labor market, the role of the tourism industry, the role of the state in improving efficiency, and how to reverse the trend toward lower participation rates for women (as well as, to some extent, men) in the labor market.⁴ In addition, the new model proposed in this paper fully reflects the lessons from the recent research on the causes of middle-income traps and how to escape from them.

The remainder of the paper is organized as follows. Section 2 provides an overview of the growth model that Morocco has adopted in the past decades, its economic and social achievements, and its limitations going forward. Section 3 characterizes the proposed growth model, which involves, in particular, an improvement in the quality of education, promoting the transition from labor-intensive imitation activities to technology-intensive innovation activities, increased public investment in advanced infrastructure, improving productivity and increasing value added in key sectors (including agriculture, high-end tourism and renewable energies), and measures designed to promote women's participation in the labor force and reduce gender inequality. The effects of this model on growth, industrial transformation, and the labor market in Morocco are discussed in Section 4, using numerical experiments based on an analytical framework that explicitly distinguishes between imitation and transformation activities.

⁴ The importance of human capital accumulation is also emphasized in African Development Bank (2015) and Kingdom of Morocco, Systematic Country Diagnostic, Governing Towards Efficiency, Equity, Education, and Endurance. World Bank, 2018.

2. MOROCCO'S GROWTH MODEL: FEATURES, ACHIEVEMENTS, AND CHALLENGES

This section begins by characterizing the main features of the growth model that Morocco has pursued in the past decades. It then considers its achievements in terms of economic and social outcomes, and, discusses the growing difficulties that it has encountered in more recent years.

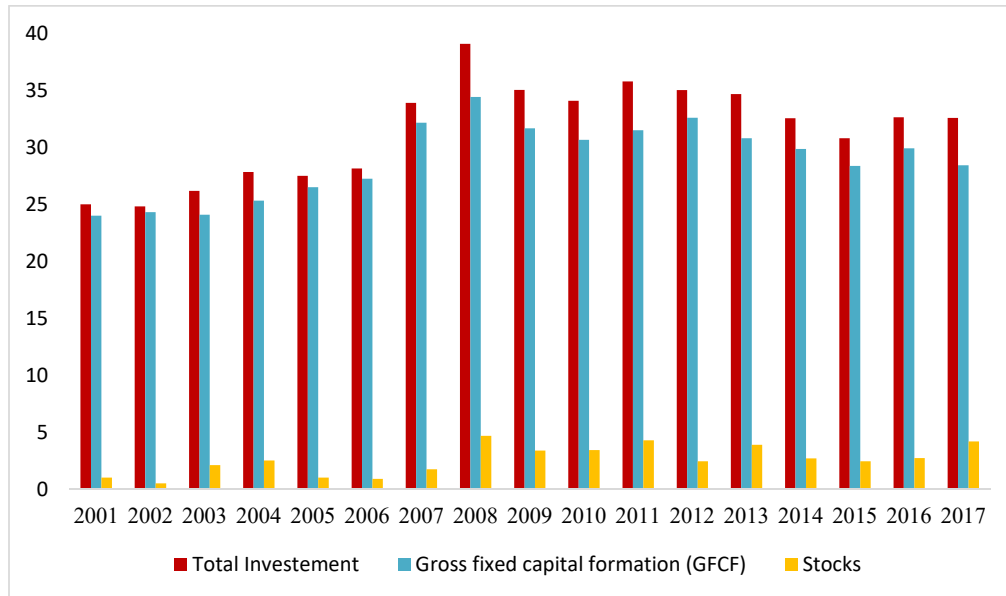
2.1 Main Features of the Current Growth Model

By and large, in recent decades Morocco has pursued a growth model fundamentally based on the expansion of domestic demand, supported by an expansion of consumption (itself fueled by wage increases linked to minimum wage adjustments) and high levels of public investment, mainly through State-Owned Enterprises. In addition, the increase in public investment contributed (at least initially) to an expansion in private investment through a complementarity effect.⁵ During the period 2009-2017 for instance, household consumption spending has averaged 50 percent of GDP and has increased in real terms by about 3.7 percent per annum, with an average contribution of 2.2 points to GDP growth during that period (Ministry of the Economy and Finance, 2019). For its part, gross investment has averaged 30.4 percent of GDP and has contributed to about 0.4 percent on average to real GDP growth over the same period (Ministry of the Economy and Finance, *op. cit.*).⁶ Between 2001 and 2017, total investment has fluctuated between 25 percent and 38 percent of GDP (Figure 2.1). Morocco's investment rate remains one of the highest in the world. The role of domestic demand as a key driver of sustained economic growth – and, correspondingly, a relatively small role of net exports – is not unique to Morocco; it is in fact common in the Middle East and North Africa (MENA) region (Figure 2.2).

⁵ In a recent study, the International Monetary Fund (2018, Box 5.1) estimated cross-country regressions of the determinants of private investment in the Middle East and Central Asia. They find a very strong effect of access to finance, but a negative effect of public investment, which suggests a crowding-out effect. However, as emphasized in the literature (Agénor, 2012), the complementarity effect should be estimated in terms of the stock of public capital, not the flow of public investment. In that setting, it is possible that the flow of public investment has a negative effect (as estimated by the IMF study) while at the same time the stock of public capital has a positive effect.

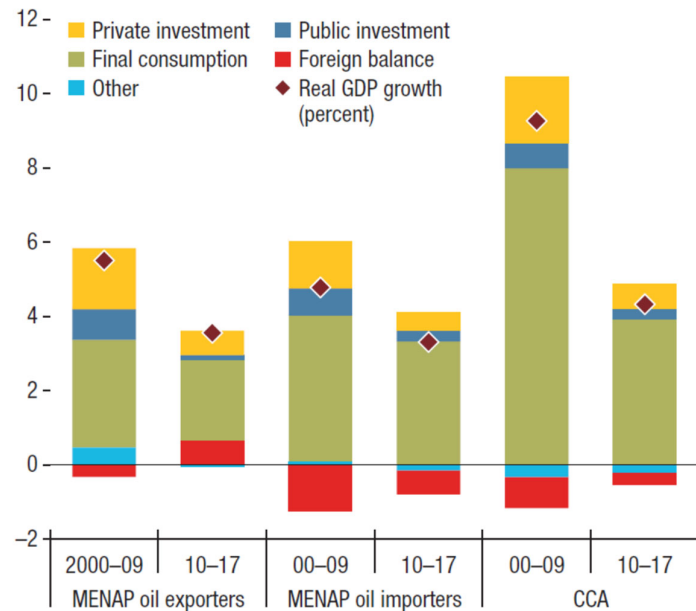
⁶ A study by the World Bank (2018f) suggests that transport and telecommunications are the two components of infrastructure that have contributed the most to growth in Morocco during the period 1985-2015, with the contribution of electricity being negligible.

Figure 2.1 Morocco, Total investment from 2001-2017 (in percent of GDP)



Source: High Commission for Planning (HCP).

Figure 2.2 MENAP Region: Decomposition of Real GDP Growth, 2000-2017 (Simple averages, percentage points)



Note: CCA: Caucasus and Central Asia; and MENAP: Middle East, North Africa, Afghanistan, and Pakistan

Source: International Monetary Fund (2018, p. 54).

2.2 Economic and Social Outcomes

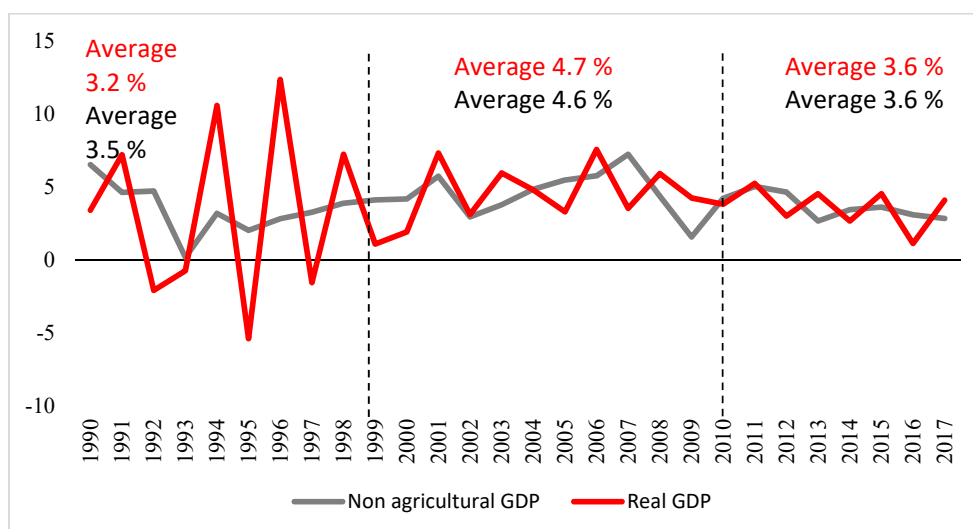
Undeniably, the demand-led growth model summarized earlier has had positive effects on both economic and human development in Morocco.

2.2.1 Growth, Inflation, and Fiscal Balance

After increasing at about 3.2 percent per annum during the period 1990-99, Morocco's GDP growth expanded by 4.7 percent per annum during the period 2000-09 and by 3.6 percent over the period 2010-2017 (Figure 2.3). Concomitantly, after increasing by about 1.5 percent per annum between 1989 and 2000, real GDP per capita increased at an annual rate of 3.1 percent between 2001 and 2017, thereby raising its level from about 13,702 Moroccan dirhams (MAD) in 1990 to nearly 26,217 dirhams in 2017 (Figure 2.4).

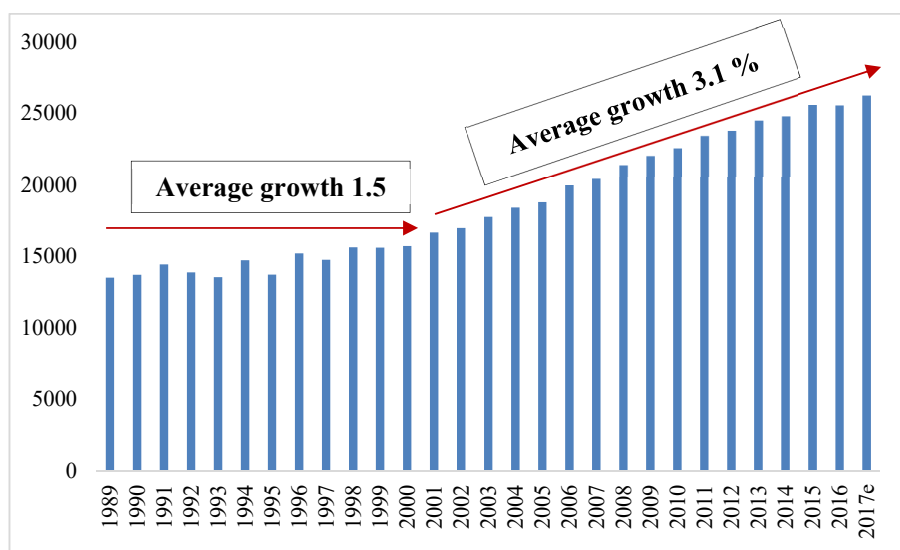
At the same time, the volatility of the GDP growth rate (as measured by its standard deviation) dropped from 6 during 1990-99 to about 1.8 during 2000-2017 (Ministry of the Economy and Finance, 2019). For agriculture alone, that volatility fell by two-thirds during the same period. Thus, not only did Morocco maintain a sustained growth rate, its fluctuations fell markedly in the past two decades. This increased stability was also accompanied by major changes in the sectoral structure of the Moroccan economy, including a reduction in agriculture's and manufacturing's share in GDP, a sharp increase in the tertiary sector (mainly in connection with the sustained development of telecommunications and financial services), and rapid development of off-shoring activities.

Figure 2.3 Morocco: Growth rate of real GDP and non-agricultural GDP, 1990-2017 (Annual percentage change)



Source: World Bank.

**Figure 2.4 Morocco: Real GDP per capita, 1990-2017
(in dirhams)**

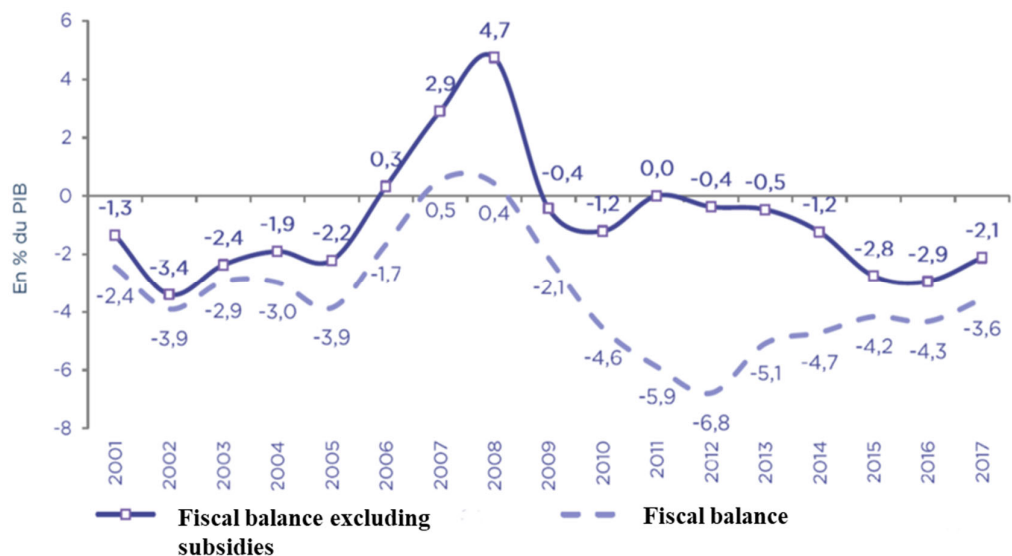


Source: Calculations based on World Development Indicators

Despite facing a series of large external shocks, the country was able to achieve and maintain macroeconomic stability. Inflation averaged only 1.6 percent between 2000 and 2017. Following a sharp deterioration of the fiscal balance (from a surplus of 0.4 percent of GDP in 2008 to -6.8 percent in 2012) in the aftermath of the global financial crisis, and a concomitant increase in the ratio of public debt to GDP above the target of 60 percent, measures implemented starting in 2013 brought the deficit down significantly and stabilized its debt ratio at about 64-65 percent of GDP (Figures 2.5 and 2.6).⁷ The reduction in fiscal imbalances contributed to reduce external imbalances as well, in line with the “twin deficits” view (see Benlamine, 2015). Finally, macroeconomic stability also benefited domestic private investment and foreign direct investment.

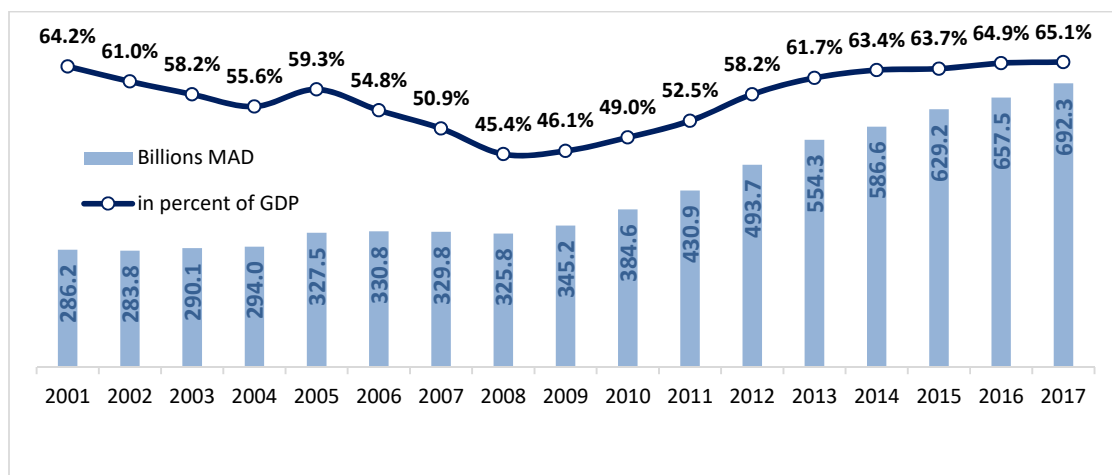
⁷ The government initiated in 2013 a reform of the subsidy system and began to rein in other recurrent expenditures. The activation of a price indexation mechanism for gasoline and diesel in 2013 and the full liberalization of these prices in 2015 (combined with the fall in international oil prices) contributed to a cut in subsidies by about 5 percentage points of GDP during 2012-2015. Since the last two hikes in 2011 and 2012, the rise of the wage bill has been contained to about 11 percent of GDP through controls of higher wages and limits on new hiring of civil servants. On the revenue side, measures to improve tax collection through the extension of the tax base, harmonization of tax rates and fighting tax evasion compensated the impact of weaker economic activity on tax revenue.

Figure 2.5 Morocco: Fiscal Balance, with and without Subsidies, 2001-2017
(In percent of GDP)



Source: Ministry of the Economy and Finance (2019).

Figure 2.6 Morocco: Evolution of Public Debt, 2001-2017



Source: Ministry of the Economy and Finance (2019).

2.2.2 Social Outcomes and Poverty

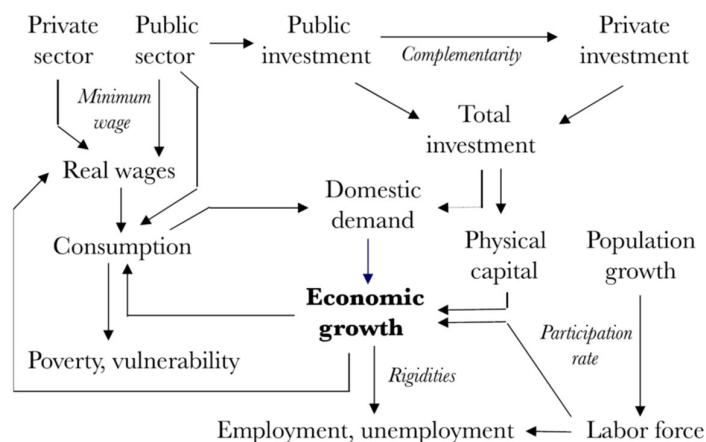
Growth over the last decade has been pro-poor. Poverty fell from 15.3 percent in 2001 to 4.8 percent in 2014. Extreme poverty has been eradicated. Overall, the poverty rate declined from 25.1 percent to 9.5 percent in rural areas during 2001 to 2014. In urban areas, the reduction was from 7.6 percent to 1.6 percent. The relative poverty rate fell from 21.0 percent in 1985 to 16.3 percent in 1998 and 6.2 percent in 2011. At the territorial level, the evolution of the standard of living showed the existence of a process of convergence between the 12 regions, but at an asymmetric pace. Indeed, the process of convergence is far from

completed: according to the Ministry of the Economy and Finance, with an annual convergence rate of 4 percent, it would take 24 years for the convergence process to reduce initial regional disparities by half.

Economic growth and higher living standards, together with improved access to basic services (including infrastructure), were accompanied by an increase in life expectancy at birth (from an average of 65 years in 1987 to 74.8 years in 2010 and 76.1 years in 2017) and a sharp reduction in inequality and vulnerability – despite persistent unemployment. The Human Development Index (HDI) in Morocco increased from an average of 0.456 during the period 1990-1999 to 0.544 during the period 2000-2010, to 0.617 in 2013 and 0.667 in 2017. Between 2007 and 2014, consumption of the bottom 40 percent of the population grew faster (5.4 percent, on average) than that of the remaining population (4.7 percent). Accordingly, the Gini coefficient declined from 40.7 in 2007 to 39.5 in 2014. Yet, poverty incidence remains high in rural areas, and poverty reduction in these regions has been twice as slow as in urban areas. However, the gap in poverty rates between urban and rural areas remains large.

Figure 2.7 summarizes the main features of the demand-led growth model that the country has pursued for the past few decades as well as its outcomes. To a significant extent, this model still prevails today. But there are signs that it is running out of steam. Maintaining investment rates at or above 30 percent of GDP over long periods of time cannot sustain growth permanently without significant gains in efficiency and productivity to prevent decreasing marginal returns. We consider next a more systematic review of the limits of a model where domestic demand is the main driver of economic growth.

Figure 2.7 Morocco: Schematic View of the Current Growth Model



Source: Author. Adapted from Agénor and El Aynaoui (2015).

2.3 Challenges to the Current Growth Model

As mentioned earlier, domestic demand has been the main source of Morocco’s growth performance over the past two or three decades, coupled with real wage increases and higher public investment ratios relative to their historical norm. However, a number of indicators suggest that this growth model has lost steam in recent years. These indicators include a slowdown in average growth; low job creation and persistent unemployment; insufficient

labor quality and growing skills mismatches; a loss of competitiveness, which has led to a decline in the relative importance of the industrial sector, and its capacity to create jobs; insufficient adaptation of productive sectors; a business environment which, despite significant progress, continues to weigh on private activity; and a secular reduction in women's labor force participation. These aspects are considered in turn.

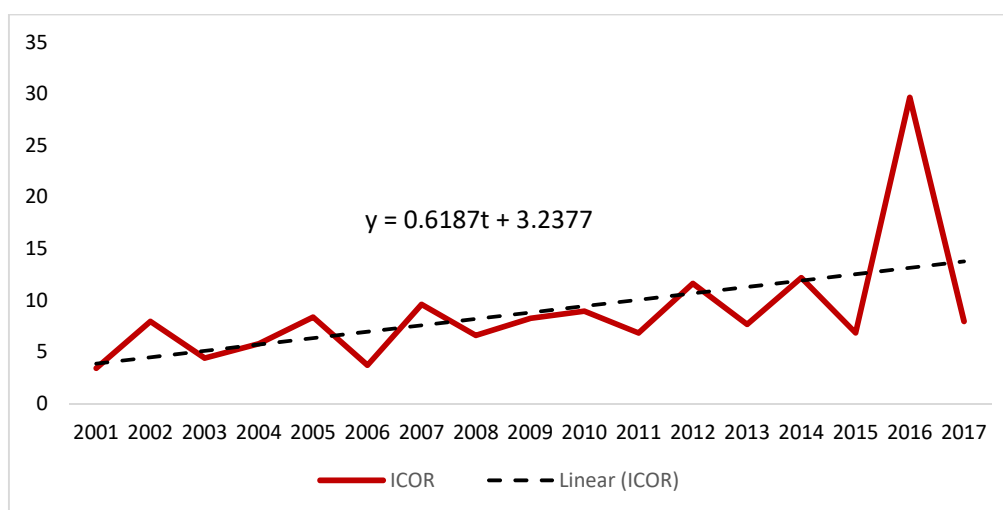
2.3.1 A Respectable, yet Insufficient, Growth Rate

There is wide consensus that medium-term growth of the order of 3.8-4.0 percent (as observed in the past two decades), although respectable, is too low to address Morocco's labor market challenges, absorb new entrants in the labor market and reduce unemployment, and allow the country to transition toward high-income status. In addition, many of the factors that constrain greater employment opportunities – such as skill mismatches and low labor productivity – also constrain economic growth more broadly.

A key issue is that although public investments may have had initially a positive effect on private sector activity (through its productivity effects on private inputs) and on private investment (through the complementarity effect alluded to earlier), available data seem to suggest that they have suffered increasingly from efficiency problems and diminishing marginal returns. One indicator to that effect is the incremental capital-output ratio (ICOR), given by the variation in the investment to GDP ratio. Morocco's ICOR is one of the highest in the world; with an average level of 8.1 during the 2000s, and close to 10 in the 2010s, compared to an average of less than 3 in the 1990s (Figure 2.8). The deterioration of the overall ICOR is largely due to the public component of investment, given the sustained high levels in that component in recent decades. In turn, this largely reflects a decline in the quality of public investment over time and to what counts for production, the *flow* of services produced by the *stock* of public assets, and its impact on the productivity of private inputs.⁸

⁸ The distinction between public infrastructure investment *flows*, and the flow of services produced by the *stock* of public capital in infrastructure, the latter being obtained by cumulating gross flows, is critical (Agénor, 2012). If investment spending is inefficient, flows become capital stocks but only in part. There is no empirical study on the "efficiency ratio" for Morocco. From Dabla-Norris et al. (2012), the average value for the Middle East-North Africa (MENA) region is 0.52. In other words, nearly 50 percent of public investment spending in the region does not turn into physical infrastructure capital stock.

Figure 2.8 Morocco: Evolution of investment efficiency, 2001-17



Source: High Commission of Planning (HCP).

The diminishing efficiency of public investment, as well as possible crowding-out effects (given a limited pool of national savings) and a limited complementarity effect associated with public capital, may help to explain why private sector investment in Morocco has remained at a relatively low level of around 16 percent of GDP (just over half of total investment) over the past decade.⁹

2.3.2 Persistent Unemployment, Inadequate Labor Quality

Persistent Unemployment

Despite Morocco’s favorable growth performance recorded over the past decades, the unemployment rate has remained stubbornly high, at about 10 percent in recent years, particularly for young and skilled workers. Youth unemployment exceeds 20 percent and the unemployment rate for graduates is 15 percent. Two out of three unemployed people are youth aged 15 to 24 years (with little or no education) and one of four is a higher education graduate (Figure 2.9). Almost 28 percent of the youth is neither employed nor in education or training. In addition, four of five unemployed are urban residents, one of two unemployed people is a first-time job seeker, and nearly two out of three unemployed people have been unemployed for over a year. Thus, unemployment in Morocco is largely structural. Long-term unemployment discourages job search and accelerates the loss of skills, making it more difficult to enter, or return to, the workforce. This is particularly worrying in a country where more than half the population is below 30 years of age. Yet, unemployment is a regional issue. According to the MENA Economic Monitor, more than 11 percent of the region’s active population is unemployed, with more than 30 percent of youth. Unemployment of the region’s educated youth is particularly worrying and questioned the concept of a “skills premium”

⁹ As discussed later, another constraining factor relates to the fact that the business environment, despite notable improvements in recent years, is still in need of progress.

—the difference in wages between skilled and unskilled workers— which dictates that higher educational attainment should lead to higher compensation and more secure employment. In the MENA region, the opposite has happened: university graduates are far more likely to be unemployed than are workers with only a basic education. The report argues that two factors work against the region’s young people. First, schools are still geared toward channeling graduates into large public sectors, which means they place less emphasis on fields such as mathematics and science. Second, bloated public sectors are crowding out the private sector, which would otherwise be a larger provider of high-skill, high-wage jobs.¹⁰

Figure 2.9 Morocco: Unemployment rates by skill level and age group, 2002, 2013 and 2016 (Percentage)



Source: High Commission for Planning (HCP).

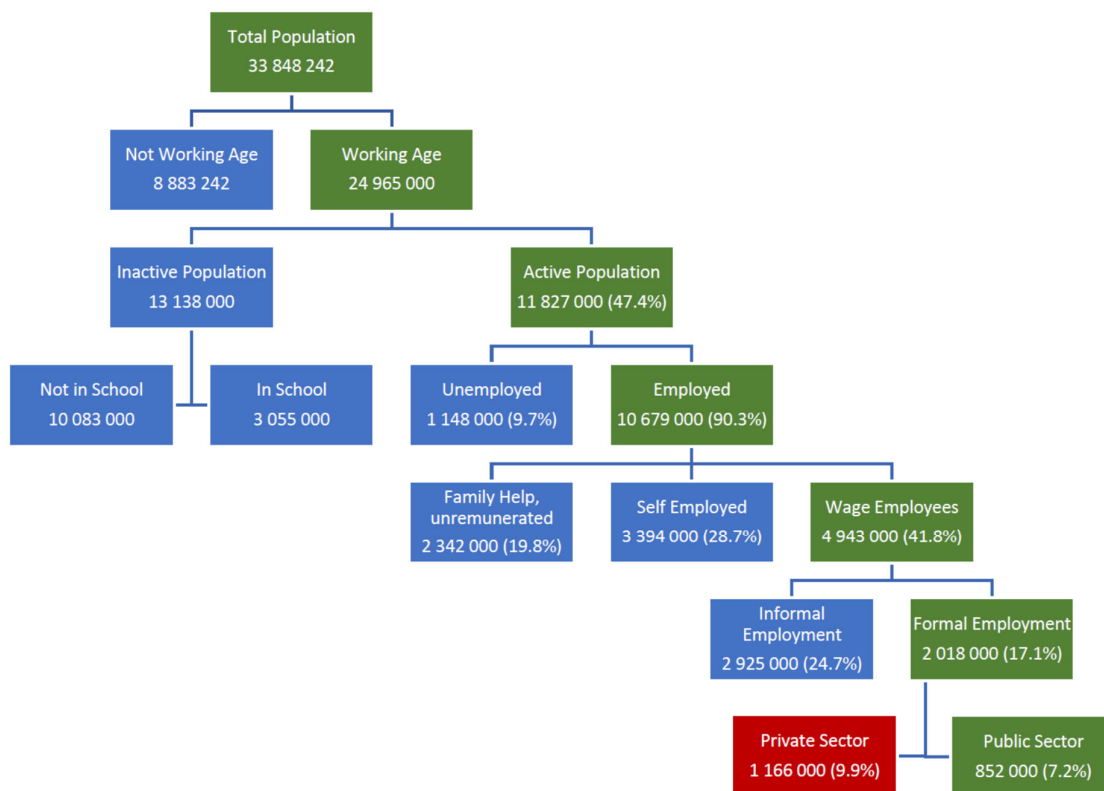
A key reason for high and persistent unemployment in Morocco is the fact that job creation has been weak. While the working age population grew in net terms, by 270,000

¹⁰ MENA Economic Monitor. A New Economy for the Middle-East and North Africa. World Bank. October 2018.

people between 2012 and 2016, just 26,400 net new jobs were created during that period.¹¹ Moreover, job creation has occurred mainly in the construction and service sectors, while at the same time there have been job losses in agriculture and in low value-added industries such as textiles (due to increased competition from China and other low-wage countries, as noted earlier), which continue to employ a large share of the manufacturing workforce. In turn, the inability to create sufficient jobs is related to the fact that, as noted earlier, growth rates have not been high enough to effectively reduce unemployment and absorb new entrants (mostly youth).¹²

The high unemployment is particularly worrying, given that labor force participation is relatively low and has been falling, especially among women. As discussed later, female labor participation is indeed very low (at 24.8 percent) and declining. The structure of employment is also problematic. In 2015 only 17 percent of the economically active populations has a formal job, and less than 10 percent has a formal private sector job, while about 7 percent are public sector employees (Figure 2.10). High value-added sectors only represent a small share of manufacturing employment.

Figure 2.10 Morocco: Structure of the Active Population, 2015



Source: World Bank (2018e).

¹¹ According to HCP estimates, each year, about 160,000 people enter the labor market while the economy only creates 120,000 jobs on average.

¹² This may also reflect a lowering of the elasticity of employment to GDP growth. For MENA oil importers, Crivelli et al. (2012) for instance estimate a value of that elasticity of the order of 0.39 only.

Labor market distortions

Distortions in the labor market and rigid regulations have also combined to constrain job creation (especially for women and youth) and generate high and persistent unemployment. High hiring and firing costs are an important impediment in that regard, whereas inadequate access to information hampers the efficient functioning and adjustment of the job market, most notably by constraining job search and making it costlier. Compared to neighboring countries, or countries at the same level of income, Morocco has one of the highest ratios of minimum to average wages, which has an adverse impact on formal sector employment and competitiveness in labor-intensive industries. Other sources of distortions in the labor market in Morocco include the quality (or lack thereof) of cooperation between employers and unions (which play a significant role in wage formation and labor practices), frictions in the functioning of the legal framework for resolving labor disputes; and low impact of government programs, such as the National Agency for the Promotion of Employment and Skills (ANAPEC), to help young people find work. Another distortion is skill mismatches, as discussed next. According to the World Economic Forum's 2018 Global Competitiveness Index, Morocco was ranked only 119, out of 140 countries, for labor market efficiency, as well as 91 for redundancy costs, 102 for the taxation of labor, and 103 for hiring and firing practices.

Education System and the Quality of Human Capital

Weaknesses in Morocco's education system have also contributed to low job creation, low quality of the workforce, and high unemployment. According to the World Economic Forum (2018), Morocco is ranked 95 out of 140 countries in terms of its pupil-to-teacher ratio in primary education – a common indicator of the quality of basic education. At about 70 percent, the gross enrollment rate in secondary education in Morocco is one of the lowest in MENA. Dropout rates are also among the highest; 72 percent of students leave the education system without qualification. Among labor market participants, the average number of years of schooling is only five. Forty-one percent of the workforce (and 46 percent in urban areas) has no qualifications, compared to 17 percent in Tunisia, and 6 percent in Jordan (World Bank, 2010). Moroccan students do not perform well in international tests. Literacy rates in rural areas are particularly low, especially among women. The majority of Moroccan students follow studies in social sciences at the expense of technical careers, which leads to skills mismatches, that is, an over-supply of university graduates with generic education but not necessarily the skills that are demanded by firms.¹³ Indeed, universities in Morocco tend to produce graduates mostly in humanities and social sciences (Figure 2.11), which makes them less equipped to secure formal sector jobs. At the same time, there is a shortage of students with more technical, scientific and professional backgrounds, that is, those with Science-Technology-Engineering and Mathematics degrees (or STEM, as opposed to non-STEM).¹⁴ The

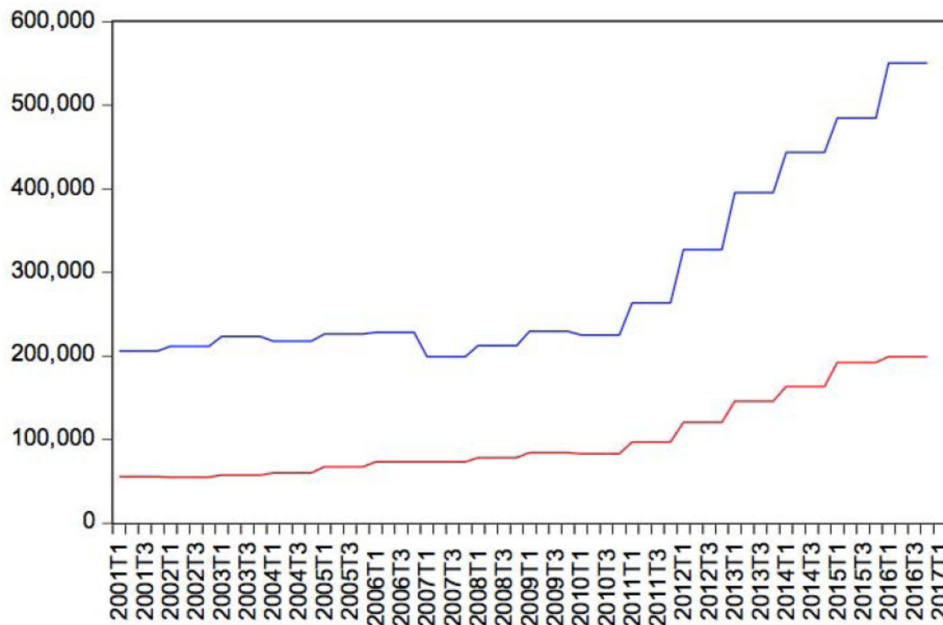
¹³ Pereira da Silva (2018) provides econometric evidence that the skill mismatch in the labor market – as measured by the ratio between technical and general university degrees produced by the education system – plays a significant role in explaining Morocco's high and persistent skilled unemployment.

¹⁴ More specifically, STEM refers to the following curriculum categories: Sciences, Sciences and Technology, Medicine and Pharmacy, Dental Medicine, Engineering, Technology. Non-STEM refers to the following curriculum categories: Original Studies, Law, Social Sciences, and Economics, Humanities, Literature, Business Management, Science of Education, and Translation.

low quality of labor and the considerable mismatch between the type of skills produced by the education system and those demanded by firms encourages informal activities and represents a major constraint on the country's ability to transition toward a new growth model based on innovation and increased competitiveness on world markets in skill-intensive production. This problem is compounded by the lack of adequate technical and vocational training programs. In terms of overall quality of human capital, Morocco ranks only 98, out of 157 countries, in the new human capital index developed by the World Bank (Figure 2.12). According to the Academic Ranking of World Universities for 2018 by Shanghai University, Morocco has no university in the top 500.¹⁵

While firms in some high value-added industries often provide professional training to fulfill their needs for skilled workers, a broad reform of the education and vocational training systems is needed to increase school attainment, improve the quality of education, and reduce the gap between labor force skills and business needs.

Figure 2.11 Morocco: Tertiary Students Enrolled in STEM versus non-STEM Areas, 2000-2017 (Units)

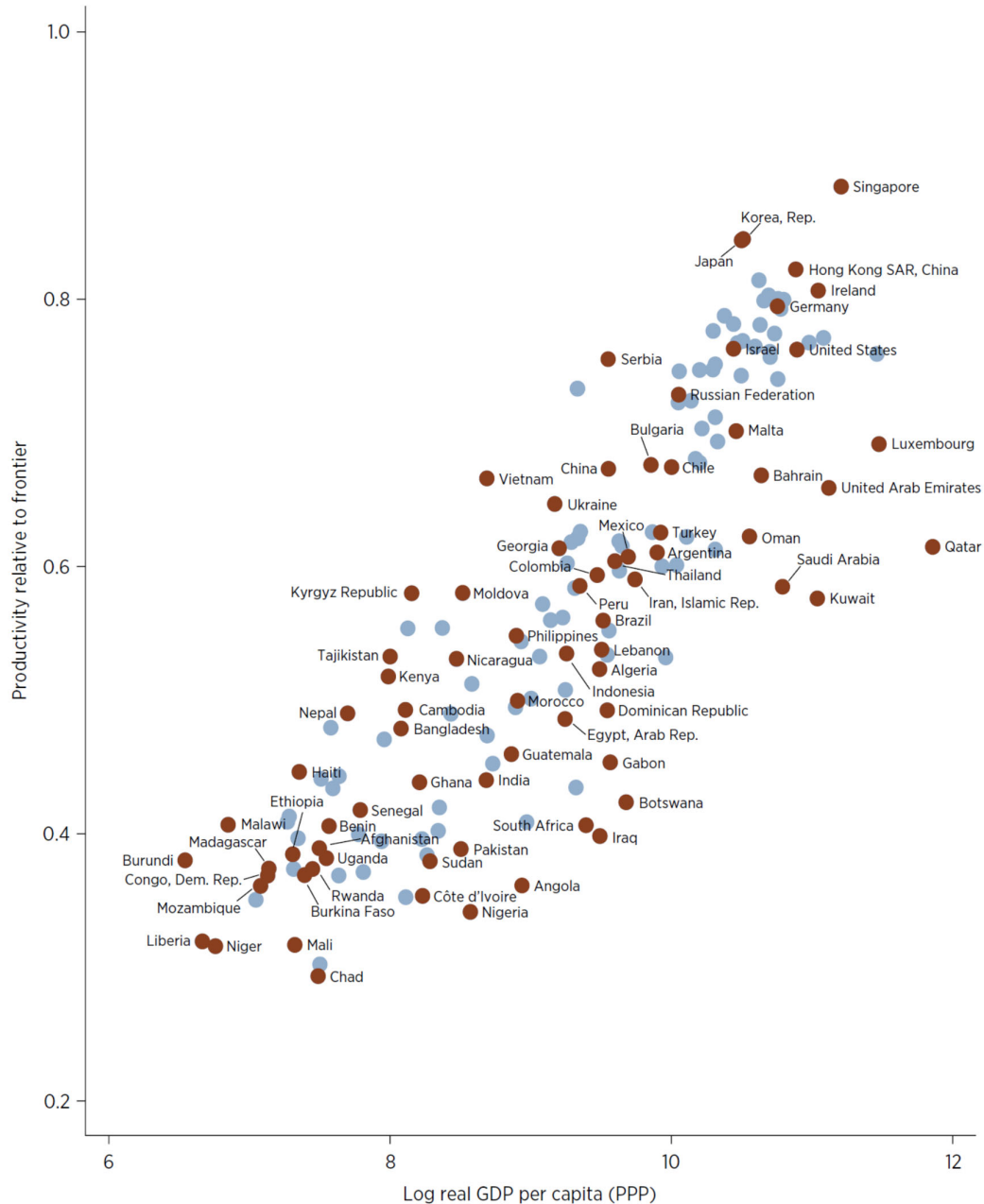


STEM: Science, Technology, Engineering and Mathematics. Non-STEM: Essentially Humanities and other Social Sciences.

Source: Pereira da Silva (2018).

¹⁵ See <http://www.shanghairanking.com/ARWU2018.html>.

Figure 2.12 Selected Countries: The Human Capital Index and Income per Capita, 2018



Source: World Bank, *World Development Report* (2019, p. 61).

2.3.3 A Secular Reduction in Women’s Labor Force Participation

In the past decades Morocco has achieved much progress in closing gender gaps in education enrollment. The female-to-male enrollment ratio at the primary school level rose from around 70 percent in the mid-1990s to 95 percent currently, and the gender gap at the secondary and tertiary levels narrowed significantly, with female enrollment up to 85 percent and 90 percent, respectively. Nonetheless, Morocco is not doing as well as most of the countries at the same level of income. A similar situation exists with respect to the adult

literacy rate. Moreover, an important gap remains between urban and rural areas; in the latter, 60 percent of women are illiterate compared to 35 percent for men.

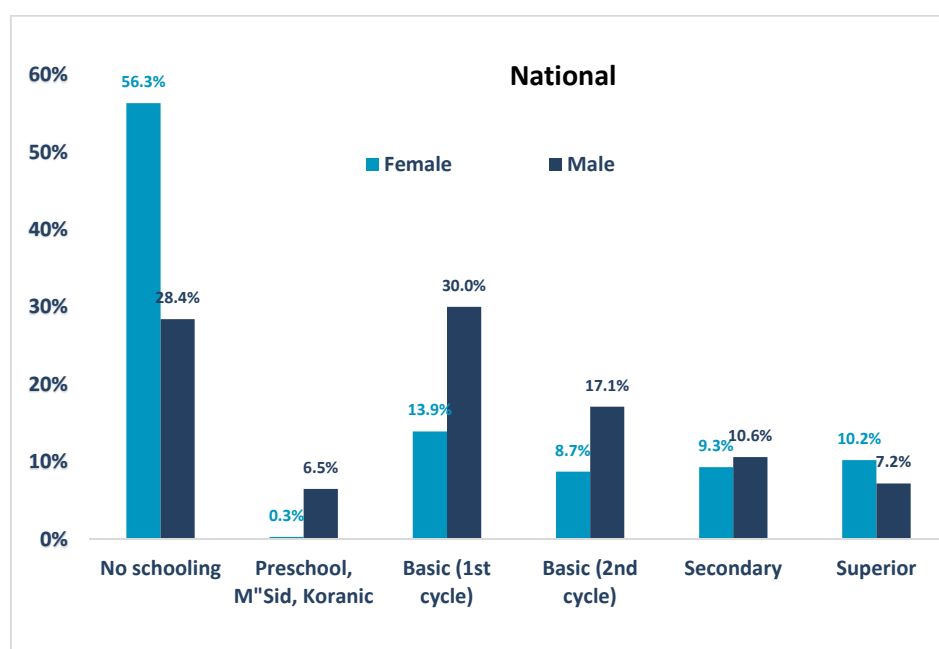
In addition, although a number of reforms of the legal framework have been adopted to promote gender equality in Morocco, women continue to face significant barriers. Indeed, the country's labor market is characterized by a range of gender disparities, including low labor force participation and high unemployment for women, and a persistent gender wage gap. Between 1999 and 2014, the participation rate dropped from 79.3 to 72.4 percent for men, and from an already low value of 30 to 26.6 percent for women (Table 2.1). The participation rate for women is just at the average for the MENAP oil importers' region and lags behind other countries at a similar income level. The decline in the female labor force participation rate has been mainly driven by falling participation for women over 25 years of age. There are also disparities between the rural and urban areas in terms of labor force participation, with the gender gap being wider in urban areas.¹⁶ Indeed, in urban areas only, the participation rate for women fell from 22.8 to 19.5 percent during the same period. In the active population, the share of women with no education was 56.3 percent on average during the period 1999-2013, compared to 28.4 percent for men. For those with a tertiary education, these shares are 10.2 percent for women and 7.2 percent for men (Figure 2.13). On average over the period 1999-2013, 53 percent of women are family workers, 32 percent are paid employees, 13 percent independent workers, and 0.6 employers. For men, these ratios are 19 percent, 44 percent, 31 percent, and 3 percent (Figure 2.14). Thus, women are disproportionately involved in home-based work and are under-represented as independent workers. In terms of sector of activity, over the same period, 60 percent of women are employed in agriculture, 15 percent in the industrial sector, and 24 percent in services; for men, these shares are about 37 percent, 12 percent, and 41 percent, respectively (Figure 2.15). Within the industrial sector, in 2013 women accounted for 44 of permanent jobs (compared to 48 percent in 1999), including 68 percent of permanent jobs in the textile and leather industry (compared to 71 percent in 1999) and 53 percent in the electric and electronics industry (compared to 56 percent in 1999; Table 2.2). Finally, for the country as a whole the share of women in part-time jobs in the industrial sector dropped from 39 percent in 1999 to less than 29 percent in 2013; for the urban sector only, this drop was from 12 percent in 1999 to less than 5 percent in 2013 (Figure 2.16).

¹⁶ However, rural women seem to function as a "shock absorber" for the economy, as they participate in the labor market in greater numbers when the economy is doing well but are the first to be excluded when there is a downturn (Verme et al., 2014).

Table 2.1 Morocco: Labor Force Participation Rate by gender, 1999-2016

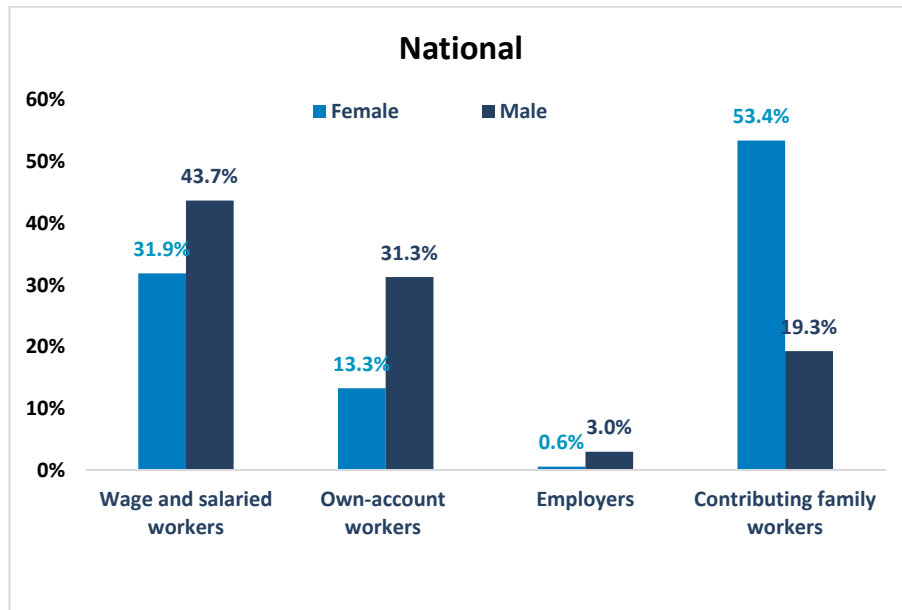
	National			Urban			Rural		
	1999	2016	1999-2016	1999	2016	1999-2016	1999	2016	1999-2016
Labor Force Participation (15+)	54.5	46.4	50.3	48.1	40.5	44.3	63.1	55.7	59.1
Labor Force Participation (15+), male	79.3	70.8	75.5	74.6	66.3	70.8	85.5	77.9	82.0
Labor Force Participation (15+), female	30.4	23.6	26.4	22.8	16.6	19.2	40.9	34.9	36.9
Ratio of male to female Labor Force Participation (15+), %	2.6	3.0	2.9	3.3	4.0	3.7	2.1	2.2	2.2

Figure 2.13 Morocco: Distribution of the Labor Force by education level and gender, Average 1999-2013 (in percent)



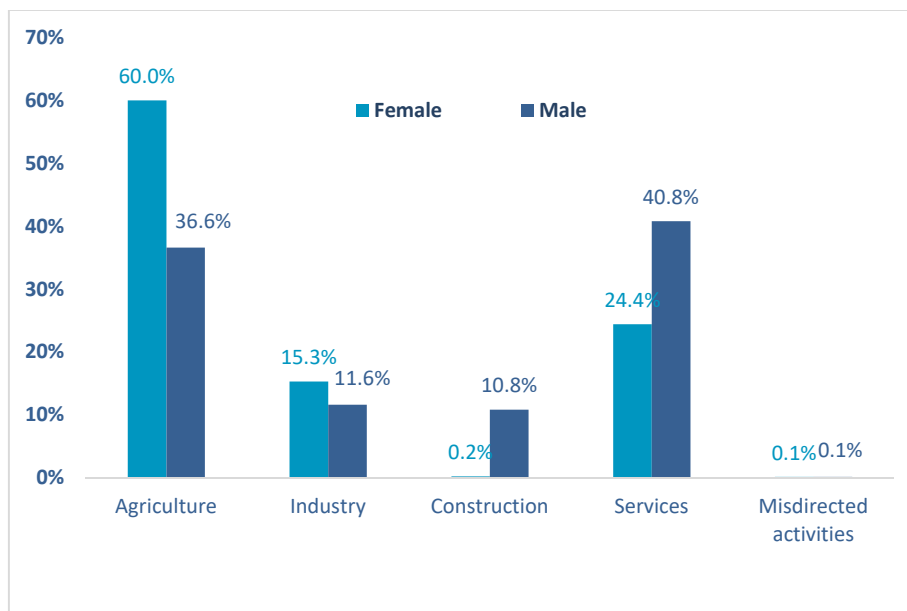
Source: Ragbi et al. (2017).

Figure 2.14 Morocco: Distribution of the Labor Force by work status and gender, Average 1999-2013 (In percent)



Source: Ragbi et al. (2017).

Figure 2.15 Morocco: Distribution of the Labor Force by sector and gender, Average 1999-2013 (In percent)



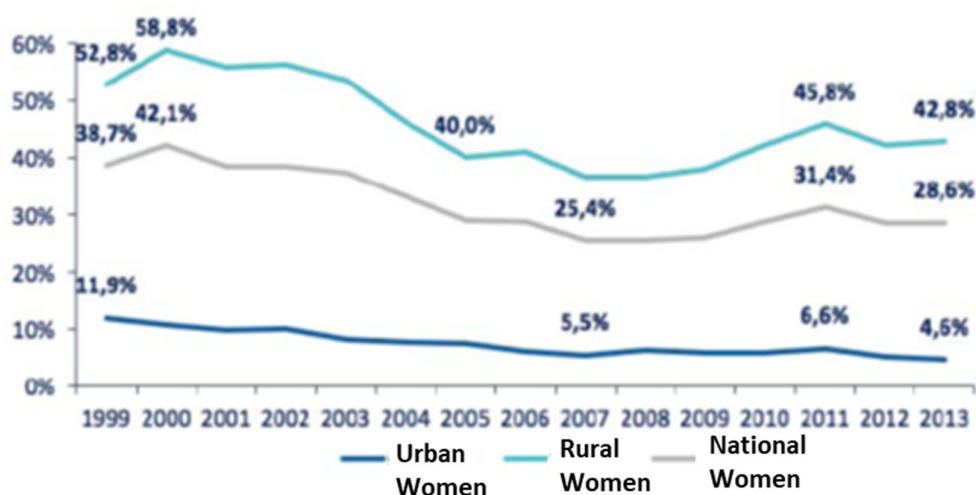
Source: Ragbi et al. (2017).

Table 2.2 Morocco: Share of Women in Permanent Employment in Industry, 1999-2013

	1999	2012	2013
Share of Women in Permanent Employment	48%	44%	44%
Food industry	44%	49%	47%
Textile and leather industry	71%	64%	68%
Chemical and Petrochemical industry	17%	18%	18%
Mechanical and metallurgical industry	12%	13%	15%
Electrical and electronic industry	56%	56%	53%

Source: Ragbi et al. (2017).

Figure 2.16 Morocco: Share of Women in Permanent Employment in Industry, 1999-2013



Source: Ragbi et al. (2017).

The low and declining participation rate for women in Morocco can result from a number of factors. Verme et al. (2014) found that the slow pace of growth, coupled with factors such as marriage, education, household composition, access to child care, perceptions of the role of the women in the household, and society's values regarding gender issues, tend to influence labor force participation. They argue, in particular, that the slow pace of structural transformation has not allowed sufficient creation of manufacturing jobs where women with a secondary school education could be employed.¹ Another perspective is offered by Agénor et al. (2018). They view women's decision to participate in the labor market essentially as a dichotomous, all-or-nothing choice in the presence of social norms that compel women to devote a significant share of their daily time to household chores and child rearing. They also point out that there may be indivisibilities in the time that women must allocate to market work – should they choose to be employed. In such conditions, the reduction in part-time jobs documented in Figure 2.16 may explain a low and declining rate of labor force participation by women. Thus, it is the features of the *growth model itself* that may be conducive to less participation by women in the workforce, rather than a degradation of microeconomic factors (such as less access to home care or child-care support facilities, as

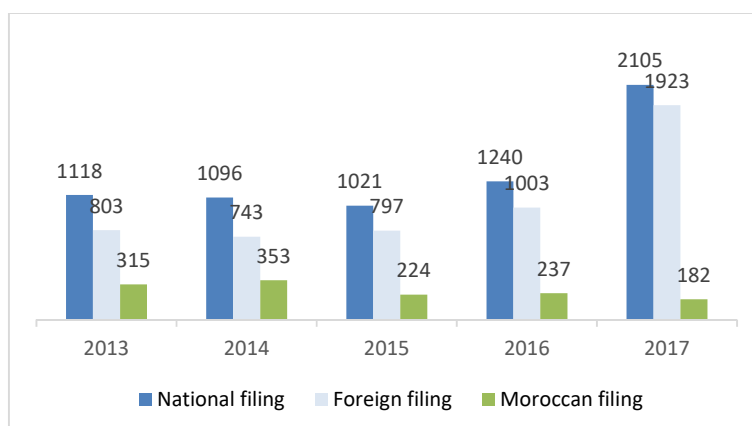
argued by some). Put differently, the issue of increasing women's participation in the labor market may need to be thought through at the fundamental level of the growth model itself. A key policy question, in that context, is thus how public policy can promote greater flexibility in employment practices.

2.3.4 An Improved, but still Insufficient, Innovation Capability

Morocco's innovation capability has improved in recent years. However, innovation activities continue to face a number of obstacles (see Djeflat, 2012). In principle, the country has a policy to promote innovation that is inclusive: it includes measures to assist the different phases of the process and the various stakeholders (companies, researchers, etc.), according to proven measures at the international level (support startup of innovative enterprises, the creation of eco-industrial clusters, and research-industry collaboration on R&D projects), and through facilitation institutions, such as establishing a single administrative point for grants or financing of innovative projects via the Moroccan Center for Innovation. The number of researchers per thousand individuals in Morocco's labor force is relatively high, compared to countries such as China, Brazil, Malaysia and Chile (see WIPO, 2011). Equally important, businesses fund almost 30 percent of R&D, and employ about 10 percent of R&D personnel.

However, policies to promote innovation are not performing well and the means employed remain relatively modest. R&D expenditure, which averaged 0.7 percent of GDP in recent years, is still modest. According to the Global Competitiveness index of the World Economic Forum (2018), Morocco is ranked 78 out of 140 countries for its innovation capacity. It is ranked higher for R&D expenditures (51) and quality of research institutions (51), but worse for international co-inventions (90) and patent applications (97). Indeed, while the overall number of patent filings has increased significantly in recent years, the proportion of patents filed by Moroccan residents has actually declined, from about 32 percent in 2014 to less than 9 percent in 2017 (Figure 2.17).¹ The fact that non-residents file the vast majority of patents in Morocco raises some fundamental questions about the dynamism of R&D activities by nationals. Similarly, according to the global innovation index of INSEAD-WIPO (2018), Morocco is ranked 76 out of 126 countries. In terms of the innovation input sub-index (institutions, human capital and research, and infrastructure), the ranking is 84, and in terms of the innovation output sub-index (knowledge creation, impact, and diffusion), the ranking is 69. Among lower middle-income countries, it is ranked No. 10 out of 30 countries, behind Vietnam, India, Armenia, and the Philippines.

**Figure 2.17 Morocco: Evolution of patent filings, 2013-2017
(in units)**



Source: OMPIC, Annual Report (2017).

As discussed in more detail in the context of the new growth model proposed in this study, increasing innovation capacity is essential for Morocco. In particular, innovation can help Moroccan firms face import competition from China and other low-wage countries in some manufacturing industries, both at home and in third-party markets.

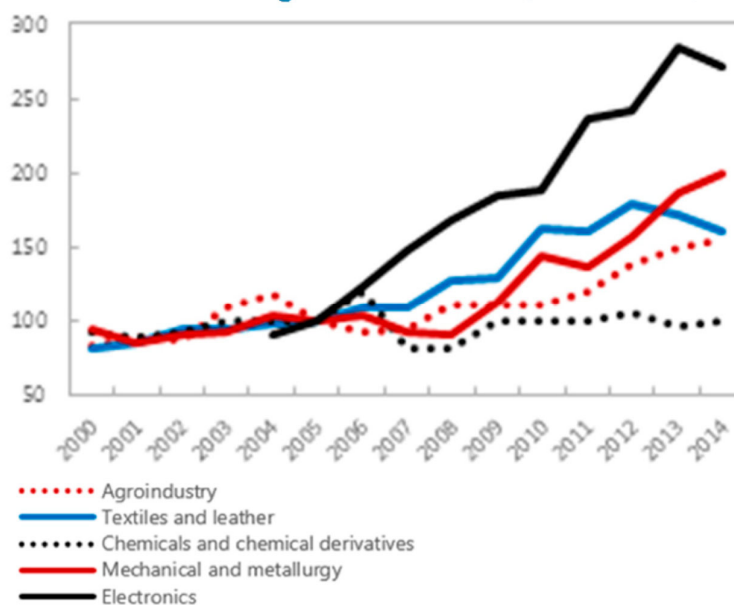
2.3.5 A Loss of Competitiveness in Some Key Production Sectors

Wage rigidities in Morocco's labor market have translated into a high cost of labor. A high minimum wage makes unskilled labor expensive – in effect, “pricing out” the country (as documented earlier) from some labor-intensive manufacturing industries. Skilled labor, in addition to the mismatch problem highlighted earlier, is also expensive. According to estimates by the World Bank (2008) given the level of productivity in Morocco, unit labor costs are about 30 percent higher than in competing countries. High relative unit labor costs (ULCs, defined as the ratio of labor compensation to labor productivity) have weakened the country's competitiveness. Indeed, analysis of the development of unit labor costs in the manufacturing sector shows that cost competitiveness – as measured by the ULC-based real effective exchange rate (REER) – has deteriorated in comparison to Morocco's major trading partners and competitors (Agénor and El Aynaoui, 2015, International Monetary Fund, 2017).¹ In particular, sectors with high relative ULCs, notably the textile and leather sector, have lost global market share, compared to emerging sectors, such as mechanical and metallurgic manufacturing, chemicals, and electronics, which have much lower relative ULCs. This is illustrated in Figure 2.18, which shows the evolution of the ULC-based REER for various industries over the period 2000-14. More generally, Morocco's exports remain fairly sensitive to the REER. According to estimates by the International Monetary Fund (2017), a 1 percentage point depreciation in the REER leads to a 0.2-0.4 percentage point increase in merchandise exports.

In addition, the relatively rigid exchange rate regime has hampered the appropriate adjustments in the real exchange rate, thereby also contributing to the deterioration of

Morocco's competitiveness and hampering its ability to move into higher-value added production and exports, away from light manufacturing. In mid-January 2018, Morocco moved toward a more flexible exchange regime, by increasing the currency band from ± 0.3 percent to ± 2.5 percent. The recent widening of the nominal exchange rate band has improved the economy's capacity to absorb domestic and external shocks, thus contributing to macroeconomic stability, but it is too early to assess whether it will help to improve competitiveness. Indeed, in addition to greater exchange rate flexibility, reducing relative labor costs (through labor market reforms involving possibly lower taxation of labor) and improving the quality and productivity of the labor force will be essential to improve external competitiveness and permit a shift toward more technology-intensive and high value-added production and export sectors in the longer run.

Figure 2.18 Morocco: Real Effective Exchange Rates, Selected Manufacturing Sectors, 2000-2014 (2005 = 100)



Source: International Monetary Fund (2017, Box 4).

2.3.6 An Improved Business Environment, but Barriers Remain

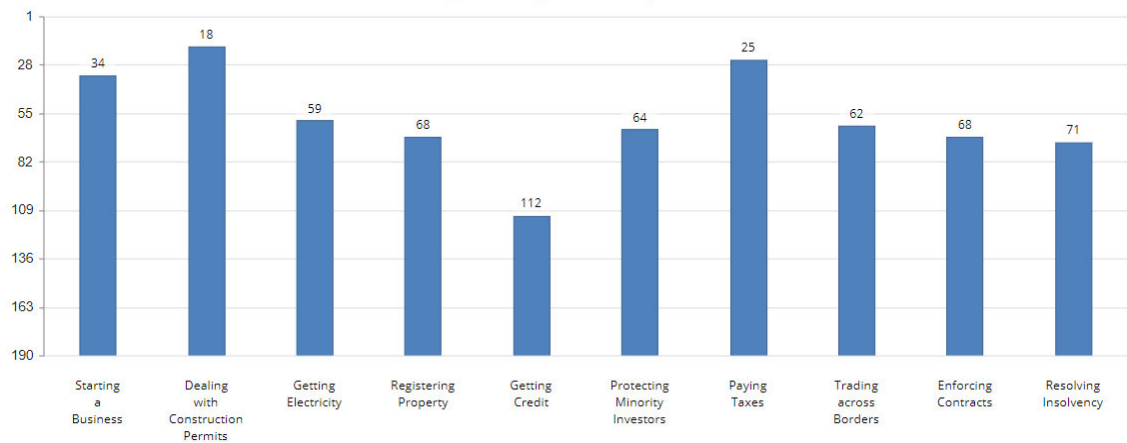
In recent years, Morocco has made significant progress in improving its business environment. According to the World Bank's 2019 *Doing Business* report, Morocco is ranked 60 out of 190 countries for the ease of doing business. Among the group of 20 MENA countries, Morocco is ranked 2nd, behind the United Arab Emirates and Bahrain. It also maintained its ranking in the best second category of countries regarding the ease of doing business.

However, significant progress remains to be achieved. Regarding the ease of obtaining loans, Morocco's ranking in the latest *Doing Business* report is only 105, and for insolvency procedures its ranking is only 71 (Figure 2.19). Corruption, inefficient government bureaucracy, access to financing, high rates of taxation and a poor quality of the workforce remain key constraints on the business environment (Figure 2.20). In particular, payroll taxes

and social security contributions remain high in Morocco, and this has a negative effect on the competitiveness of formal sector firms (in addition to the other factors discussed earlier), while at the same time encouraging firms to engage in informal activity and penalizing the recruitment of skilled workers. According to the OECD (2014, p. 176) for instance, Morocco fares poorly compared to industrial countries in terms of a “contract enforcement score” and an intellectual property index. These weaknesses tend to weaken confidence and may have an adverse effect on all aspects of economic activity.

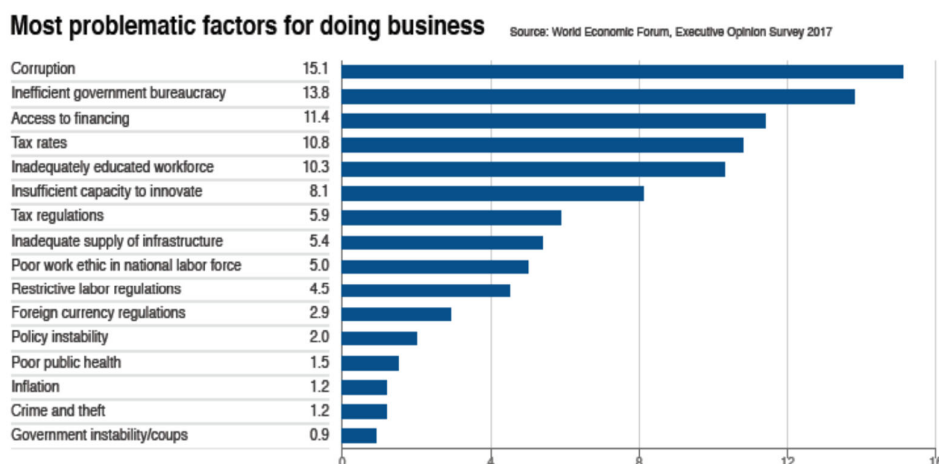
Constraints on the business environment also take the form of limited access to finance for small and mediums-size enterprises (SMEs). Indeed, SMEs experience much higher barriers to access to finance than larger and better-connected firms (either public or private). According to the World Economic Forum (2018), in terms of access to financing by SMEs, Morocco is ranked 56 out of 140 countries.

Figure 2.19 Morocco: Ranking according to various business environment criteria, 2019



Source: World Bank, *Doing Business* (2019).

**Figure 2.20 Morocco: Main constraints on the business environment
(Percent of responses)**



Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

Source: World Economic Forum, 2018.

2.3.7 A Lack of Product and Geographical Trade Diversification

Morocco's manufacturing exports have grown at an annualized rate of 8 percent between 1990 and 2015, from 24 percent of GDP in 1990 to 34 percent of GDP in end-2015. Imports have also increased significantly during that period. However, in 2012, 11 percent of markets (20 countries) and 2.9 percent of goods still accounted for 80 percent of exports (Ministry of the Economy and Finance, 2014). This situation has not changed much since. Thus, despite some significant structural changes in the past two decades, Morocco's external trade continues to lack diversification, both with respect to the products that the country exports and the destination of these exports.

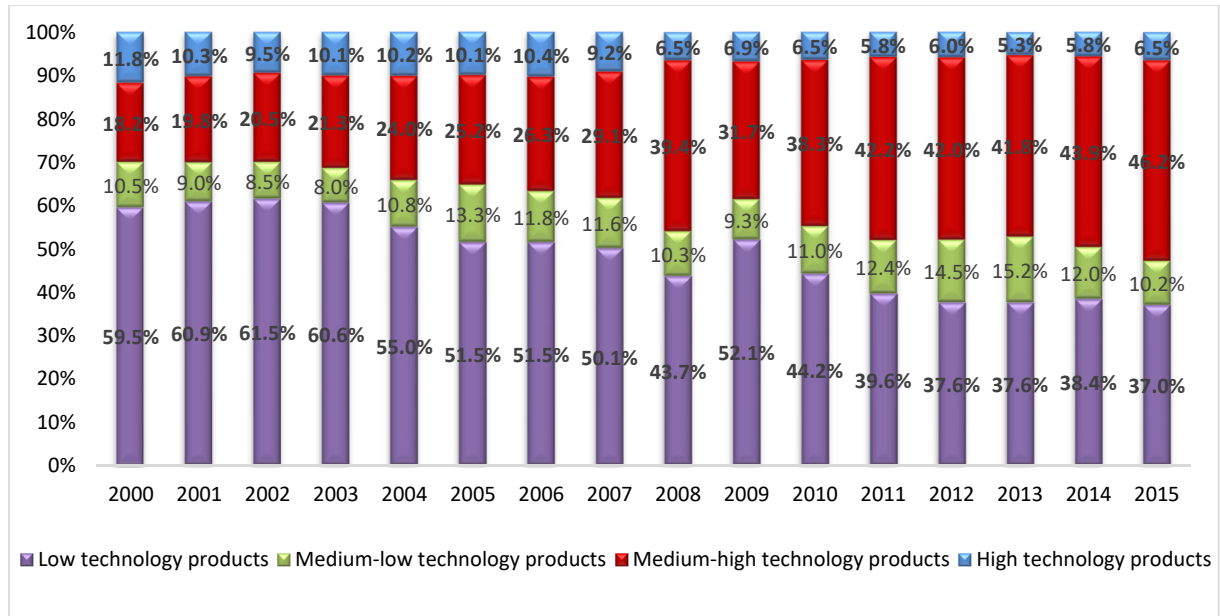
Lack of Product Diversification

In the past decade there has been a marked change in the composition of Morocco's exports. This shift was spurred in part by the implementation of the *Pacte National pour l'Emergence Industrielle* launched in 2009, the *Plan d'Accélération Industrielle* launched in 2014, and by increased foreign direct investment. As a result, the relative share of exports of textiles and light manufacturing has fallen, whereas exports of automobiles and other advanced manufactures (such as aerospace, chemicals and special chemicals, and pharmaceutical products) have increased. Cars have now overtaken phosphates as the country's largest export and represent about 40 percent of industrial exports.

However, although significant, this shift has not been as large as it could have been, as a result of the country's losses in external competitiveness. In addition, although these new industries employ a significant number of workers (about 150,000 people currently for the car industry for instance, up from 75,000 in 2013) and continue to create jobs at a more rapid

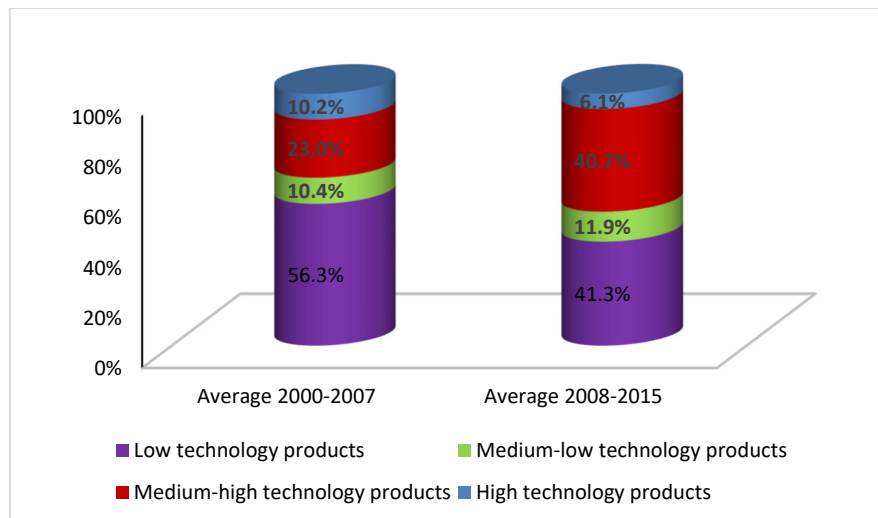
pace than elsewhere in the other sectors of the economy,¹ forward and backward linkages with these sectors remain limited. Greater integration of Moroccan firms in productive clusters and improved access to locally-produced components could help to reduce production costs and contribute to improve the competitiveness of the country's new industries.

Figure 2.21 Morocco: Manufacturing Exports as a function of their technology content, 2000-2015



Source: Ministry of the Economy and Finance (2017a).

Figure 2.22 Morocco: Manufacturing Exports as a function of their technology content, Period Averages, 2000-2007 and 2008-2015



Source: Ministry of the Economy and Finance (2017a).

Between 2000 and 2015, the share of exports of low-technology products has fallen from 59.5 to 37 percent, whereas the share of exports of medium-technology products has

increased from 18.2 to 46.2 percent (Figure 2.21). Between 2000-2007 and 2008-15, these shares have changed on average from 56.3 to 41.3 percent, and from 23 to 40.7 percent (Figure 2.22). For exports of medium-technology products, this has reflected the increase in foreign sales of phosphate derivatives, cars, and electric equipment and apparel. However, between the same two periods, the share of exports of high-technology products has actually fallen, from 10.2 to 6.1 percent, reflecting a drop in exports of electronic components. At the same time, the share of low-technology products in total exports (as well as total value added of the manufacturing sector), despite falling significantly, remains high. By and large, therefore, Morocco's exports remain insufficiently diversified and concentrated mainly on a limited number of low value-added products. This lack of diversification is well illustrated also by formal indices such as the Index of Export Quality (IEQ) and the Economic Complexity Index (ECI).¹ In particular, Morocco has the lowest ECI among resource poor countries in MENA. In addition, only about 20 percent of the country's exports are integrated in global value chains (GVC) compared to around 30 percent for Jordan and Lebanon (Hoekman, 2016). This lack of dynamism acts as a major constraint on the Moroccan economy's ability to reduce unemployment, improve living standards, and achieve high-income status.

Lack of Geographical Diversification

Despite some notable changes in the geographical structure of Morocco's external trade, it remains highly concentrated. Figure 2.23 and Figure 2.24 show changes in that structure between 2013 and 2017. France and Spain, and other European Union (EU) countries, remain the main destination on the export side. The predominance of exports to the EU over a longer period of time (2001-2017) is well illustrated in Figure 2.25. On the import side; this is also the case for France and Spain, but China has taken the third position – ahead of the United States. Indeed, imports from China have increased at a very rapid pace since 2003, while Moroccan exports to that country have lagged behind; as a result, Morocco has developed over time a sizable deficit with China (Figure 2.26). While China is likely to continue to grow at a rapid pace in the coming years, the growth prospects of the EU (and thus the expansion of Morocco's exports to that region) remain bleak. Moreover, trade with China needs to be rebalanced in some form, in order to reduce what has become a structural deficit for Morocco.

Figure 2.23 Morocco: Geographical destinations of exports, 2003 and 2017 (in billions of US \$)

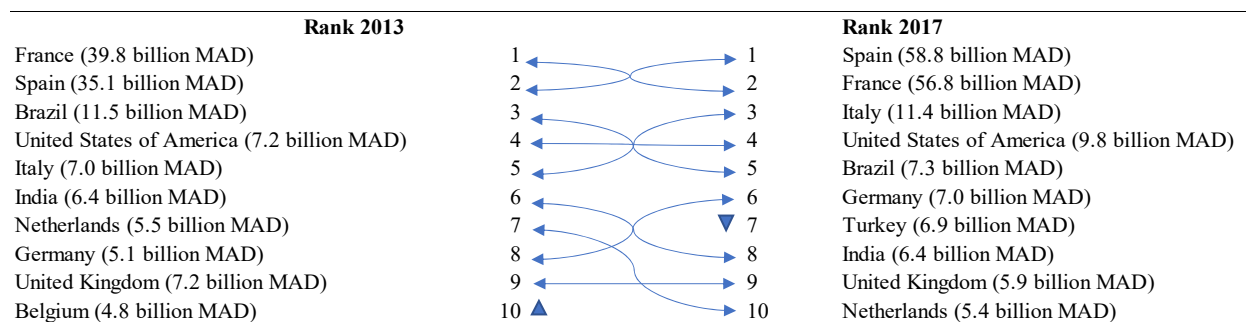
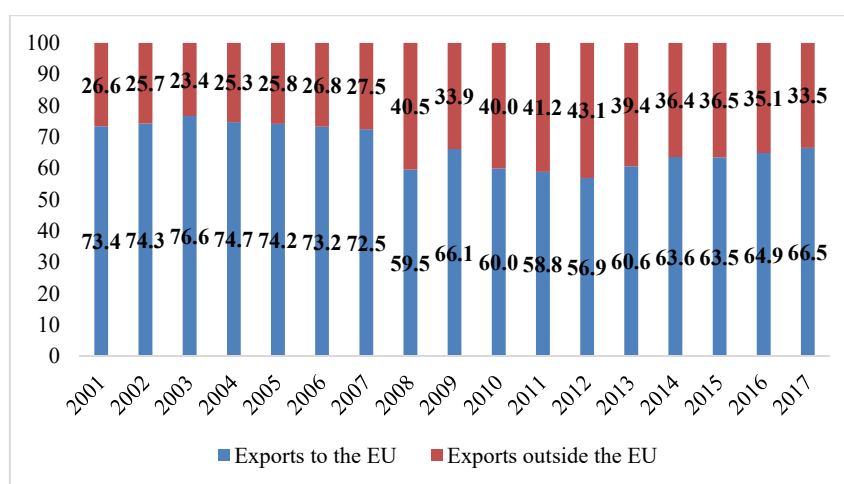


Figure 2.24 Morocco: Geographical provenance of imports in 2013 and 2017 (in billions of US \$)

	Rank 2013		Rank 2017
Spain (51.6 billion MAD)	1	← →	1
France (49.4 billion MAD)	2	← →	2
United States of America (28.6 billion MAD)	3	← →	3
China (26.4 billion MAD)	4	← →	4
Saudi Arabia (23.5 billion MAD)	5 ▲		5
Italy (20.4 billion MAD)	6	← →	6
Germany (18.2 billion MAD)	7	← →	7
Russia (16 billion MAD)	8	← →	8 ▼
Turkey (11.6 billion MAD)	9	← →	9 ▼
Iraq (11.4 billion MAD)	10 ▲	← →	10
			Spain (73.8 billion MAD)
			France (52.0 billion MAD)
			China (39.6 billion MAD)
			United States of America (29.9 billion MAD)
			Germany (26.4 billion MAD)
			Italy (25.4 billion MAD)
			Turkey (19.2 billion MAD)
			Portugal (13.5 billion MAD)
			United Kingdom (9.9 billion MAD)
			Russia (9.3 billion MAD)

Source: Foreign exchange office

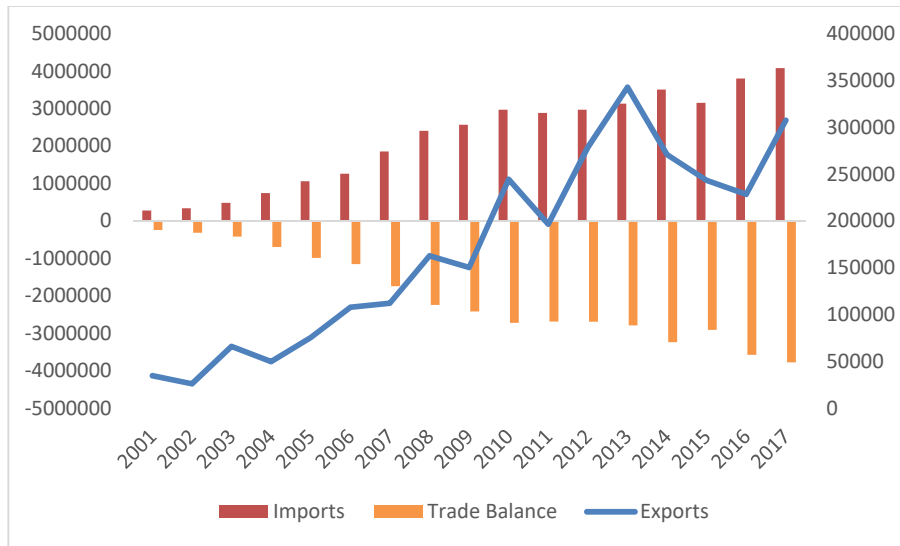
Figure 2.25 Morocco: Changes in exports to and from the European Union, 2001-2017 (Percent of total exports)



Note: European Union: France, Italy, Spain, Germany, Portugal, Netherlands, Belgium and Poland.

Source: International Trade Centre.

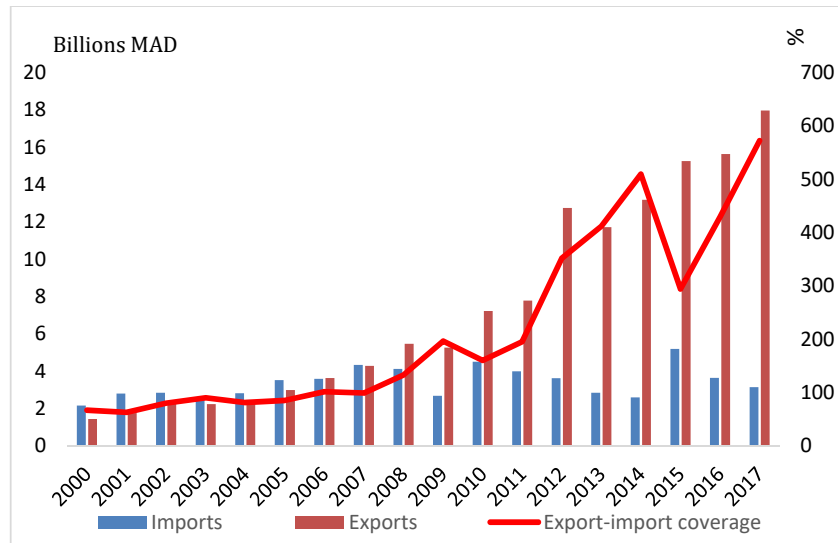
**Figure 2.26 Morocco: Trade balance with China, 2001-2017
(US\$ thousand)**



Source: International Trade Centre.

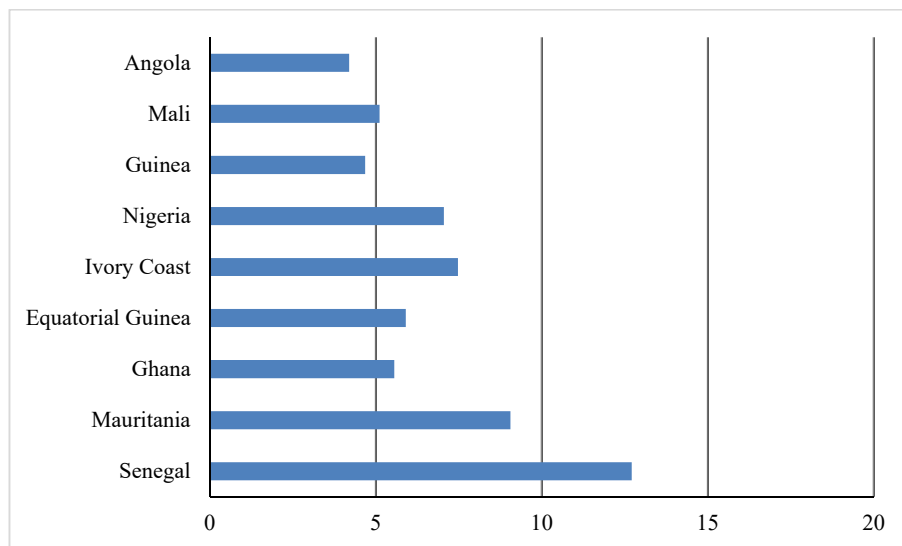
Morocco's trade with Sub-Saharan Africa has also increased in recent years, especially after 2011; Moroccan exports to the region largely exceed imports and Morocco generates a sizable surplus (Figure 2.27). Most of that trade is with West Africa, especially with countries belonging to ECOWAS (Figure 2.28).¹ But the composition of trade is highly skewed: Moroccan exports to the region consists mostly of food, drinks and tobacco, as well as semi-finished products, whereas imports consist mainly of food, drinks and tobacco, as well as energy (Figure 2.29). In addition, trade with some of the bigger countries of the region (the Democratic Republic of Congo, Nigeria, and South Africa) remains limited. Overall, trade in goods with Sub-Saharan Africa has not yet achieved its potential.

**Figure 2.27 Morocco: Evolution of trade with Sub-Saharan Africa, 2000-2017
(In billions of dirhams and percent)**



Source: Ministry of Economy and Finance, Foreign exchange office.

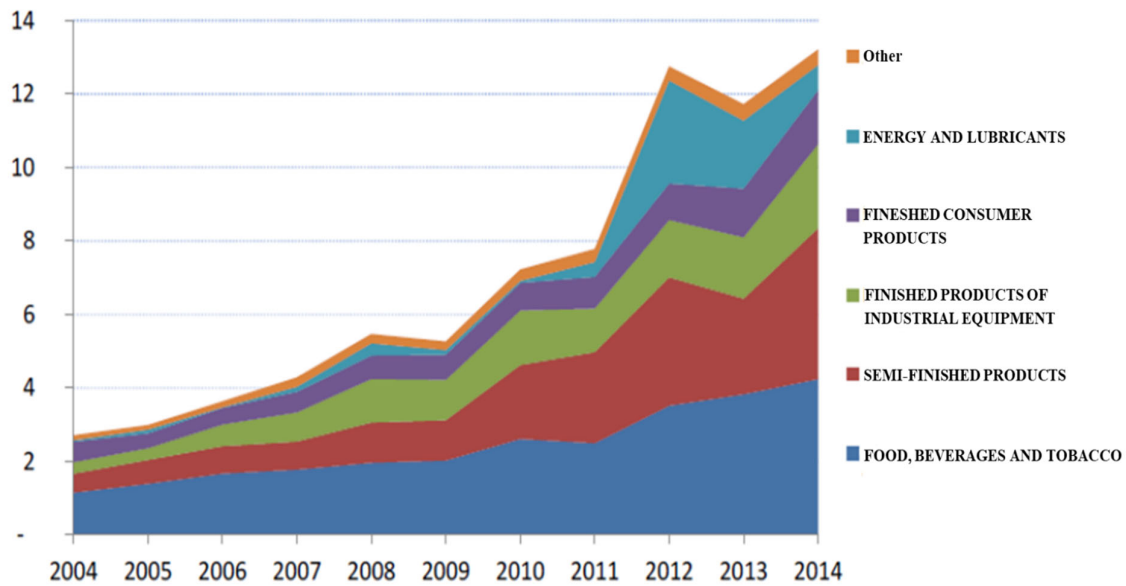
**Figure 2.28 Morocco: Geographical destination and to Sub-Saharan Africa, 2001-2017
(Percent of total exports)**



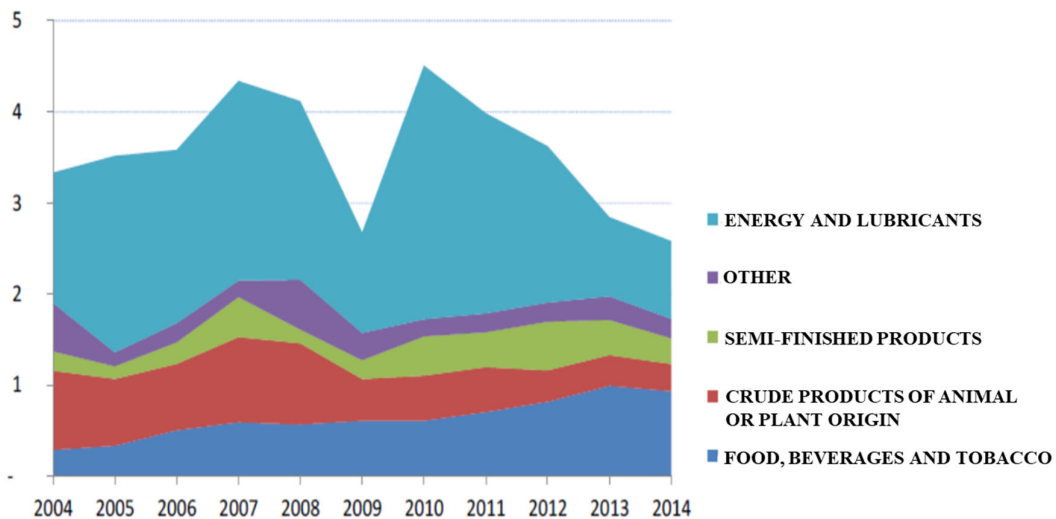
Source: Ministry of the Economy and Finance.

**Figure 2.29 Morocco: Composition of Exports to, and Imports from Sub-Saharan Africa, 2004-2014
(in billions of dirhams)**

Exports



Imports



Source: Ministry of the Economy and Finance (2015b).

2.4 Has Morocco Fallen into a Middle-Income Trap?

Since the 1950s, rapid growth has allowed a significant number of countries to achieve middle-income status. However, very few have made the additional leap needed to become high-income economies. Rather, many have gotten stuck in what has been called a *middle-income trap* (a term apparently coined by Gill *et al.*, 2007), generally characterized by a sharp

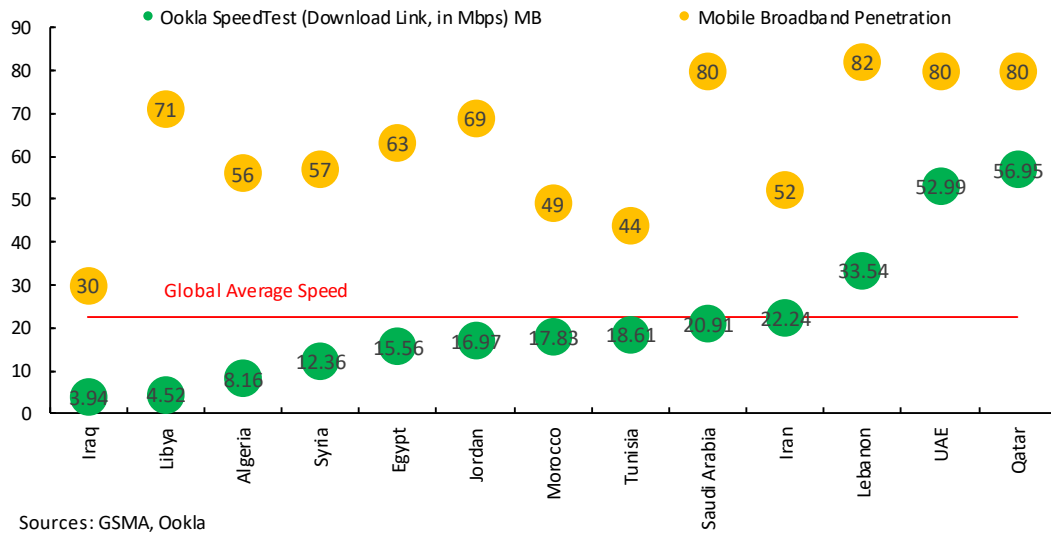
deceleration in growth, following a period of sustained increases in per capita income. Table 2.3 shows experiences of countries that were able to achieve high-income status, and those that failed, during the period 1960-2014. Apart from a number of small or island countries (Cyprus; Hong Kong SAR, China; Malta; the Seychelles; and Singapore, in particular), the others are mostly European and Asian countries. So far, no country in MENA has been able to achieve high-income status, and many of them are often described as being stuck in a middle-income trap.

The causes of a middle-income trap are multiple (Box 2.1).¹ They include diminishing returns to capital, exhaustion of cheap labor and imitation gains, poor quality of human capital, inadequate contract enforcement and intellectual property protection, misallocation of talent, inadequate access to advanced infrastructure, and financing constraints. These causes are often *complementary* in their ability to explain why a country may be unable to continue its transition from middle-income to high-income status. As noted earlier for instance, Morocco fares poorly in terms of the enforcing contracts and protecting an intellectual property index. These weaknesses are detrimental not only to economic activity in general, but also to innovation activities. Indeed, inadequate intellectual property protection may act as a major constraint on the incentives to engage in innovation, because the return to that activity is not certain. As a result, this may make it more difficult to secure access to finance. The evidence on the causes of middle-income traps, which includes both descriptive contributions and formal econometric studies, is consistent with this type of interaction.

Based on the above assessment of the current growth model, an important question to ask is whether Morocco has fallen into a middle-income trap. As discussed earlier, for several decades the country's growth has been fueled by high rates of public investment. However, there is evidence that over time public capital accumulation has also suffered from efficiency problems and diminishing marginal returns: in particular, the incremental capital-output ratio (ICOR) increased from an average of less than 3 in the 1990s to a range of 8 to 10 in the past decade. Moreover, the quality of human capital remains poor, access to advanced infrastructure remains limited, and firms continue to face significant financing constraints.

For instance, in Morocco, as in MENA in general, there is a high mobile penetration rate but access to broadband remains limited (Figure 2.30).¹

Figure 2.30 MENA Region: Internet Penetration, Recent Years in percent



Thus, in several ways, and despite the country’s achievements, Morocco exhibits *some of the symptoms* of a middle-income trap. Nevertheless, the view taken in this paper is that Morocco has *not yet* fallen into a middle-income trap. At the same time, if appropriate reforms are not implemented in a timely fashion, there is a *risk* that the country may fall into one. There is therefore a *window of opportunity* for policy makers, roughly the next 6-8 years or so, to implement the much-needed reforms that would help the country avoid falling into a middle-income trap.

Table 2.3 Convergence and Non-Convergence Experiences, 1960-2014

Economy	Real GDP per capita relative to the US in 1960	Real Gdp per capita relative to the US in 2014	Year the economy graduated to high-income	Average GDP per capita growth rate, during middle income	Average per capita GDP growth rate, 1960-2014
<i>Graduated to high income</i>					
Chile	0.29	0.413	2011	0.0243	0.0244
Cyprus	0.216	0.547	1979	0.0585	0.0343
Greece	0.275	0.497	1970	0.076	0.0235
Hong Kong SAR, China	0.213	0.991	1976	0.0564	0.044
Ireland	0.368	0.933	1971	0.0381	0.0321
Japan	0.304	0.676	1967	0.0819	0.0327
Korea, Rep.	0.067	0.671	1993	0.0665	0.05568
Malaysia	0.147	0.443	2011	0.0399	0.0398
Malta	0.128	0.605	1991	0.0558	0.0434
Portugal	0.238	0.545	1990	0.0423	0.028
Seychelles	0.363	0.494	1979	0.0466	0.0323
Singapore	0.151	1.388	1980	0.0678	0.0499
Spain	0.326	0.648	1967	0.0693	0.0265
Taipei China	0.137	0.848	1986	0.0644	0.0555
<i>Not graduated to high-income</i>					
China (PRC)	0.066	0.239	..	..	0.0451
India	0.059	0.1	..	..	0.0322
Indonesia	0.054	0.186	..	..	0.0336
Mauritius	0.205	0.343	..	..	0.0315
Panama	0.155	0.377	..	..	0.0338
Romania	0.08	0.398	..	..	0.0397
Sri Lanka	0.157	0.198	..	..	0.0374
Thailand	0.064	0.267	..	..	0.047
Tunisia	0.09	0.198	..	..	0.0308

Note: Sample consists of 75 middle-income economies in 1960. A convergence success refers to an economy that advanced from a middle-income status to a high-income status during the period 1960-2014, or an economy whose per capita GDP increased at an average annual growth rate over 3.0 per cent over the period, even though it has not graduated to a high-income status.

Source: Lee (2018).

Box 2.1 Causes of Middle-Income Traps

The causes of middle-income traps are multiple. They include diminishing returns to capital, exhaustion of cheap labor and imitation gains, poor quality of human capital, inadequate contract enforcement and intellectual property protection, misallocation of talent, inadequate access to advanced infrastructure, and financing constraints. Some of these causes are consistent with the evidence that views productivity slowdowns as the main source of middle-income traps; they differ from each other mainly in terms of the reason why these slowdowns occur. As such, they are likely to be complementary in nature, that is, they could be present in combination in any particular case.

Diminishing returns to capital. In the initial stages of development, high rates of investment (especially by the public sector) generate strong gains in terms of growth -- in the case of public investment either directly through

its impact on the productivity of private inputs, or indirectly by fostering private investment. Sustained rates of capital accumulation have indeed been a key feature of the experience of East Asian countries in the aftermath of the Second World War (see, for instance, Commission on Growth and Development (2008)). But over time, capital accumulation becomes subject to diminishing marginal effects. The growth benefits therefore get eroded over time.

Exhaustion of cheap labor and imitation gains. During an initial phase of rapid development, low-cost labor and imitation of foreign technology are critical to generate high growth. During that phase, countries can compete in international markets by producing labor-intensive, low-cost products using technologies imported from abroad. Large productivity gains can be achieved at first through a reallocation of labor from low-productivity agriculture to higher productivity manufacturing. Because producers of nontraded goods must compete for labor with exporters, wages tend to increase, thereby contributing to expand the domestic market. However, once middle-income status is reached, the pool of underemployed rural workers shrinks while wages continue to rise, thereby eroding competitiveness. Productivity gains from sectoral reallocation and technology catch-up are eventually exhausted, while rising wages make labor-intensive exports less competitive on world markets. The productivity slowdown translates into a growth slowdown.

Poor quality of human capital. Poor quality of human capital acts as a constraint on the ability to absorb more advanced foreign technologies and on the expansion of innovation activities, thereby preventing the productivity growth that may allow a country to sustain high levels of economic growth, after the gains from cheap labor and imitation are exhausted. The inability to improve the quality of the labor force as countries get closer to the world technology frontier is an important factor in understanding not only the emergence but also the persistence of middle-income traps.

Misallocation of talent. Individuals with potential ability to be highly productive in innovation activities may end up working in sectors that are less beneficial in terms of growth, because wages there are higher or less uncertain. High wages in the financial sector, for instance, may induce individuals with highly technical skills, capable of doing very well in innovation-based activities, to work in that sector instead. The issue therefore is the (sectoral) *distribution* of human capital, rather than the accumulation of human capital *per se*.

Lack of access to advanced infrastructure. Advanced infrastructure, which consists of advanced information and communication technologies (ICTs) in general, and high-speed communication networks in particular, is essential to increase productivity in production and innovation activities. Access to broadband, in particular, has been shown to facilitate the buildup of domestic and international knowledge networks, thereby promoting dissemination and research as well as innovation and growth. Conversely, lack of access to this type of infrastructure can be an important cause of a middle-income trap.

Finance constraints. Access to finance represents a major constraint on innovation and growth in developed and developing countries alike. A key reason for that is the inherent difficulty for firms engaged in innovation to resort to external finance. Without innovation, countries may be unable to move along the world production possibility frontier and engage in high-productivity activities.

Early empirical evidence on these various causes emphasized the productivity slowdowns that occur after the exhaustion of gains from low-cost labor and technological catch-up (Eichengreen et al., 2012). In a more recent study, Lee (2018) found that countries that were successful in the transiting from middle-income to high-income status (as documented in Table 2.3) were able to maintain strong human capital, a high working-age population ratio, the effective rule of law, low prices of investment goods, and high levels of high-tech exports and patents. Those that were unable to make that transition, and ended up “stuck” in a middle-income trap, faced unfavorable demographic, trade and technological factors, excessive investment expansion (which can be related to the diminishing marginal returns to capital alluded to earlier), hasty deregulation and hurried capital account opening.

3. A NEW GROWTH MODEL TO AVOID THE MIDDLE-INCOME TRAP

A key implication of the foregoing discussion is that, to improve living standards and avoid the middle-income trap, Morocco needs a new growth model. Moreover, with a labor force expected to expand by about 2.2 percent a year over the next few years, the new model will need to generate growth rates well in excess of 4 percent annually – just to absorb all new labor market entrants and prevent a further degradation of unemployment from its current high level of about 10 percent.¹

At the same time, it is clear that in a context of increased competition from low-wage economies in East Asia and (increasingly) Sub-Saharan Africa, Morocco can no longer rely on labor-intensive manufactured exports as a growth strategy. Moreover, a growth model based on labor-intensive light manufacturing cannot resolve the problem of unemployed university graduates.¹ To avoid the middle-income trap, where imitative activities predominate, a new growth model based on increased quality of human capital, innovation and higher value-added production in new and existing tradable sectors, and greater integration in global value chains, is essential. Such a model, to the extent that it promotes greater diversification in the industrial sector, can provide significant employment opportunities for better educated workers. In turn, this implies that Morocco must make major improvements on three fronts: improve the quality of education; strengthen firms' ability to absorb new technologies and increase their capacity to innovate, and improve competitiveness (by lowering of unit labor costs, adopting new technologies to reduce costs of production, and creating flexible business models); and improve the role of the state.¹ A more detailed operational perspective on this growth model is provided next.

3.1 Main Pillars of the Proposed Growth Model

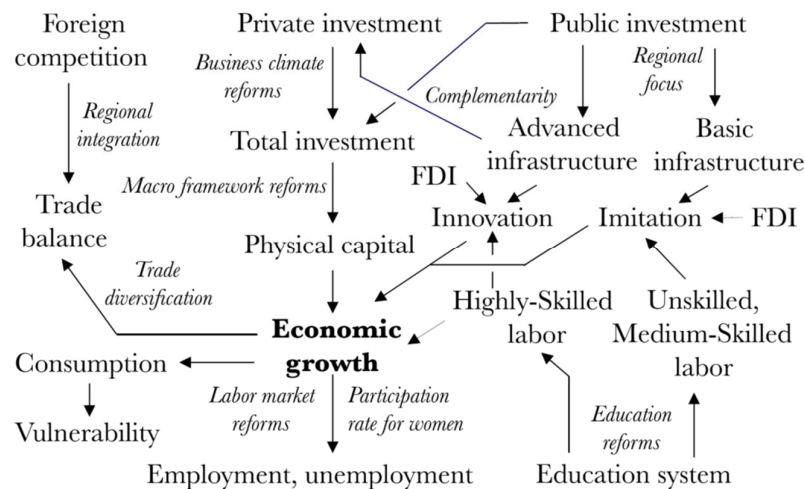
A stylized diagram of the growth model for Morocco proposed in this paper and its implications for the transformation of the industrial or manufacturing sector – mostly the transition from unskilled labor-intensive activities and based on imitation to those that are skilled labor-intensive, technology-intensive, and innovation-based – is provided in Figure 3.1. The proposed Model is based on six pillars:

- i) Improve the quality and adequacy of human capital, to promote productivity and reduce skills mismatch, and reform the labor market, in order to reduce production costs and facilitate the adjustment of supply and demand; and enable the country to better capitalize on the opportunities created by the new international division of labor;
- ii) Promote innovation and economic diversification (both horizontal and vertical), in part through the adoption of new technologies by firms and investment in key sectors;
- iii) Improve the business environment, in order to help the country to evolve towards the world technology frontier and compete in international markets for goods and services that are intensive in technology and skilled labor;

- iv) Promote women’s return in the labor force;
- v) Encourage geographical trade diversification; and
- vi) Reconsider the role that the state should play in facilitating this transition, particularly in terms of investment incentives for private agents, the type of public services that would increase private investment and the productivity of production inputs in strategic sectors, such as agriculture, manufacturing, phosphates, and renewable energy, and in terms of supporting a regional integration strategy.

The first four pillars are broadly in line with recommendations based on the evidence on policies implemented in countries that were able to avoid falling into a middle-income trap (Box 3.1). The last two are more specific to Morocco.

Figure 3.1 Morocco: Schematic View of the Proposed Growth Model



Box 3.1 Escaping from Middle-Income Traps: Policy Implications

As noted in Box 2.1, the causes of middle-income traps are multiple and in practice can be observed in any combination (poor quality of human capital interacting with lack of finance, for instance). This makes escaping from a middle-income task a particularly arduous task from the perspective of public policy. Often, moving away from a middle-income trap and initiate the transition to high-income status may require a combination of major policy changes. Small changes in policies may not be sufficient; a critical mass of well-targeted reforms may well be indispensable.

Based in part on the causal factors highlighted in Box 2.1, public policies that can help a country avoid falling into, or escape from, a middle-income trap can be classified as follows.

Raising the quality of education. As noted earlier, the quality of education may be a key constraint that prevents a country from transitioning to higher income status. More generally, increasing knowledge absorption capacity, namely, the ability to adopt and capitalize on ideas from more advanced economies and technology transfers (not only through international trade but also through foreign direct investment), is key to promote innovation. From that perspective, targeted microeconomic reforms of the education system (such as increases

in teacher-student ratios, better incentives for teachers, improved access to the internet in schools, and so on) may be critical.

Promoting innovation. To do so requires a range of reforms. First targeted government subsidies to R&D may be needed, to promote specific activities with a potentially high social marginal return. To the extent that they help to prop up wages in the innovation sector and reduce the inherent degree of uncertainty associated with the returns to innovation, temporary public subsidies can also help to mitigate the misallocation of talent alluded to in Box 2.1. However, subsidies to innovation are unlikely to work if the binding constraint on productivity growth in the innovation sector is related to another factor, such as the lack of access to advanced infrastructure. In that case, promoting innovation requires a combination of policies. Second, ensuring contract enforcement and protection of property rights is also important to promote innovation. Poor contract enforcement and lack of protection of property rights (especially intellectual rights) are key weaknesses in developing countries in general, and Morocco in particular (see text).

Promoting advanced infrastructure. As noted in Box 2.1, lack of access to advanced infrastructure may be an important barrier to the development of national and international knowledge networks and the increase of productivity. With a sufficiently large increase in investment in advanced infrastructure, either by the state (through a reallocation of investment spending and improved efficiency of expenditure) or by a combination of the state and the private sector (through public-private partnerships), productivity in the R&D will increase, thereby fostering the creation of ideas. In addition, by raising wages, higher productivity will increase the number of people who choose to invest in the advanced skills needed to operate in that sector – thereby mitigating the misallocation of talent alluded to earlier (see Box 2.1).

Improving access to finance. Informational asymmetries are a key constraint on the ability of firms in general – and small enterprises that lack collateral, credit histories, and connections, in particular – to secure external funds for the financing of production and innovation projects. Moreover, access (or lack thereof) to finance may constrain growth not only by increasing the cost for lenders of monitoring innovation activities, but also by altering incentives to acquire skills. Indeed, the degree to which firms innovate and the distribution of skills among workers (which conditions the development of innovation activities) are jointly determined; lack of skills and poor access to finance are interrelated. These interactions can lead to a middle-income trap, characterized by a misallocation of talent and a high cost of financial intermediation.

In this context, public policy aimed at mitigating the impact of these imperfections (or, more specifically, those aimed at reducing the cost of monitoring R&D projects) may allow a country to avoid falling into, or to escape from, that trap. Ensuring access to more funding sources may lead to more intensive innovation, more successful R&D projects which, in turn, may result in lower unit monitoring costs, thereby helping to further promote financial intermediation, innovation, and economic growth. Policies that are aimed directly at mitigating asymmetric information problems and reducing unit monitoring costs include the creation of credit bureaus or registries that help to collect, analyze, and disseminate information about potential borrowers to lenders.

3.2 Reforming the Education System and the Labor Market

As noted earlier, improving the quality and adequacy of human capital is essential to promote productivity and reduce skills mismatch. This is also important to promote innovation. To that effect, it is critical for Morocco to implement a range of reforms of its education system and labor market regulations.

Indeed, sustained effort must be made in the coming years to adapt both the quantity and quality of labor to better match the type of skills produced by the education system and those demanded by the market, facilitate the upward movement along the technological frontier, and the promotion of innovation activities.¹ Empirical studies have shown that the quality of labor also plays an important role in the promotion of foreign direct investment,

which in turn can lead to the development of a range of new, high-value added sectors. Strengthening the quality of the education system can thus create a *virtuous circle*, likely to accelerate the country's process of industrial transformation and contribute to a sustainable increase in the economic growth rate. At the same time, one needs to be realistic; reforming the education system will take time, so the impact on the quality of researchers (which depends on an increase in the quality of the country's tertiary education), will necessarily be slow. These reforms must therefore be complemented early on by policies aimed at boosting the productivity of the existing workforce, by strengthening the continuing education system and (as discussed later) increasing investment in advanced infrastructure and providing greater public support for R&D activities.

As also noted earlier, the labor market in Morocco is subject to many distortions, largely related to the institutional and regulatory characteristics of this market: a high minimum wage relative to per capita income, strong dismissal restrictions, high non-wage labor costs, a job matching process with unproven efficiency, and unions with strong bargaining power. These distortions contribute to high labor costs and downward rigidity in real wages. In turn, these distortions complicate labor market adjustment and remain a major constraint on growth and job creation – thereby contributing to high unemployment (especially for the youth), both directly and indirectly. Labor market reforms are thus an essential part of the new growth strategy.

3.3 Promoting Innovation and Economic Diversification

In the context of the proposed growth model, the key issue for Morocco's industrial sector (and manufacturing in particular) is to continue to progressively divert from labor-intensive activities (such as textiles and clothing) that are subject to increased competition worldwide and develop new areas of skill-intensive and technology-intensive production. This transformation of the industrial sector – in effect, the passage of imitation-based activities to high productivity, innovation-based activities – will allow Morocco to penetrate new markets and expand exports, and to better position itself in global value chains.¹

From the perspective of promoting this agenda, there are three strategic sectors of the Moroccan economy – in addition to the phosphates sector – where access to new technologies and greater innovation are crucial in terms of their potential to promote growth and employment: agriculture, high-end tourism, and renewable energy.¹ Beyond the policy characteristics specific to each sector, they all face the same challenge – adapting to a new international environment, and redeploying resources to promote innovation, in order to move to a more favorable position on the world technology frontier.

3.3.1 Promoting Innovation and Increasing Productivity in Agriculture

The ongoing debate on Morocco's new growth model puts agriculture back to the top of the policy agenda with a renewed interest on what role it could play to decisively put Morocco on a path of sustained, high and inclusive growth over the next decade.

While its share has been declining, the agricultural sector remains a key sector of Morocco's economic structure. The agri-food sector represents about 15 percent of GDP, 23

percent of exports, and close to 39 percent of employment. The agro-industry is the country's second-largest industrial subsector. It represents about 27 percent of industrial GDP and 3 percent of total GDP. The sector's value-added is estimated at around MAD 30 billion (US\$3 billion). Agribusiness employs up to 143,000 people and is composed of 2,050 industrial units (mainly small and medium-sized companies). Agribusiness output is mostly destined for the domestic market, with exported goods accounting for only 12 percent of total industrial exports.

For a long time, the agricultural sector was the main driving force of Morocco's economic growth. Between 2000 to 2015, agricultural GDP was the fastest growing sector in Morocco. Although its share in production has fallen over time, it remains today a significant source of growth. Morocco's GDP growth fluctuates in line with the volatility of weather-driven agricultural activities.

Agricultural productivity has been rising since 2001 as shown by the positive trend of agricultural value added per worker observed in Figure 3.2. This reflects large and sustained public investments made by the government to spur agricultural productivity and production, including mechanization of agricultural processes, improvement of agricultural workers' conditions, and training provided to farmers.

Figure 3.2 Morocco: Agriculture value added per worker, 1991-2017 (1991 = 100)



Source: WDI.

Yet, the agricultural sector has not been able to reap its full potential. Increase in production has mainly been the result of *factor accumulation* and the *extensive margin* of production. The World Bank (2016) points out that the sector has not transformed deeply enough to compete on international markets and remains a sector in transition. Value chains remain limited. This calls for a new model that will favor innovation (adoption of new innovative technologies, management of production factors, and regional and worldwide networks) to enable Morocco's agricultural sector to face the challenges of a rapidly changing international environment.

Innovation in the agricultural sector will bring the needed *model shift*, spur growth through the *intensive margin* (as opposed to the extensive margin), and realize the structural transformation of the sector. Productivity gains associated with the intensive margin will help Morocco better integrate international value chains, compete on international markets, raise farmers' incomes, and lift millions of them out of poverty, and break the rural-urban divide.

There are a few policy actions needed to integrate innovation at the heart of the agricultural sector strategy, including the adoption and usage of new digital technologies, improving information flows, and the role of the public sector. Lessons can be learned from successful country experiences.

Morocco can leverage new technologies to leapfrog its agricultural sector. Technology will spur productivity growth in agriculture. The country can exploit new on- and off-farm, low-cost, data-intensive technology applications that are being used with potentially big benefits to agriculture. On the farm, such innovations as self-driving tractors and subcutaneous implants that monitor livestock health enhance farm productivity.

In Morocco, information flows on agriculture are limited. Matching farmers with consumers is difficult. Morocco should recourse to digital technology to improve information flow and matching farmers to consumers. Digital technology can substantially reduce the costs of matching buyers and sellers—not to mention the costs from market failures that pervade the agriculture-food system, such as market power, information asymmetries, and transaction costs. These digital technologies thrive globally. But their adoption is slow in Morocco and the MENA region in general. By adopting digital platforms such as Digital Green or Plantix, Morocco can dramatically increase its agricultural productivity by making it easier for farmers to learn new skills. Digital Green facilitates the production and dissemination of videos of good agricultural practices presented by farmers. Moreover, these technologies will have an indirect positive effect in terms of increasing productivity and creating employment possibilities along the food value chain.

There are a few examples of countries where the adoption of digital technologies has been successful to help small farmers develop their production. For instance, in Nigeria, Ghana and Kenya Hello Tractor connects tractor owners with smallholder farmers in need of tractor services through text messages. These digital technologies will also help spur competition on Morocco's markets (upstream, midstream, and downstream) and thus drive prices down. For instance, in Ghana, Esoko uses text messages and phone calls to provide information on market prices, which can change demand—and subsequently prices. Furthermore, digital technologies can reduce information asymmetries between farmers and consumers as well as between farmers and banks. Promising agri-food start-ups can receive loans from commercial banks as digital technologies are quickly generating information on the ability of farms or agri-firms to repay their loans. In Kenya, FarmDrive develops alternative credit scores using mobile phones, alternative data, and machine learning to fill data gaps. The enhanced credit scores permit banks to gain enough information to enable them to lend to smallholder farmers whom they otherwise would have denied. Also, digital tools offer the possibility to aggregate producers spread over a large geographic area in a seamless and flexible way and therefore reduce transaction costs.

Finally, agricultural transformation in Morocco will require that the public sector plays a key role in providing the needed digital infrastructure (*public good*), and, defining incentives for the participation of the private sector to develop and supply digital technologies. The public sector should also ensure that farmers are adopting new agricultural technologies. Training programs jointly funded by the public and private sectors for farmers should be developed. Strengthening data generation, analysis, and dissemination should also be a public sector priority in Morocco. This will encourage competition and innovation, and limit market capture by a few incumbents. Finally, increasing productivity of land and labor will result in a significant decline of poverty rates in rural areas in Morocco, where the vast majority of poor farmers live.

3.3.2 Promoting High-End Tourism

According to the World Travel and Tourism Council (WTTC, 2018), travel and tourism (T&T) are one of the world's largest economic sectors in the world. The sector creates jobs, drives exports, and generates prosperity across the world. The 2018 WTTC annual report shows that the T&T sector accounts for 10.4 percent of global GDP and 313 million jobs, or 9.9 percent of total employment, in 2017.

In Morocco, since 1999, the tourism sector has received particular attention to make it an engine of growth and a key sector of the diversification strategy of the country. Large-scale development plans (Vision 2010 and 2020) and policy measures (Shamamba, 2005) to attract investment in the sector have been implemented.

Successful implementation of the tourism strategy has borne fruit. T&T has gone from being a secondary sector in Morocco's economic development to playing a dominant role in recent years. WTTC estimates that T&T's total contribution to GDP is 18.6 percent (US\$20.0 billion) in 2017 and is forecast to rise by 3.7 percent in 2018 and 3.8 percent per year and will account for 18.5 percent of GDP in 2028. The sector also contributes remarkably to job creation. According to WTTC, the sector directly supported 824,500 jobs, equivalent to 7.1 percent of total employment in 2017. And this is expected to rise by 1.1 percent in 2018 and rise by 2.0 percent per year to 1,016,000 jobs, equivalent to 7.5 percent of total employment) in 2028. Visitors exports generated US\$8.3 billion (equivalent to 21.5 percent of total exports in 2017). WTTC projected that in 2018, this is expected to grow by 3.4 percent, and the country is expected to attract 11,615,000 international tourist arrivals. By 2028, international tourist arrivals are forecast to total 16,056,000, an increase of 4.2 percent per year.

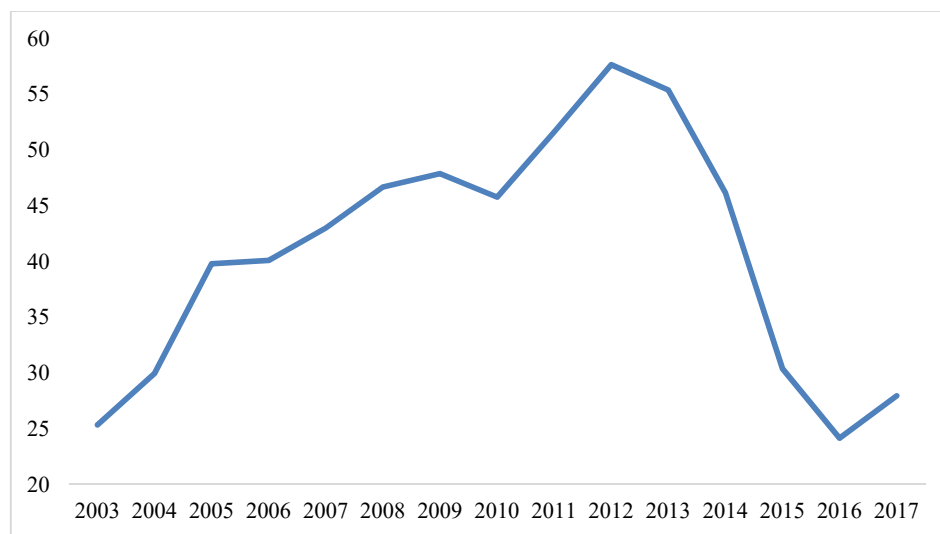
Yet, the full potential of tourism remains unexploited in Morocco. Moving to high-end tourism by targeting specific tourists with high income by organizing visits to historical sites, international conferences, etc. would bring more value to the tourism sector and position it as a key sector of growth and job creation in Morocco. This would require investment in high tech infrastructure (telecommunication, 5 G internet connection, and first-class hotels and resorts) and in human capital through trainings to enhance the quality of hotel personnel to provide first-class tourism services. The next generation of vision documents (vision 2030 or 2040) should embrace that strategic direction to give Morocco a decisive advantage on its competitors in this promising sector.

3.3.3 Promoting Renewable Energy Resources

While Morocco is one of largest energy importers in MENA, it is endowed with huge potential in renewable energy. It has abundant wind and solar resources. Wind energy potential is high in vast parts in the northern and southern regions, with the annual average wind speed exceeding 9 m/s at 40 meters elevation. Solar energy potential is also remarkable. It is estimated that the country experiences 3,000 hours per year of annual sunshine equivalent to 5.3 kWh/m²/day. Total installed renewable energy capacity (excluding hydropower) is estimated at approximately 787MW at the end of year 2015.

Energy costs have been high, reducing Morocco's export competitiveness. As a proportion of exports, they rose from 25 percent in 2002 to more than 55 percent in 2012. The government's efforts to control energy costs have resulted in a significant reduction of these costs to a record low of 25 percent as a proportion of exports in 2016 (see Figure 3.3). Yet, the costs remain high, close to 30 percent as a proportion of exports, dampening Morocco's capacity to compete on international markets. Studies have shown that promoting these renewable energy resources could provide significant growth and job opportunities (Debbard, 2006 and Dii, 2013). According to a report by Dii (2013), the wind, photovoltaic and concentrated solar thermal power industrial sectors could represent up to 5 percent of GDP in 2030 if the country is investing enough – in partnership with international companies with demonstrated expertise in the renewable energy sector – in the production of electricity from renewable sources.

Figure 3.3 Morocco: Evolution of energy costs, 2002-2017
(Percent of total exports)



Source: Bank Al-Maghrib and Ministry of Economy and Finance.

In its search to reduce its dependence on energy imports, Morocco developed an energy strategy which aims to support the country's transition to renewable energy and energy efficiency. Morocco has embedded its energy policy into a dynamic process of adjustment to the evolution of the international environment and diversification of energy sources to bring

energy costs down. The diversification strategy of energy sources of supply could halve Morocco's dependence on fossil fuel imports. A book by Agénor and El Aynaoui (2015) shows that the diversification strategy may reduce imports from 8 percent of GDP in 2015 to 4 percent of GDP in 2030, significantly reducing energy costs. Yet, echoing the authors, this paper argues that success of the strategy of renewable energy hinges on the success of labor reforms to increase both skilled labor supply in quantity and quality as well as educational reforms.

3.4 Improving the Business Environment

As stated earlier, the business environment in Morocco continues to suffer from several constraints. Yet, improving the business environment is essential to promote domestic private investment and attract foreign direct investment, which have a critical role to play in contributing to an acceleration of the process of industrial transformation discussed earlier and generating a sustained increase in the country's growth rate. Policies aimed at promoting competition, strengthening investor protection, enforcing contracts and insolvency regimes, and improving access to finance for SMEs, represent key reforms of the regulatory framework. In particular, measures aimed at strengthening the capacity of the banking system to assess credit risk and improve contract enforcement can help to make credit more easily available to SMEs. In addition, although access to basic infrastructure is adequate in general, the state must also invest in advanced infrastructure – possibly in partnership with the private sector, to avoid pressure on the budget. Access to broadband Internet is important not only for companies that are part of global value chains, but also to promote R&D activities, because it facilitates the formation of national and international knowledge networks.

3.5 Promoting Women's Return to the Labor Market

As noted earlier, a striking feature of Morocco's labor market is the substantial decline in women's labor force participation rate in recent years. Between 1999 and 2014, while the participation rate dropped from 79.3 percent to 72.4 percent for men, for women it dropped from an already low value of 30.4 percent to 26.6 percent during the same period. As also pointed out, there are a number of economic and social factors that may explain the low and declining participation rate for women in Morocco. One factor may be a reduction in part-time jobs, which denies women the flexibility that they need to participate in the labor market, while at the same time balancing constraints on their time. Thus, although an acceleration of the pace of industrial transformation may lead to a much faster rate of job creation in manufacturing (thereby providing more opportunities for all to be employed), to promote female labor force participation more specifically it is important for the authorities to promote greater flexibility in employment practices. This is the sense in which, as noted earlier, the issue of increasing women's participation in the labor market must be thought of as an integral part of the industrial transformation process that is at the heart of the new growth model.

In addition to greater opportunities for flexible employment, a number of other policies can help to promote women's return to the labor market. These policies include

better conditions for maternity leave. increased paternity leave (which, at 3 days, is currently one of the lowest in the world), improved access to public childcare facilities (which would free up some of the time allocated by mothers to child rearing), greater equality in inheritance rights (between sons and daughters and between female and male surviving spouses) to create opportunities for women to own housing or land, which can be used as collateral to secure loans and engage in entrepreneurship, learning programs specifically for women, and greater access to basic infrastructure services (especially in rural areas), which would free up some of the time that women allocate to household chores (El Hattab and Lamrani Hanchi, 2017). Tax practices that discriminate against women should also be reformed. For instance, out of 189 countries, Morocco is one of 17 countries that have tax deductions or credits that are specific to men: a male taxpayer is able to claim a dependent deduction for both his spouse and children, but unless a female taxpayer is able to prove that she is a legal guardian, she may not claim the same deduction (World Bank, 2015).

3.6 Geographical Trade Diversification

As discussed earlier, Morocco's external trade remains insufficiently diversified. Given that medium- and longer-term growth prospects for the EU remain subdued, the country must continue to diversify trade with other, fast-growing partners, including not only China but also countries like India. At the same time, Morocco must expand its trade with Sub-Saharan Africa, given the potential of the region and the special links that Morocco has with many countries there.

However, greater effort is needed to expand trade with new partners with larger markets and greater growth potential, such as Angola, the Democratic Republic of Congo, Nigeria, and South Africa. These markets can provide growth opportunities in the medium term for Morocco's light manufacturing industries, as its industrial sector transitions toward higher value-added activities. However, improving competitiveness through reductions in labor costs and greater exchange rate flexibility may be necessary to compete with China and other Asian countries, whose presence in Sub-Saharan Africa is expected to continue to grow. The state can play a significant role to promote economic links between Morocco and Sub-Saharan Africa, including through greater involvement in regional institutions (such as the decision to join ECOWAS in 2017) and by increasing aid to some of the poorer countries in the region.

3.7 Rethinking the Role of the State

In addition to the range of public policies highlighted earlier – aimed at improving the quality of education, the quality and adequacy of the labor force, the business environment, helping firms to obtain better access to new technologies, and promoting women's return to the labor market, and so on – the new growth model proposed in this paper requires also greater access to advanced infrastructure, to help increase productivity across all sectors of the economy and improve competitiveness, provide rapid access to information in order to benefit from the opportunities offered by new markets, and promote the development of international knowledge networks to boost innovation. The increase in investment does not need to be provided by the public sector only; given the costs involved and tight budget

constraints in many countries, partnerships between the state and the private sector could provide viable alternative options.

At the same time, the country's industrial policy must focus on key sectors, capable of promoting growth and employment and should involve active intervention (Box 3.2). More specifically, the key question for Morocco's industrial sector –especially manufacturing– is to know how to better integrate into global value chains and compete in international markets. The development of industrial clusters requires a thorough analysis of these value chains. The role of industrial policy in this context is to identify which types of public interventions are able to facilitate insertion into these channels.

Box 3.2 Industrial Policy and the Role of the State

Historically, industrialization, and more specifically manufacturing industries, have played an important role in promoting rapid and sustained growth. Indeed, the evidence collected by Szirmai (2012) and others suggests that – with the exception of a few small countries that benefited from the successful management of natural resource windfalls – virtually all countries that have sustained high growth rates for the decades since the 1950s did so by building highly competitive manufacturing industries and penetrating rapidly export markets. Moreover, as argued by Rodrik (2013), manufacturing industries appear to exhibit *unconditional convergence*, in the sense that industries that start further away from the world productivity frontier tend to experience significantly faster productivity growth. However, the robustness of Rodrik's results have been questioned by Assunção et al. (2015), who found in particular that the speed of convergence also has a nonmonotonic relationship with trade openness and education.

More generally, the view that a large manufacturing sector oriented towards world markets is essential to a rapid advance in living standards has been increasingly questioned. A key argument is that, in a globalized economy, *all* sectors can improve by learning from those at the technology frontier, and that many possible sources of comparative advantage exist (Dadush, 2015). In particular, advanced infrastructure (ICTs) creates new opportunities to boost the productivity and tradability of a range of services.

The current debate on industrial policy in developing countries (see Pack and Saggi, 2006, and Naudé and Szirmai, 2012) opposes two views: the neo-liberal view, which maintains a critical perspective of any intervention (selective or not) and the neo-structuralist view, which argues in favor of selective protection of industries.

There is growing consensus that promoting industry cannot be limited to “passive” interventions to enforce the rules that contribute to the functioning of markets. It is also recognized that traditional interventions in the industrial sector, often aimed at promoting the emergence of national champions, are not always desirable or optimal. The new forms of industrial policy do not fit into either a traditional interventionist approach, nor into actions that would fit the definition of an appropriate regulatory framework. They are a mixed attempt, whose goal is to create the conditions for businesses to invest in technologies and create markets, without interfering with the nature of the products themselves.

More generally, the primary objective of the “new” industrial policy – viewed as an important dimension of growth policy – is to diversify the economy and create new comparative advantages. To weed out programs or operations that have bad results, the use of success or failure indicators is essential. At the same time, the support granted by the state should be limited in time and be granted on activities rather than sectors themselves. Moreover, these activities must be distinguished by their potential to generate technological and informational spillovers. In the same vein, the new industrial policy must avoid public activism involving the choice of products and players. It aims to foster competition and promote innovation.

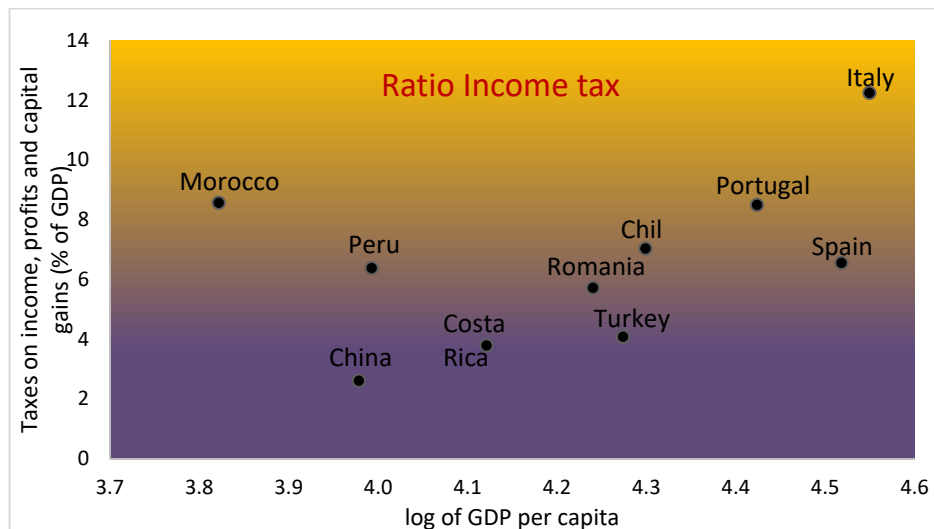
In the context of the new industrial policy, a key issue is the transition from imitation in the manufacturing sector, a regime mainly based on the partial reproduction or adaptation of foreign-produced goods, to a regime based on innovation. This transition requires access to skilled labor and advanced ICTs to facilitate the

transition from the production of light, labor-intensive manufactured goods to more sophisticated manufactured goods.

From that perspective, industrial policy should not only focus on innovation, but also help to strengthen the quantity and quality of labor and the access to advanced ICTs. In this sense, industrial policy also has an “education” dimension and an “infrastructure” dimension, in line with policies aimed at avoiding, or escaping from, a middle-income trap (see Box 2.1).

A broader reform of the state is also needed to reduce corruption and improve governance (including in managing public investment) and improve productivity in the delivery of public services through digitalization. The increase in investment in advanced infrastructure advocated earlier could come not so much from more public investment, away from spending on basic infrastructure, but also improved management of investment projects. In that sense, the issue is not to invest *more*, but to invest *better*. Reducing government bureaucracy (with respect for instance to property transfer, construction permits, and trading across borders, and so on) is important to improve the business environment. Reforming the tax system is also important to bolster the contribution of the fiscal sector to growth. These reforms should aim to widen the tax base, improve tax administration and tax collection, reduce the number of VAT rates, and possibly reduce income tax rates. As shown in Figure 3.4, the direct income tax ratio in Morocco, when related to the country’s per capita income, is much higher than in comparator countries. In fact, it is possible that Morocco is on the *wrong side of the Laffer curve*, with respect to income taxation; if so, reducing the average income tax rate would in fact raise revenues – both by increasing compliance and by reducing incentives to engage in informal activities.¹

Figure 3.4 Selected Countries: Direct Income Tax Ratio and GDP per capita (Averages for 2005-2016)



Note: the income tax ratio is calculated as the ratio of taxes on income, profits and capital gains divided by GDP; GDP per capita is at 2011 PPP prices.

Source: IMF, World Economic Outlook Database, World Development Indicators (World Bank).

4. QUANTITATIVE ASSESSMENT OF THE NEW GROWTH MODEL

The new, innovation-based growth model proposed in this paper aims to increase productivity and efficiency (both in the public sector and the private sector), foster industrial transformation, and ensure that Morocco achieves a sustainable higher growth rate – sufficient to increase living standards and allow the country to achieve convergence to high-income status within a couple of decades. At the same time, it aims to enhance the country’s capacity to absorb new entrants in the labor market and reduce durably unemployment, while at the same time encouraging greater labor force participation by women.

Given the many dimensions of the proposed growth strategy, a thorough assessment of its impact along all these dimensions would require an exceedingly complicated model. A different approach is therefore followed. We use primarily a version of the model developed by Agénor and El Aynaoui (2016) to assess alternative reform programs, for a set of public policies consistent with some of the key recommendations that form part of the proposed growth model. However, that model does not have a gender dimension; we therefore supplement estimates regarding growth and unemployment with the core predictions of two other contributions, by Agénor et al. (2017, 2018) which have an explicit gender dimension and focus on policy measures aimed at promoting women’s participation in the labor market and reducing unemployment across the board. In reality, of course, one cannot simply add predictions from two separate sets of models; doing so would not do full justice to the interactions that can occur in assessing the effects of reform programs on growth and unemployment. Nevertheless, in the absence of a more complete model, this procedure gives an upper bound on these effects.

After a brief description the model, the reform programs are presented, and their quantitative effects evaluated.

4.1 Model Description

The model is described in Box 4.1. In brief, the model is based on the overlapping generations (OLG) framework and takes into account the production and education sectors; imitation and innovation activities; the distinction between skilled and unskilled labor; distortions in the labor market and open unemployment; the distinction between basic infrastructure and advanced infrastructure; the quality of public investment; the bidirectional relationship between foreign direct investment, economic growth and the relative quality of human capital; and the degree of enforcement of intellectual property rights associated with innovation. The imitation and innovation sectors produce intermediate goods – the former using unskilled labor and basic infrastructure, and FDI, the second using skilled labor, advanced infrastructure, and FDI – which are both used in the production of final goods. Basic and advanced infrastructure are provided solely by the public sector. The long-term growth rate of final output is derived from the stationary solution of the model.

The model is calibrated using a variety of data for Morocco. The initial value of the growth rate of output is set at 3.6 percent, which corresponds to Morocco’s average growth during the period 2010-2017 (see Figure 2.3). The initial unemployment rates are 2.3 percent for skilled workers and 9.6 percent for unskilled workers; accounting for the weights of each

type of workers in the workforce, this gives an aggregate unemployment rate of 9.4 percent. Based on the model's solution, two additional indicators are calculated: *a) the composition of the unskilled labor force*, defined as the ratio of unskilled jobs in the imitation sector and unskilled jobs in the final good sector; and *b) the composition of the skilled labor force*, defined as the ratio of skilled jobs in the innovation sector and skilled jobs in the final good sector. The skilled workforce composition indicator is initially equal to 0.157, whereas the unskilled workforce composition indicator is initially equal to 0.047. Thus, the bulk of the labor force (both skilled and unskilled) is initially used in the production of final goods.

Box 4.1 Structure of the Growth Model Used for Simulations

The simulations presented in this paper are based on the quantitative model of economic growth in Morocco developed by Agénor and El Aynaoui (2013). Its main features are briefly described in this box.

The model is based on the overlapping generations (OLG) framework and takes into account the production and education sectors; imitation and innovation activities; the distinction between skilled and unskilled labor; distortions in the labor market and open unemployment; the distinction between basic infrastructure and advanced infrastructure; the quality of public investment; the bidirectional relationship between foreign direct investment, economic growth and the relative quality of human capital; and the degree of enforcement of intellectual property rights associated with innovation.

The model assumes a closed economy populated by individuals with different innate abilities who live for two periods, adulthood and old age. It abstracts from demographic factors and assumes that population is constant. Each individual has a unit of time in both periods of time; in adulthood all time is allocated to market work, and in old age all time is devoted to leisure. The economy has five production sectors: a sector producing a homogeneous final good (to simplify, a manufactured good), two sectors producing intermediate goods (basic inputs and advanced inputs), and two design sectors (imitation and innovation sectors). Design sectors produce patterns that are used to produce both types of intermediate inputs.

Individuals have identical preferences but are born with different abilities. Everyone may observe these capabilities, measured by an index between 0 and 1. Each individual maximizes his/her utility, and decides in early adulthood whether or not to acquire qualifications. An adult can enter the workforce at the beginning of the period as an unskilled worker or allocate a fraction of the available time for training (or advanced education), incur training costs (assumed to be proportional to the skilled wage), and enter the labor force for the rest of the period as a skilled worker.

Any individual, skilled or unskilled, can be either employed or unemployed. An unskilled individual can work either in the manufacturing sector (final good) or in the imitation sector, while a skilled individual can operate either in manufacturing or in the innovation sector. Labor is perfectly mobile between the manufacturing and design sectors; therefore, there is only one wage in the economy for each labor category. An individual without employment is entitled to unemployment benefits or compensation for loss of employment (IPE), which for simplicity is the same for both categories of workers and is not subject to income tax. The instantaneous utility function of each individual depends on consumption in adulthood and consumption when retired.

The equilibrium condition between the skilled wage (adjusted for working time) and the unskilled wage (plus the cost of training) generates a threshold level of ability which is such that all individuals with ability inferior to that threshold choose to stay unskilled. The supply of skilled labor is thus inversely related to the threshold.

Production of the final good requires the use of skilled labor, unskilled labor, private capital, basic public infrastructure, a combination of basic intermediate inputs, and a combination of advanced intermediate inputs. Wage costs depend on the company contribution rate to the unemployment benefits fund, which applies uniformly to both components of firms' payroll. Profit maximization by firms provides demand functions for labor (skilled and unskilled), capital, and intermediate goods.

Production of each intermediate input (basic or advanced) requires the use of a single unit of the final good. Each intermediate-good producer produces only one good; for this, the producer must acquire a patented pattern produced by the appropriate design sector (imitation or innovation). Once the cost of using the patent is paid, each producer establishes its price to maximize profits, given the perceived demand function for its good, which determines its marginal revenue. The solution to this problem yields the optimal price, which is inversely related to the parameter characterizing the elasticity of demand. For simplicity, companies producing both types of intermediate inputs only exist for a single period, so that patents are auctioned, according to a random process, to a group of new companies in each period. Therefore, each intermediate good producer owns a patent (and generates associated profits) for a single period, even though the patents themselves have an infinite life. As a trade-off, the cost of using each patent is equal to the current profits of the intermediate firm.

The design sectors produce patented patterns, sold to companies producing intermediate goods. The *imitation* sector uses only unskilled labor, whereas the *innovation* sector uses only skilled labor. Productivity in the imitation sector depends on the stock of imitated products and access to basic infrastructure, while productivity in the innovation sector depends on access to advanced infrastructure, the stocks of technological knowledge in the imitation and innovation sectors, and the ratio of foreign direct investment relative to final production. This specification therefore recognizes that imitation increases productivity in the innovation sector; learning tasks create a positive externality, in that they allow individuals to acquire and strengthen their cognitive abilities, facilitating subsequent innovation. However, the marginal intensity of this effect tends to decrease over time. In addition, profits in the innovation sector are negatively affected by the loss of income associated with inadequate protection of property rights. In both sectors, profit maximization gives an equilibrium condition that positively connects the wages to productivity.

The government manages two separate budgets: the general budget and the budget for an unemployment benefit fund (IPE), which receives contributions from employers and pays a benefit that depends linearly on average income per worker. It maintains a balanced budget. To finance the general budget, the government imposes a tax on individual employee wages. Expenses consist of investments in basic and advanced infrastructure and other unproductive expenditure. Expenditure shares are constant fractions of public revenue, and public infrastructure services are free of charge. Budget balance for the unemployment benefit fund determines the employer contribution rate.

Assuming complete depreciation for one period, public capital stocks evolve only in relation to infrastructure spending flows adjusted (for the public sector) by a parameter of efficiency, which measures how investment flows result in the accumulation of real capital instead of wasteful spending.

The labor market is characterized by two distortions: a minimum wage for unskilled workers and a wage for skilled workers set by a monopoly union. The government sets the minimum wage; it depends positively on income per worker and negatively on the unskilled unemployment rate. The inverse relationship between unemployment and wages indicates that the government internalizes (at least partially) the fact that a high salary tends to reduce the demand for unskilled labor and thus increases the number of unskilled unemployed. For its part, the skilled wage is set by a single union, with the aim of maximizing an objective function that depends on the differences between employment in the final good sector and the skilled wage, and their target values, under the labor demand constraint. The solution to this problem implies that the skilled wage is proportional to its target value. In turn, the target wage is positively related to the average income per worker and negatively related to the skilled unemployment rate; when that rate is high, the union tends to moderate its demands in terms of wages, in order to induce firms to increase hiring.

The equilibrium condition of the unskilled labor market equalizes the supply and demand for labor (in the final good sector and the imitation sector), adjusted for the proportion of the unskilled labor force that emigrates abroad, and the number of unemployed. Similarly, the equilibrium condition of the skilled labor market equalizes the supply and demand for labor (in the final good sector and the innovation sector), adjusted for the proportion of the skilled labor force that emigrates abroad, and the number of unemployed.

Foreign direct investment as a proportion of final output is assumed to depend on the ratio of the rate of return on domestic private capital and the rate of return abroad, assumed exogenous, and the proportion of skilled workers in the active population. The latter effect is consistent with empirical studies that suggest that the quality of human capital plays a significant role in the attractiveness of a country for foreign direct investment. Equating private investment to total savings of each category of individuals (skilled or unskilled, employed or unemployed) completes the model.

4.2 Experiments and Results

To illustrate the impact of integrated growth strategies for Morocco, and the importance of complementarity between the economic policies in the formulation of these strategies, four composite (or integrated) scenarios are analyzed. In analyzing all of these programs, it is assumed that Morocco will continue to maintain prudent short-term macroeconomic policies, which therefore implies that economic stability is preserved in the medium and long term.

Reform Program 1 combines the following measures:

1. An increase in the share of advanced infrastructure investment costs from an initial value of 2.0 percent to 4.0 percent, half funded by reducing investment in basic infrastructure and half by reducing unproductive expenditures.
2. A reform of the education system, which consists of a state subsidy for advanced training that results in a 2.5 percent decrease in the cost of education (from 0.2 to 0.194) of the skilled salary and a substantial increase in the time allocated to training, from 0.15 to 0.2. The training is assumed to take place in the education system itself as well as within the business entity, in the form of continuing education –without a direct increase in the cost of skilled labor.
3. An autonomous reduction in the degree of indexation of the unskilled wage relative to per capita income, from 0.6 to 0.5, to capture a reduction in labor costs associated with labor market reforms.
4. An increase in public investment efficiency in advanced infrastructure from 0.4 to 0.5, which captures governance reforms.

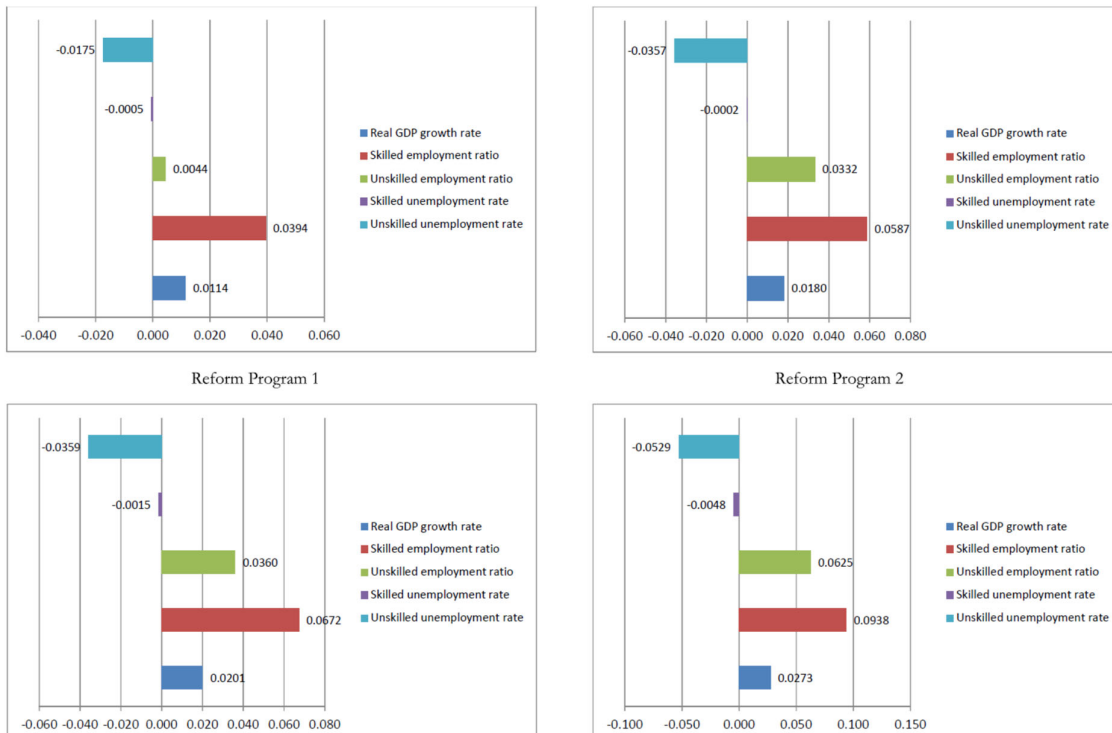
Reform Program 2 adds to the first one *a*) an autonomous increase in FDI from an initial value of 1.8 percent to 2.0 percent of GDP; and *b*) an improved business climate, resulting in an increase in the FDI elasticity with respect to the ratio of the relative rate of return on capital from 0.1 to 0.3. In addition, it is also assumed that labor market reforms involve a greater reduction in the degree of unskilled wage indexation, from 0.6 to 0.4.

Reform Program 3 adds to Reform Program 2 an autonomous reduction in the skilled wage from 0.6 to 0.5. This scenario thus adds another component “reform of the labor market,” to the previous scenarios. The results of this integrated reform program are presented in Figure 4.1.

Finally, **Reform Program 4** adds to Reform Program 3 a more ambitious governance reform program, which translates into public investment efficiency in advanced infrastructure from 0.4 to 0.77, which is the average value for the three countries with the highest degree of efficiency identified by Dabla-Norris et al. (2012, Table 1), that is, South Africa, Brazil, and Colombia, as well as a 10 percent reduction in the effective tax rate on wages, given the widely perceived view (as noted in the previous section) that these taxes are well above average in Morocco.

The results of all four integrated reform programs are presented in Figure 4.1. They indicate that the differences between the programs are sizable. In Program 1, the growth rate of real GDP increases by 1.1 percentage points per annum, whereas the unskilled unemployment rate falls by about 1.8 percentage points. By contrast, the skilled unemployment rate barely changes. The increase in the level and efficiency of advanced infrastructure investment boosts production, which raises employment of both types of workers. For unskilled workers, this effect is magnified by labor market reforms, which reduce the cost of that category of labor. However, for the skilled, education reform leads to an increase in supply, which almost matches the increase in demand. As a result, the net effect on the unemployment rate for that category of labor is negligible.

Figure 4.1 Morocco: Long-run Effects of Alternative Reform Programs on Growth and the Labor Market (in percent)



Notes: All data are in percentage points. Real GDP growth is the growth of final good production. The skilled employment ratio is the ratio of skilled workers employed in innovation to skilled workers in the production of the final good. The unskilled employment ratio is the ratio of unskilled workers employed in imitation to unskilled workers in the production of the final good. Skilled and unskilled unemployment rates are in proportion of the active population.

Reform programs 2 and 3 generate better outcomes in terms of growth and unskilled employment, but the largest effects (unsurprisingly) are achieved with Program 4. The growth rate of real GDP increases by 2.7 percentage points per annum (or, equivalently, to 6.3 percent, given a base value in the model of 3.6 percent), the unskilled unemployment rate falls by about 5.3 percentage points, and the skilled unemployment rate by 0.5 percentage point. Accounting for the relative weight of each type of worker in the labor force, the aggregate unemployment rate falls by about 4.5 percentage points, that is, given an initial unemployment rate of 9.4 percent, a drop to 4.9 percent. The reason why the unemployment for the skilled does not fall much is the same as before: the increase in demand is matched by an increase in supply, because more unskilled workers choose to become skilled.

These results suggest that far-reaching structural reforms could boost Morocco's potential growth by up to 2.7 percentage points over the long term. Are these growth rates high enough for the country to avoid falling into a middle-income trap and achieve high-income status within the next two decades? To address this question, consider first Reform Program 1.

According to World Bank data, in 2017 GDP per capita in constant 2010 US dollars was 3,292 in Morocco and 42,568 in France. Suppose that France grows on average at the rate of 1.1 percent in the next decades. Suppose also that the full implementation of the reform program takes 4 years, and that during that period, Morocco continues to grow at the average rate observed during the period 2010-2017, that is, 3.6 percent (Figure 2.3). Thus, if the package is implemented in 2019, France's income per capita in 2022 will be $42,568 \cdot (1+0.011)^5 = \$44,961$ and Morocco's $3,292 \cdot (1+0.036)^5 = \$3,929$. The initial ratio is thus $3,929/44,961 = 8.7$ percent. After that, Morocco's growth rate shifts to $3.6 + 1.1 = 4.7$ percent. Thus, to calculate the number of years (after the 4 years of implementation between 2019 and 2022) needed for Morocco to catch up with France requires solving for N from the equation

$$3,929 \cdot (1+0.047)^N = 44,961 \cdot (1+0.011)^N,$$

That is, taking logs on both sides,

$$N = [\log(44,961) - \log(3,929)] / [\log(1+0.047) - \log(1+0.011)] \cong 69.7,$$

which implies that it would take Morocco almost 70 years to achieve France's per capita income. Applying a similar calculation with Reform Program 2, with an annual growth rate now of $3.6 + 2.7 = 6.3$ percent yields $N = 48.6$, or almost 49 years.

Of course, achieving high-income status does not mean matching exactly France's income. Suppose that the target is one-third of that income, which corresponds approximately, to the current entry point for high-income status. With Program 4, the formula gives now

$$N = [\log(0.33 \cdot 44,961) - \log(3,929)] / [\log(1+0.063) - \log(1+0.011)] \cong 26.5.$$

Thus, within a little more than one generation, Morocco can achieve substantial gains in standards of living, going from a current relative income ratio of 8.7 percent with respect to France to one-third.

The next question is how much does the decline in the aggregate unemployment rate reported in the above experiments translate into actual numbers? The model does not include a detailed demographic structure, but an approximate calculation can be performed as follows. With an initial estimated workforce of 11,827 million individuals in 2015 (see Figure 2.10), the number of unemployed is initially $0.094 \times 11,827$ or 1,111,738 individuals; with a 4.5 percentage point reduction, as in Reform Program 4, the number of unemployed would decline to 579,523 individuals, or a reduction of 532,215 individuals. This figure represents the total long-term effect of Reform Program 4 on the *stock* of unemployed workers. However, these numbers do not account for the *flow* of new workers.

To calculate the effect on the *flow* of jobs and *change* in unemployment on an annual basis, we can use the implicit elasticity linking job creation and economic growth. Based on estimates by the High Commission for Planning, during the period 2000-2013, the economy created about 120,000 jobs per year. At the same time, the average annual growth rate during that period was 4.3 percent. Each point of GDP growth therefore created about 27,900 jobs. Assuming that the number of jobs created annually remains the same, Reform Program 4, which implies an average annual growth rate of 6.3 percent, would therefore result in an increase of about 175,770 jobs a year. As estimated by HCP, the mean value of the change in the working population during the past decade is about 160,000 people a year. The proposed reform program would thus fully absorb the annual increase in the labor force, that is to say, the *flow* of new people to the working population. However, in net terms, only an additional $175,770 - 160,000 = 15,770$ jobs would be created to absorb the *stock* of unemployed, estimated (as noted earlier) at 1,111,738 in 2015. Over a ten-year period, this means that the stock of unemployed would fall by 157,700, which means that the stock of unemployed would still be at 954,038, or equivalently, the unemployment rate would still be $954,038 / 11,827,000 = 8.1$ percent. To reduce unemployment to a benchmark of 3 percent of the initial stock of unemployed (a number often viewed as consistent with full employment), which corresponds to a number of unemployed of $0.03 \times 11,827,000 = 354,810$, and assuming the same number of net job creation, 15,770 a year, it would take $(1,111,738 - 354,810) / 15,770 = 48$ years. Alternatively, to achieve the same 3 percent objective in exactly 10 years, and again assuming a rate of growth of 6.3 percent per annum as in Reform Program 4, the number of jobs created per percentage point of GDP would need to increase from 27,900 a year per percentage point of economic growth to almost 37,411 jobs per point of growth a year, an increase of about one-third over the recent historical average. This is a challenging task for any country but there is evidence that the employment elasticity of growth can be influenced significantly by structural reforms (Crivelli et al., 2012). In the case of Morocco, more specifically, to achieve this result even more ambitious labor market reforms – especially those affecting the demand for unskilled labor – as well as deeper reforms in other areas (to improve the business environment and access to finance, and accelerate diversification of the economy) would be required.

Finally, as noted earlier, the quantitative model used in the previous experiments does not account for the whole range of policies advocated in this paper. In particular, the model

does not have an explicit disaggregation of the final good sector (to identify separately policies toward key strategic sectors), it does not have an explicit financial side (to assess the effects of policies aimed at promoting greater access to finance), and it does not explicitly account for a gender dimension. As such, it does not allow a full assessment of the growth and employment effects of all *aspects* of the proposed growth model. Clearly, a model that were to account for all these policies would be hopelessly intractable. One sensible way to address this issue is to view the results presented here as providing a lower bound, and determine whether, and how, to account for the growth and employment effects of these other policies. In the case of Morocco, it is the case that some recent modeling work on gender and growth is available, by Agénor et al. (2017, 2018). These gender-based models have a very different structure than the model used in this paper (most notably by accounting explicitly for the time allocation of men and women), so one needs to be careful in evaluating their policy effects; in particular, one cannot simply “add up” the results. However, based on these papers, one can surmise that the implementation of some core policies aimed at reducing gender inequality in Morocco could add up to 1 percentage point to long-term growth. Assuming that Reform Program 4 is implemented in parallel, this means that an ambitious and comprehensive reform program could add probably 3 to 3.5 percentage points to a baseline scenario of 4 percent. The impact on employment and unemployment is more difficult to assess but would also be substantial.

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