

### **Algeria: Selected Issues**

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ALGERIA

**Selected Issues**

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Approved by Middle East and Central Asia Department

December 19, 2006

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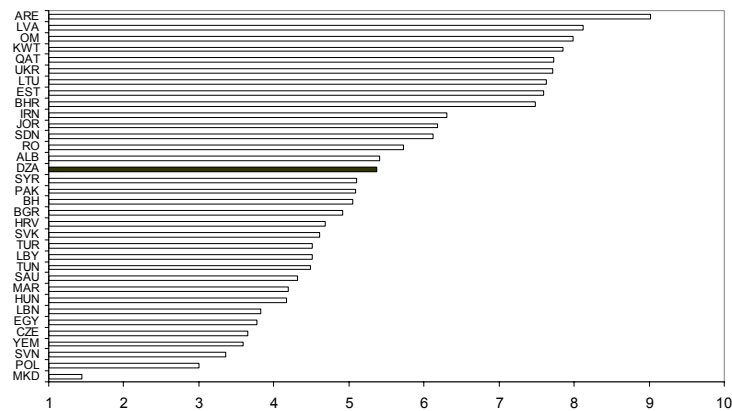
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## I. GROWTH PROSPECTS IN ALGERIA<sup>1</sup>

### A. Introduction

1. Algeria's growth performance over the past decade has been encouraging. Looking ahead, a key challenge is to place the nonhydrocarbon sector on a path of sustained higher economic growth, so as to boost overall growth prospects further and reduce unemployment. The nonhydrocarbon sector accounts for two-thirds of GDP and 98 percent of jobs, but represents only a negligible share of exports. Real nonhydrocarbon GDP growth has increased significantly since 2001, with an annual growth rate of about 5½ percent on average over 2002–05. However, this performance has been relatively modest compared to the recent growth of nonhydrocarbon real GDP achieved by most other MENA oil producing and competitor countries, which suggests that there may be scope for achieving higher growth in Algeria (Figure I.1). The objective of this chapter is therefore to gauge the growth prospects of the Algerian economy. Drawing on the findings of the empirical growth literature, the paper combines growth accounting and cross-country growth regressions to examine the role of macroeconomic and institutional factors in driving economic growth. The results help identify those key areas where sustained/accelerated reforms efforts in Algeria would lead to higher and sustainable growth over the medium and long term.

Figure I.1. Nonhydrocarbon Real GDP Growth  
(Average 2001–05, in percent)



Source: Fund staff estimates.

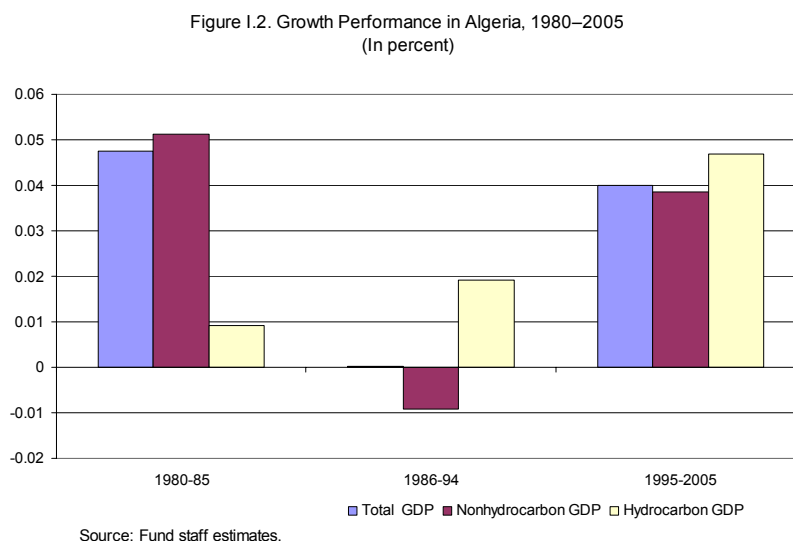
2. This chapter is organized as follows: Section II reviews past growth performance in Algeria and explores the reasons underpinning the recent pick up in nonhydrocarbon GDP growth. A standard growth accounting framework is used to assess the extent to which growth has been driven by factor accumulation or gains in total factor productivity (TFP). Section III looks at medium- and long-term growth prospects. Using cross-countries

<sup>1</sup> Prepared by Boileau Loko.

regressions, this section analyzes the determinants of long-run growth in Algeria, with particular focus on macroeconomic and institutional factors. The cross-country regressions identify potential growth factors but also provide benchmarks for comparisons. The results will then provide an indication of potential future growth performance, provided appropriate reforms are undertaken and/or vigorously pursued.

## B. Growth Performance in the Nonhydrocarbon Sector

3. Growth performance in the nonhydrocarbon sector in Algeria during 1980–2005 can be divided into three distinct sub-periods (Figure I.2):



- **Output expansion:** from 1980–85, the nonhydrocarbon sector grew rapidly by 5.1 percent per year on average, reflecting relative domestic political stability, high oil prices, and rapid growth in public expenditure.
- **Output collapse:** the growth trend was reversed during 1986–94, resulting mainly from the decline in world hydrocarbon prices, slow and hesitant reforms, and civil violence. Nonhydrocarbon GDP (NHGDP) declined on average by about one percent per year between 1986 and 1994.
- **Growth revival:** by 1994, macroeconomic and financial imbalances were large and unsustainable. In response, the authorities, with support from the IMF and other partners, implemented important macroeconomic and structural reforms, resulting in a more outward-oriented and liberalized economy. These reforms laid the groundwork for a growth recovery. Following the recent increase in oil prices, the authorities launched in 2001 the Economic Recovery Program and in 2004 the Growth Consolidation Program, which boosted growth

again. From 2002 onward, real NHGDP accelerated substantially to reach an average annual growth rate of about 5½ percent. On the supply side, growth was particularly strong in agriculture, construction and public works, and in the nongovernment services. On the demand side, NHGDP growth was mainly domestic absorption-led, with nonhydrocarbon exports accounting for less than 2 percent of NHGDP.

4. The recent growth performance in the nonhydrocarbon sector can in part be attributed to the significant fiscal impulse generated by the implementation of the government's Economic Recovery Program and the Growth Consolidation Program, financed by higher hydrocarbon revenue. However, in the long run, the increase in world hydrocarbon prices may have adverse implications for the nonhydrocarbon sector. Empirical estimates show a positive link between real oil prices and the real effective exchange rate in Algeria.<sup>2</sup> Therefore, sustained higher real oil prices are expected to result in an appreciation of the real effective exchange rate with adverse implications for the nonhydrocarbon sector ("Dutch disease"). Therefore, it is crucial to implement policies and productivity enhancing reforms that support sustainable growth of the nonhydrocarbon sector. Moreover, once hydrocarbon revenues start to decline, job creation and growth will depend on expansion and diversification of activities in the nonhydrocarbon sector.

5. A standard growth accounting framework is used to estimate how much of output growth in Algeria is associated with accumulation of factors of production, and how much is due to total factor productivity (TFP) growth.<sup>3</sup> The results suggest that factor accumulation has been the main source of GDP growth in Algeria over the period 1981–2005, whereas TFP growth has been negative (Table I.1). However, these findings must be interpreted with caution. TFP is calculated as a residual and it may not only capture the effects of technical change but also other factors to the extent that they are not accounted for by their effects on increases in factor inputs.

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<sup>2</sup> See Koranchelian (2005).

<sup>3</sup> The production process ( $Y_t$ ) is assumed to be characterized by a conventional Cobb-Douglas technology, which utilizes the stock of physical capital ( $K_t$ ), the human capital stock per worker ( $h_t$ ), and labor employed ( $L_t$ ), as well as TFP ( $A_t$ ).

$$Y_t = A_t K_t^\alpha (h_t L_t)^{1-\alpha}$$

$\alpha$  denotes the elasticity of output with respect to physical capital, and  $t$  is the year.

We assume output elasticities of capital and labor of 0.5 each. Using more conventional output elasticities of 0.33 for capital and 0.67 for labor would yield a very large growth contribution of human capital and more negative TFP growth. Due to unavailability of data, TFP analysis could not be carried out separately for hydrocarbon and nonhydrocarbon sector. Growth accounting issues are discussed in Bosworth and Collins (2003).

Table I.1. Sources of Growth, 1981–2005

	1981–2005	1981–85	1986–94	1995–2001	2002–05
	(In percent)				
Real GDP growth	2.8	5.2	0.0	3.1	5.5
	Factors growth rates (In percent)				
Capital	2.8	6.8	2.1	1.2	2.3
Labor	4.1	4.3	3.5	3.6	6.5
Human capital	9.6	11.3	9.7	7.8	10.6
	Contributions (percentage points)				
Capital	1.4	3.4	1.1	0.6	1.2
Labor	1.0	1.1	0.9	0.9	1.6
Human capital	2.4	2.8	2.4	2.0	2.7
TFP	-2.0	-2.1	-4.3	-0.3	0.1

Source: author's calculations.

6. Key factors that may account for Algeria's poor productivity record include: (a) delays in completing the transition to a market economy; (b) relatively weak institutions; (c) the small size of the private sector; (d) an unfavorable investment climate; (e) distortions in the labor market; and (f) a difficult political environment, marked by continuing civil strife since 1992 and the ensuing loss (migration) of skilled workers and managers.<sup>4</sup>

### C. Long-Term Growth prospects

7. We use cross-country regression to identify factors correlated with long-run growth performance, so as to identify the sources of variation in growth performance across a sample of countries during the period 1993–2005. We then review how these key drivers of economic growth have evolved in Algeria compared to other countries in the region and main competitors. Finally, using the coefficients obtained from the growth regression and reasonable target values of growth factors (for example, the average of the sample) for Algeria, we derive an estimate of potential growth and an indication of those key areas where policy and structural reforms would have a substantial impact on GDP growth.

<sup>4</sup> The low TFP growth is also partly the consequence of the assumption on growth of human capital. The current assumption (a human capital index is constructed as a function of both the labor force and its average years of schooling using data from Barro and Lee, 2000), may lead to an underestimation of the contribution of TFP to growth. When excluding the impact of education, however, the TFP growth trend does not change.



8. The economic literature and empirical studies show that key determinants of economic growth include (a) macroeconomic policies; (b) human capital; (c) trade openness; (d) financial sector development; and (e) the institutional environment.

- It has been widely documented that macroeconomic stability, including price stability, is a major determinant of long term growth.<sup>5</sup>
- Several studies have shown that human capital, whether measured by enrollment rates, years of schooling, or life expectancy, is an important factor in economic growth (Barro, 2001).
- Open trade orientation is argued to increase the long-run steady-state growth rate via improvements in technology and total factor productivity (Coe and Helpman, 1995; Edwards, 1998; Dollar and Kraay, 2004). While the empirical literature is generally conclusive on the deleterious impact of inward-oriented policies on growth, in recent years there has been an increasing recognition of the importance of complementary policies in enhancing the benefits of a more open trade regime. Complementary policies argued to be important include: sound macroeconomic policies, market supporting institutions, good infrastructural base, conducive business regulations, well-functioning credit markets, and flexible labor markets (Chang, Kaltani and Loayza, 2005).
- Several studies have addressed the potential links between financial development and economic growth. Recent studies have tried to establish the mechanism through which financial systems influence economic development, arguing that financial development will lead to higher savings mobilization and better allocation of economic resources, which would stimulate productive investment and economic growth (Levine, 2004).
- The recent growth literature and empirical studies also highlight the importance of good institutions to promote long-term growth (Acemoglu et al., 2004). The quality of institutions affects the investment climate, and hence long-run growth. For growth to occur, the private sector has to operate in an environment that rewards innovation and productive activities rather than rent-seeking activities. In addition, good institutions strengthen the government's ability to adjust policies to exogenous shocks.

### **Growth regressions**

9. The cross-country regression is a fairly standard growth specification. It takes the following form:

$$g_i = \alpha + \beta y_i + \gamma \text{inf}_i + \lambda \text{Ed}_i + \phi \text{Open}_i + \varphi \text{Credit}_i + \delta \text{EDB}_i$$

---

<sup>5</sup> See for example Rodrick, Subramanian, and Trebbi (2002) for a critical review of the literature.

Where  $g_i$  measures the log of average annual real per capita growth in country  $i$ ,  $y$  the log of initial output per capita,  $inf$  the rate of inflation,  $Ed$  the log of the secondary school enrollment rate,  $Open$  the degree of trade openness (total imports and exports over GDP),  $Credit$  the degree of financial sector development (log of credit to private sector over GDP), and  $EDB$  the institutional environment (Ease of Doing Business indicators).

10. Two sets of institutional indicators are frequently used in the literature on economic growth: the International Country Risk Guide (ICRG) index and the World Bank Governance Indicators.<sup>6</sup> These two sets of indicators convey the image of a country's governance as perceived by foreign investors. However, they do not necessarily fully convey ongoing reforms, as investors' perceptions may be slow to change (due to entrenched perceptions and credibility concerns) or may be blurred by external events. While recognizing their importance, we focus on the Doing Business indicators (DBI), which measure how regulations help or hinder business performance in different specific areas.<sup>7</sup> The Doing Business indicators arguably provide a more precise and objective measure of the business environment.

11. The sample covers the period 1993–2005 and includes 35 countries:

- The MENA and other key oil producing countries: Algeria, Bahrain, Iran, Kuwait, Libya, Mexico, Oman, Qatar, Saudi Arabia, UAE, Ecuador, Indonesia, Kazakhstan, and Venezuela.
- Non-oil producing countries: Egypt, Morocco, Pakistan, Syria, Tunisia, Columbia, Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovak Republic, Ukraine, Hungary, Romania, Bulgaria, Turkey, Macedonia FYR, Slovenia, Croatia, and Bosnia and Herzegovina.

12. The regression includes all countries in the sample and uses overall GDP per capita. In a second step, a dummy is used for countries that are major oil exporters. The results, which are broadly in line with those in the literature, underscore the importance of sound

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<sup>6</sup> The ICRG index provides country risk ratings based on the quality of the bureaucracy, corruption in government, the rule of law, expropriation risk and the repudiation of contracts by government. The World Bank governance indicators capture six dimensions of institutional quality or public governance. Voice and accountability as a measure of political, civil and human rights; political instability and violence; government effectiveness, measuring the competence of the bureaucracy and the quality of public service delivery; regulatory burden to measure the incidence of market-unfriendly policies; rule of law; and control of corruption.

<sup>7</sup> There are ten indicators: starting a business; dealing with licenses; hiring and firing workers; registering property; getting bank credit; protecting investors; enforcing contracts in court; trading across borders; paying taxes; and closing a business.

economic policy and better institutions for the long-run economic development. All variables are of the expected sign and significant. The results are shown in Table I.2 and can be summarized as follows:

- Growth is higher the lower is the initial GDP per capita, consistent with conditional convergence. Poorer economies are expected to catch up in income levels with respect to richer countries.
- Higher inflation is associated with lower economic growth.
- A higher level of education is strongly associated with greater economic development. Increasing secondary school enrollment by 10 percent will increase economic growth by 0.4 percent.
- Trade openness is beneficial to economic growth. Increasing the level of trade openness by 10 percent of GDP will increase economic growth by 0.1 percent.
- Credit to private sector over GDP is associated with greater economic development. Raising the level of credit to the private sector by 10 percent of GDP will increase economic growth by about 0.7 percent.
- A better business environment helps economic activity. A country improving its Doing Business indicator by 10 places on the ranking might expect long-term per capita real GDP growth to be higher by slightly more than 0.1 percent.

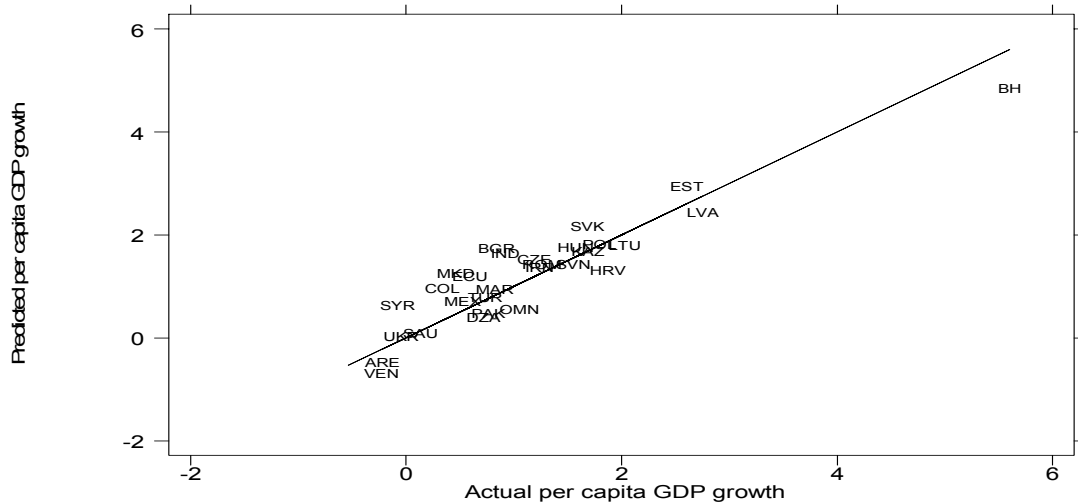
Table I.2. Growth Regressions

Dependant variable: Log real per capita growth	(1)	(2)
Log initial GDP per capita	-1.94***	- 2.00***
Inflation	- 0.002***	- 0.002***
Log secondary enrollment rate	2.67***	2.69***
Trade openness	0.009**	0.009**
Log domestic credit to the private sector over GDP	0.46**	0.45**
Easy of Doing Business index	-0.007**	- 0.007**
Oil producing countries dummy		0.17
Adjusted R <sup>2</sup>	0.86	0.86

The symbols \*\*\*, \*\* and \* denote significance at 1, 5 and 10 percent levels respectively.

13. The model explains about 85 percent of the cross-country variation in growth rates, and growth performance in Algeria as well as in most of the sample economies is well explained by the regression (Figure I.3).

Figure I.3. Per Capita GDP Growth: Actual vs. Prediction, 1993–2005



14. The included explanatory variables explain about 70 percent of per capita real GDP growth in Algeria during the period 1993–2005 (Table I.3). The regression predicts equally well per capita real GDP growth in Algeria during the subperiods 1993–2001 and 2002–05. About 1/3 of the increase in the per capita growth rate between the two periods is explained by other factors (Table I.4), including the significant fiscal impulse generated by the implementation of the government’s spending programs, financed by higher hydrocarbon revenue, and the significant reduction in civil violence.

Table I.3. Real Per Capita GDP Growth: Actual vs. Prediction.

	1993–05	1993–2001	2002–05	Change <sup>1/</sup>
	(In percent)			
Real per capita GDP growth				
Actual	2.0	1.4	3.5	2.1
Predicted	1.4	1.0	2.4	1.4
Predicted/Actual	70.0	71.4	68.6	66.7
Inflation (percent)	9.6	12.9	2.3	-10.6
Trade openness (% GDP)	56.5	52.8	65.0	12.2
Credit to private sector (% GDP)	7.5	5.6	11.6	6.0
School enrollment rate, secondary (% gross)	68.8	64.9	77.8	12.9

1/ 2002–05 compared to 1993–2001.

Table I.4. Contribution to Increase in Real Per Capita GDP Growth Between 1993-2001 and 2002-05

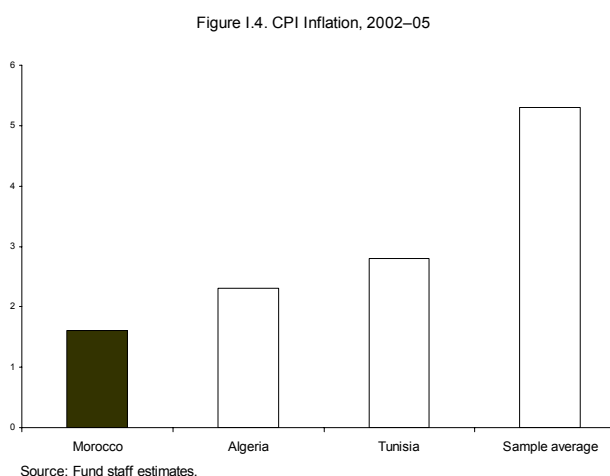
	Contribution	In percent of total increase
Long-term factors	1.40	66.7
Inflation	0.04	1.7
Trade openness	0.16	7.5
Credit to private sector	0.49	23.1
Level of education	0.72	34.5
Other	0.70	33.3
Total increase	2.10	100.0

Source: author's calculations.

15. The fiscal stimulus is likely to persist in the medium term (at least until 2009/2010). Thereafter, assuming no significant changes in macroeconomic and structural policies, per capita GDP growth would presumably decline to the predicted 2002–05 underlying growth rate of about 2½ percent, implying a total GDP growth rate close to 4 percent (assuming population growth rate of 1½ percent). However, with continued macroeconomic stability, further trade liberalization, strengthened financial intermediation and a better business environment, economic growth in Algeria could be significantly higher.

### What are Algeria's growth prospects?

16. Over the last decade, Algeria has been able to restore macroeconomic stability. Since 1999 the balance of payment and the budget have been in surplus, and international official reserves have increased significantly from less than one month of imports in 1990 to almost 23 months in 2005. Inflation fell from a peak of about 32 percent in 1992 to less than 2 percent in 2005. Average inflation over 2002–05 is below the sample average (Figure I.4).



17. Algeria at present has a very low level of financial intermediation, as measured by the average ratio of credit extended to the private sector to GDP over 2002–05. However, the country has begun to take action in recent years to strengthen financial intermediation. As a result, credit to the private sector increased from 6.8 percent of GDP (about 12 percent of

NHGDP) in 2001 to almost 12 percent in 2005 ( 21 percent of NHGDP). However, in a regional and international perspective, Algeria's level of financial intermediation remains low (Figure I.5).

18. The country has undertaken increasingly market-based and outward-oriented policies, including trade liberalization. The trade liberalization includes a comprehensive tariff reform in 2001, the coming into effect of the Association Agreement with the European Union in 2005, and some steps toward accession to the World Trade Organization. However, regional trade is hampered by significant obstacles and Algeria's simple average tariff remains above that of its main competitors, suggesting that further progress can be made on the trade liberalization front (Figure I.6).

19. Algeria's performance with respect to institutional indicators remains weak although some progress has been made. Algeria ranks poorly compared to most of the countries in the sample with regard to the Ease of Doing Business indicators (Figure I.7).

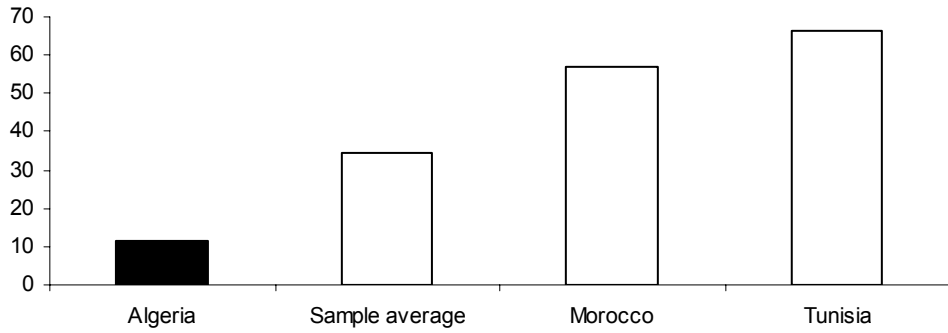
20. Potential GDP growth is estimated using three scenarios: (a) no additional reforms (scenario 1); (b) ongoing macroeconomic and structural reforms (scenario 2); and (c) ambitious reforms (scenario 3). All scenarios assume that inflation increases to some 4½ percent, reflecting the impact of the fiscal stimulus, the rise in wages granted in late 2006, and envisaged increases in administered prices for transportation and energy products (Table I.5). These calculations must be seen as indications of order of magnitude and not as precise projections.

Table I.5. Algeria: Estimates of Potential Growth

	No additional reform scenario (1)	Ongoing macroeconomic and structural reforms (2)	Ambitious reform scenario (3)
<b>Assumptions</b>			
Inflation	4.5	4.5	4.5
School enrollment rate, secondary (% gross)	77.8	77.8	77.8
Credit to private sector (% GDP)	11.6	18.0	25.0
Trade Openness	65.0	80.0	83.0
Ease of Doing Business (ranking)	116	116	91
<b>Estimates</b>			
Underlying per capita growth	2.5	3.5	5.0
Population growth	1.5	1.5	1.5
Total underlying growth	4.0	5.0	6.5
Exceptional factors contribution	0 - 1.0	0 - 1.0	0 - 1.0
Overall growth	4.0 - 5.0	5.0 - 6.0	6.5 - 7.5

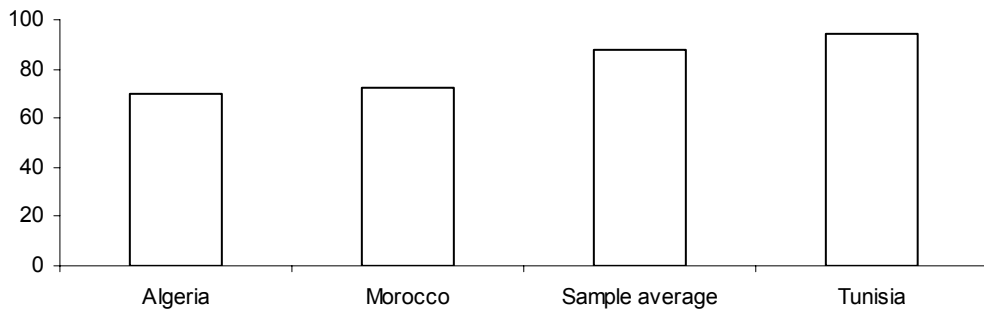
Source: author's calculations.

Figure I.5. Credit to Private Sector, 2002–05  
(In percent of GDP)



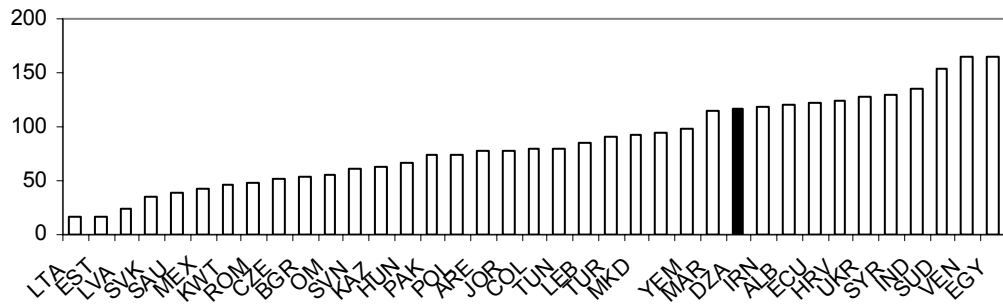
Source: Fund staff estimates.

Figure I.6. Trade Openness, 2002–05  
(In percent of GDP)



Source: Fund staff estimates.

Figure I.7. Ease of Doing Business Index, 2006 1/



Source: Fund staff estimates.

1/ Countries ranking from 1 (best) to 175 (worst).

21. Scenario 1 assumes no additional macroeconomic and structural reforms. The levels of trade openness, credit to the private sector over GDP, ease of doing business-ranking and the secondary enrollment rate remain the same as in 2002–05. On this basis, expected underlying growth would remain at 4 percent, implying an overall growth rate of between 4 percent and 5 percent (including the impact of exceptional factors, mainly related to the public investment program and increased political stability).

22. Decisive implementation of ongoing macroeconomic and structural reforms could raise growth further. In Scenario 2, credit to the private sector over GDP increases from the current level (11.5 percent of GDP in 2005) to 18 percent of GDP (30 percent of nonhydrocarbon GDP), reflecting ongoing reforms in the financial and banking sector.<sup>8</sup> We should underscore that the positive impact of credit to private sector on growth depends on the quality of financial intermediation to finance productive investment; nonperforming loans do not result in higher growth and are very costly to the economy. This scenario also assumes that the trade openness indicator increases by about 9 points to 80 percent of GDP, reflecting ongoing reforms in the trade sector, including the Association Agreement with the European Union and full implementation of the current convertibility of the dinar. As a result, projected underlying growth would increase to 5 percent, implying an overall growth rate in the range of 5 percent to 6 percent (including exceptional factors).

23. Deeper structural and institutional would raise growth further. Scenario 3 assumes a further increase in credit to the private sector from 18 percent of GDP to 25 percent of GDP. Many transition countries have experienced extended periods of rapid lending growth (Cottarelli and others, 2003). Growth rates of credit to the private sector have been particularly high in the Baltic countries (Table I.6). Further trade liberalization, including measures to improve regional integration and accession to the WTO, could increase the trade openness indicator to 83 percent of GDP (the sample average). Under this scenario, Algeria would also significantly improve its business climate and bring it in line with that of Turkey, e.g., improving its ranking with respect to Ease of Doing Business indicators from the 116<sup>th</sup> place to the 91<sup>th</sup> place. On this basis, expected underlying growth would increase to 6½ percent, implying an overall growth rate (including exceptional factors) between 6½ percent and 7½ percent.

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<sup>8</sup> Average credit to the private sector over GDP in the sample is about 30 percent over 1993–2005 and 34 percent during 2002–05. Given that credit to the private sector would be invested mainly in nonhydrocarbon activities, we assume that credit to private sector will increase to 30 percent of nonhydrocarbon GDP. Key ongoing reforms include: (a) privatizing a number of public banks; (b) improving the governance of remaining public banks; and (c) strengthening banking supervision. The authorities have also embarked upon a wide-ranging modernization of the payments system and the laws and regulations governing financial intermediation.



Table I.6. Credit to the Private Sector in Selected Countries

(In percent of GDP)

	2000	2005
Estonia	23.8	60
Hungary	33	51
Kazakhstan	15	36
Latvia	21	60
Lithuania	11.4	35

Source: Cottarelli and others, 2003.

#### D. Conclusion

24. A review of Algeria's growth experience and prospects reveals areas of weakness, though offers room for optimism too. In the past, total factor productivity growth has not contributed to overall growth in Algeria. Hence, there is room for significant productivity improvements. Growth regressions reveal the crucial role of macroeconomic policies, trade openness, financial sector development and institutional factors as drivers of real per capita GDP growth. These results support the authorities' reform priorities. In particular, modernizing the banking and financial system, increasing trade openness, and improving the investment climate could raise Algeria's growth potential.

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## II. LABOR MARKET ISSUES AND UNEMPLOYMENT IN ALGERIA<sup>9</sup>

### A. Introduction

1. Algeria has experienced encouraging economic growth in recent years, but the unemployment rate has remained high. While the growth performance was accompanied by a decline in the unemployment rate, the latter is still high compared with other Middle East and North Africa (MENA) countries and former transition countries.<sup>10</sup>
2. This chapter aims to analyze labor market developments and to assess the factors that may hinder employment creation in Algeria. In doing so, it studies some key labor market variables and compares Algeria's performance with that of other countries. The main results suggest that although recent economic growth has likely contributed to the fall in the unemployment rate, the degree to which the 2004–05 reduction in unemployment is permanent is questionable given that a significant share of new jobs is related with work at home. In addition, Algeria's growth is labor intensive reflecting somewhat low labor productivity. However, labor market regulations and labor taxation appear not to be major issues in Algeria compared with other countries.
3. The chapter is organized as follows. Section B investigates the reasons underlying the recent sharp drop in the unemployment rate. Section C looks at the employment elasticity of growth and also examines labor productivity, labor market regulations, and labor taxation, in order to determine whether these factors account for the current high rate of unemployment in Algeria. Section D concludes with some policy recommendations.

### B. Why did the Unemployment Rate Decrease so Much in 2004–05?

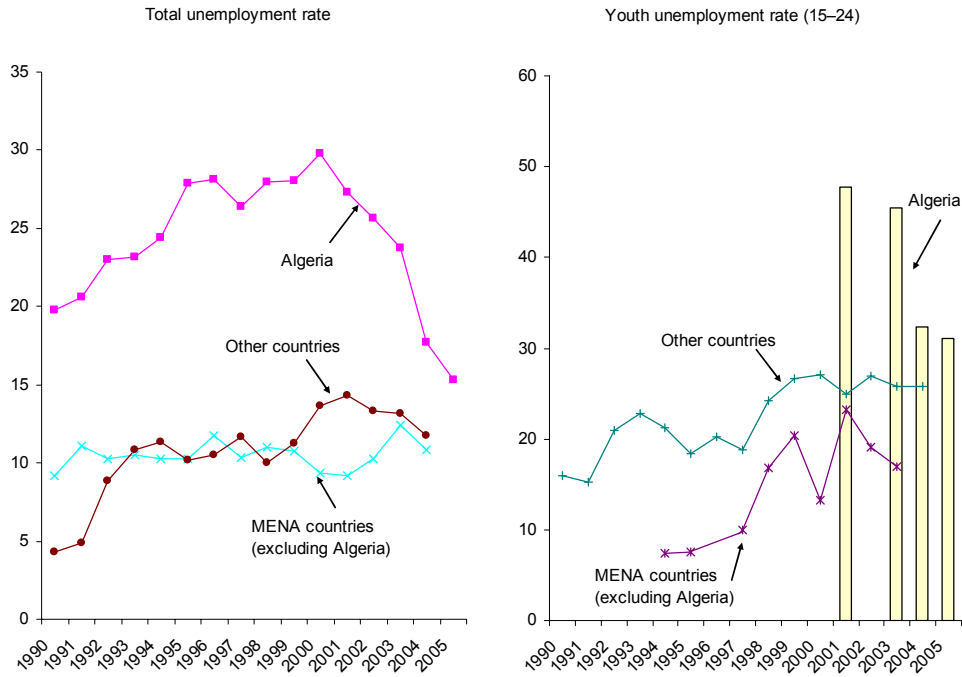
4. According to official data, the total unemployment rate and the youth unemployment rate alike have decreased markedly since 2000 (Figure II.1). Total unemployment was cut in half over five years from 30 percent (the highest rate since the late 1980s) to 15.3 percent in 2005. The youth unemployment rate has also dropped significantly, falling from 48 percent in 2001 to 31 percent in 2005. Figure II.1 also shows that Algeria's unemployment rate has been higher than the average for MENA countries and that of former transition countries during 1990–2004, although the gap has been reduced significantly during the last five years.

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<sup>9</sup> Prepared by Kangni Kpodar. This paper is based on Algeria's official data and reflects ongoing collaborative efforts between the Fund and the World Bank. The author acknowledges extensive comments provided by Andras Bodor, Jose R. Lopez-Calix and David Robalino.

<sup>10</sup> The sample includes: Albania, Bulgaria, Croatia, Czech Republic, Egypt, Estonia, Hungary, Jordan, Latvia, Lebanon, Lithuania, Macedonia, Morocco, Pakistan, Poland, Qatar, Romania, Saudi Arabia, Slovak Republic, Slovenia, Syria, Tunisia, Turkey, Ukraine, United Arab Emirates, and Yemen.

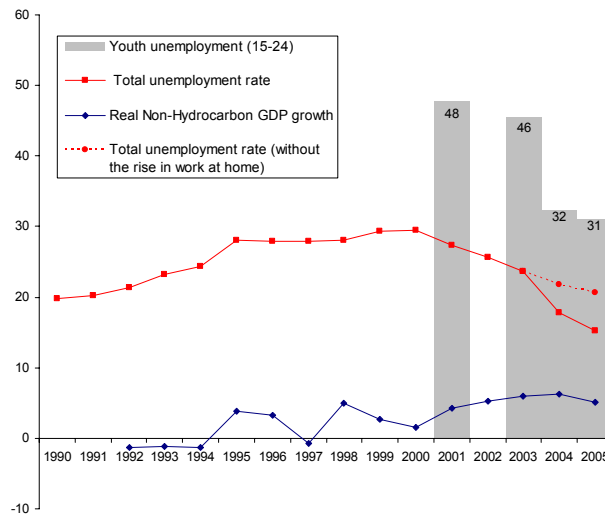
Figure II.1. MENA and Transition Countries: Total and Youth Unemployment Rates, 1990–2005 (In percent)



Sources: Algerian authorities (2005), World Bank (2006) and Fund staff estimates.

5. Recent economic growth has likely contributed to the fall in unemployment rates (Figure II.2). Unemployment rose rapidly until 1995 (a period during which the economy had declined), stabilized in the second half of the 1990s, and has declined since 2001 (a period of high economic growth).

Figure II.2. Unemployment and Growth, 1990–2005 (In percent)



Sources: Algerian authorities (2005), World Bank (2006) and Fund staff estimates (2006).

6. However, the degree to which the 2004–05 reduction in unemployment is permanent is questionable since a significant share of new jobs is related with work at home and is also of a temporary nature. Work at

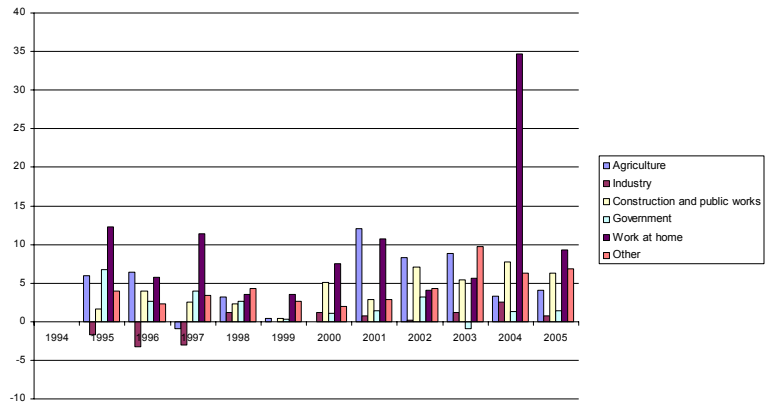
home, which includes the military draft and irregular employment, has increased dramatically, especially in 2004 when it increased by 34 percent (Figure II.3), in part due to the occurrence of Ramadan shortly after the annual household survey was conducted and possible measurement issues.<sup>11</sup> Without the rise in work at home in 2004 and 2005, the unemployment rate would have been about

22 percent in 2004 and 21 percent in 2005 (Figure II.2). In addition, permanent jobs are falling while temporary jobs are rising, probably reflecting a greater role for the private sector in job creation. In 2004, almost 90 percent of public sector jobs were permanent contracts compared with 11 percent in the private sector.

7. Although public sector employment is falling, government spending remains the main engine of employment creation. Figure II.4 shows that government employment as a share of total employment is shrinking as the country is moving to a market-based economy. Although the share of construction and public works in employment is stable, employment in that

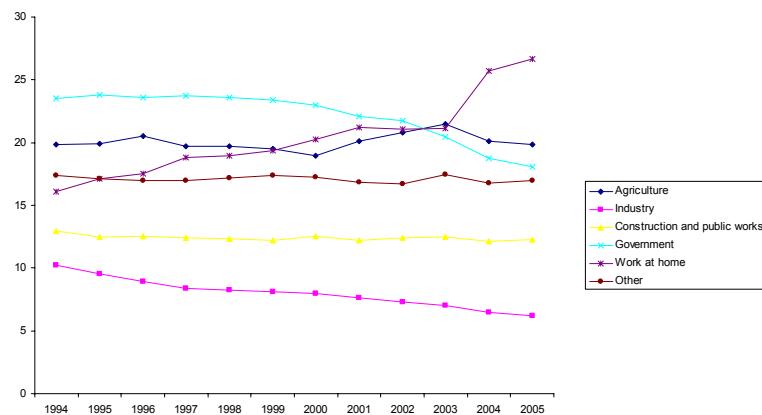
sector has grown steadily since 2000, with the increase ranging from 3 percent in 2001 to 8 percent in 2004, mainly because of the increase in government capital spending thanks to the rise in hydrocarbon revenue.

Figure II.3. Employment Growth by Sector, 1995–2005  
(In percent)



Source: Fund staff estimates (2006).

Figure II.4. Share of Employment by Sector in Percent of Total Employment, 1994–2005  
(In percent)



Source: Fund staff estimates (2006).

<sup>11</sup> Algeria's household employment survey appears to be in line with International Labor Organization methodology.

8. The evidence that public employment programs have contributed to falling unemployment is still unclear and further information is needed. According to the latest estimates, public employment programs<sup>12</sup> created 1.4 million jobs over the period 1997–2001 (Ait Youness and Annane, 2004), but most of these are temporary jobs. Moreover, in 2001 the government launched an Economic Recovery Program (ERP) for 2001–04 to boost aggregate demand and generate jobs through public investment in infrastructure and support to agricultural production and to small and medium enterprises. The ERP aimed at creating nearly 850,000 jobs over the period 2001–04. The Algerian authorities estimated that the ERP actually generated 728,000 jobs.<sup>13</sup> However, a study from the Organization for Economic Cooperation and Development (OECD, 2004) suggests that the ERP's results have been mixed because its long-term impact on growth and employment is not clear.

### C. Why is Unemployment Still so High in Algeria?

9. This section examines the factors that could account for the current high rate of unemployment in Algeria. These include the employment elasticity of growth, labor productivity, labor market regulations, labor taxation, business environment, dominance of the public sector, and skills mismatch.

#### Growth-related factors

10. Algeria's growth has been labor intensive. Table II.1 shows the employment elasticity of growth in Algeria using Ordinary Least Square estimates. The results suggest that a one percent increase in nonhydrocarbon GDP would lead to a 0.9 percent increase in total employment (excluding work at home). Nongovernment services and construction and public works are the most labor intensive sectors. Employment in the industrial sector was not correlated with industrial output, probably because of the significant downsizing the sector has experienced.

11. With ambitious macroeconomic and structural reforms, Algeria could bring its unemployment rate below 10 percent over the medium term. In the preceding chapter, it was estimated that Algeria could achieve real GDP growth of 5 percent, provided ongoing reforms are implemented decisively. On this basis, the unemployment rate could drop below 10 percent by 2015, assuming that productivity growth picks up with structural reforms and the labor force grows on average by 2.5 percent.<sup>14</sup> However, this could happen earlier if reforms that lead to higher growth are implemented.

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<sup>12</sup> These include: (a) the programme for local employment (Emplois salariés d'initiative locale—ESIL); (b) the programme for public works requiring intensive labor (Travaux d'utilité publique à haute intensité de main-d'oeuvre—TUP-HIMO); (c) the pre-employment contract (Contrat pré-emploi—CPE); and (d) the plan regarding general interest activities (Activité d'intérêt général—AIG).

<sup>13</sup> See the report on the ERP available on <http://www.cg.gov.dz/psre/bilan-psre.htm>.

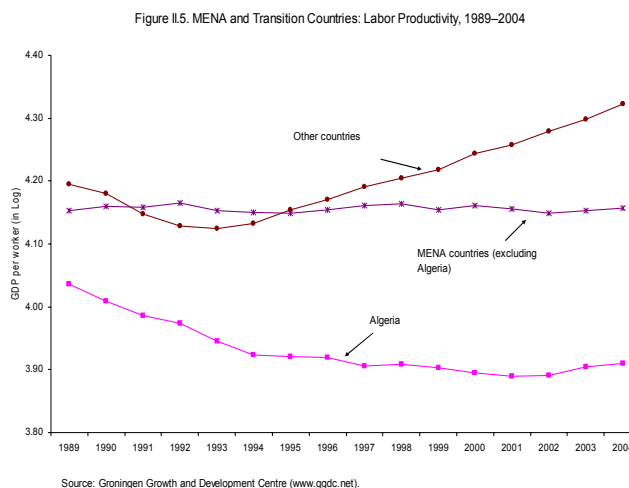
<sup>14</sup> The unemployment rate in 2005 is adjusted for the 2004 increase in work at home since the latter is likely to be of a temporary nature.

Table II.1. Output Elasticity of Employment, 1989–2005

Dependant variable: Employment	Total employment	Total employment (excluding work at home)	Employment by sector				
			Agriculture	Industry	Construction and public works	Government services	Nongovernment services
Nonhydrocarbon GDP	1.34*** (0.15)	0.90*** (0.09)					
GDP by sector							
Agriculture			0.87*** (0.07)				
Industry				0.31 (0.22)			
Construction and public works					0.94*** (0.04)		
Government services						0.67*** (0.09)	
Nongovernment Services							1.79*** (0.14)
Constant	-1.72 (1.14)	1.52** (0.71)	1.98*** (0.39)	4.49*** (1.26)	1.17*** (0.23)	3.12*** (0.55)	-4.45*** (0.95)
Observations	17	17	17	17	17	17	16
R-squared	0.85	0.86	0.92	0.12	0.97	0.79	0.92

### Labor productivity and real wage

12. Overall, Algeria's labor productivity is low. Figure II.5 shows that labor productivity in Algeria remains below the average of MENA and former transition countries, and has declined over time. Low labor productivity explains the relatively high employment elasticity of growth that has helped Algeria substantially reduce the unemployment rate over the past few years. To ensure a durable reduction in unemployment, private sector-led growth and investment should be the main engine of job creation and this is unlikely to occur



in a low labor productivity environment (Box II.1). Productivity improvement would lead to a reduction in the unit labor cost that would foster employment creation in the private sector.

### **Box II.1. Labor Productivity and Job Creation in Algeria**

Overall, job creation has taken place in sectors with negligible or negative growth in labor productivity and could be of an informal nature. To put it differently, in sectors where employment has been growing rapidly, output growth has lagged. For instance, during the 1990s, the more dynamic sectors in terms of employment creation were the government and services sectors where labor productivity growth was nil or negative. During the last five years, employment grew faster in the agricultural and services sectors, where labor productivity growth was also negative.

In general, there might be a trade-off between low employment growth elasticities and economic growth. Indeed, the gains in productivity necessary to sustain growth are the same that tend to bring down employment growth elasticities. Nonetheless, faster growth also implies a more rapid creation of new jobs. If economic resources move toward high value added/high productivity sectors and branches where employment growth elasticities are likely to be lower, the aggregate employment growth elasticity could fall. In fact, this is the process that is generally observed as economies develop. This process, however, can also imply more investment and faster economic growth and therefore more employment creation than in the absence of changes to the productive structure of the economy. More favorable prospects for job creation would imply changes in the productive structure of the economy that gradually reduce the employment growth elasticity but also boost and diversify economic growth.

The current situation might not be sustainable and in this case unemployment rates would rise again. As discussed above, high employment growth elasticities across the board also reflect low levels of productivity and the lack of diversification. So even if the situation could continue there are concerns about the quality of the jobs which are being created. What is more worrisome is that if growth were to slow to levels prior to 2000, unemployment rates could rapidly increase.

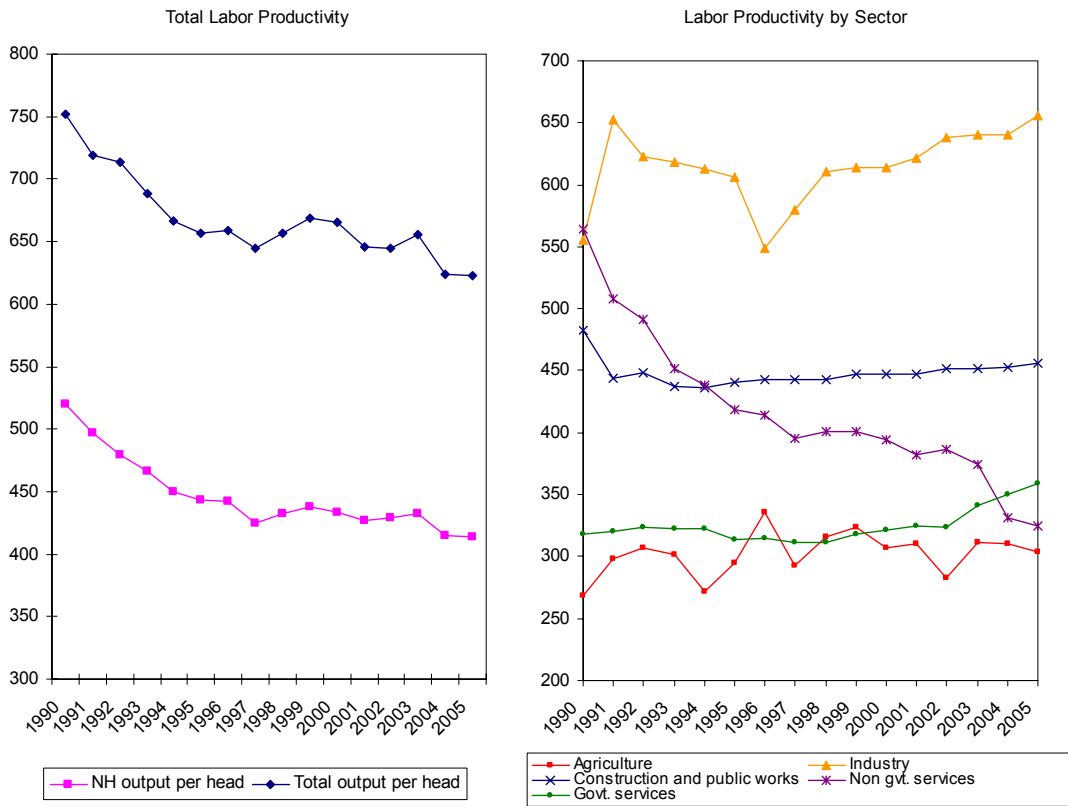
13. Productivity has been declining (Figure II.6). Labor productivity measured by the nonhydrocarbon output per worker decreased by 2.3 percent between 1997 and 2004, while the real average wage increased by 14 percent during the same period,<sup>15</sup> suggesting that wages have been growing too fast relative to labor productivity, slowing down the demand for labor. A significant part of the decline in productivity stems from the nongovernment service sector, mainly due to rising work at home. Productivity in the agricultural sector is relatively volatile as the production of this sector is highly dependent on weather conditions. As regards the industrial and government service sectors, labor productivity has increased, reflecting stagnant or declining employment.<sup>16</sup>

<sup>15</sup> National Office of Statistics ([www.ons.dz](http://www.ons.dz)).

<sup>16</sup> The data on productivity by sector should be interpreted with caution due to statistical issues. Employment data are derived from the household survey while output data stem from firm surveys and national accounts.



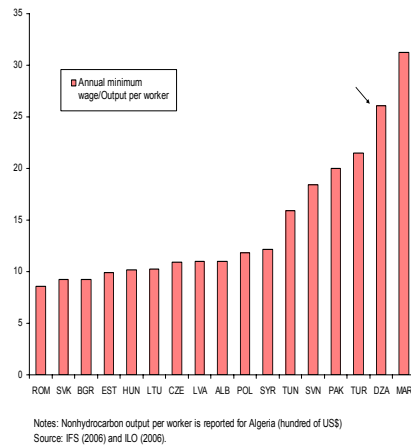
Figure II.6. Trend in Labor Productivity, 1990–2005



Sources: Algerian authorities and Fund staff estimates.

14. The minimum wage in Algeria is relatively high given the level of labor productivity (Figure II.7). In accordance with the Law concerning labor relations, the government sets the National Guaranteed Minimum Wage (Salaire National Minimum Garanti—SNMG) that applies to all sectors and both genders, following consultation with social partners. Its current level (DA 10,000) is one of the lowest among MENA and transition countries. However, when the minimum wage is adjusted for productivity, Algeria has the second highest level after Morocco as the annual minimum wage represented 26 percent of the output per worker in 2005 compared with 31 percent for Morocco and an average of 15 percent for the sample. This may weaken competitiveness at a time when the economy is opening up with the Association Agreement with the European Union (AAEU) and the forthcoming WTO accession.

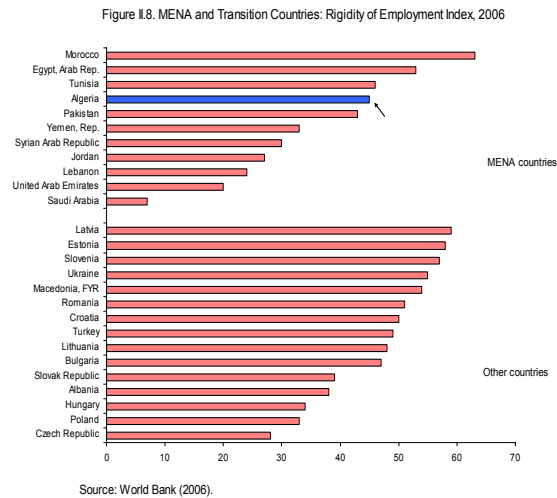
Figure II.7. MENA and Transition Countries: Annual Minimum Wage as a Percent of Labor Productivity, 2005



Notes: Nonhydrocarbon output per worker is reported for Algeria (hundred of US\$). Source: IFS (2006) and ILO (2006).

## Labor market regulation

15. Algeria ranks relatively high in terms of the standard indicators of labor market rigidities used by the World Bank in international comparisons (Figure II.8). Algeria's Rigidity of Employment Index, an indicator that takes into account the difficulty of hiring and firing, is one of the highest in the MENA region, although it is lower than those of Morocco, Tunisia, and Egypt. In addition, labor market regulations in Algeria are stricter than in most former transition countries. Stricter regulatory intervention in the labor market has many undesirable effects such as high unemployment rates and longer unemployment spells.



16. Algeria's severance pay requirements are relatively modest (Table II.2). Since 1994, severance payments are set at a minimum of one monthly wage for each year of tenure, up to a maximum of six months of salary. Recent data suggest that employers pay laid-off workers on average three months of salary. Dyer (2005) points out that Algeria has a more modest scheme compared with Morocco and Tunisia, reflecting the use of an unemployment insurance scheme. Indeed, within the MENA region, only Algeria has a functioning unemployment insurance system in which formal workers and employers participate through a mandatory payroll tax.<sup>17</sup>

17. Despite the fact that there is no clear evidence that severance pay legislation in Algeria is stricter than in other countries, some nonprice restrictions may be costly for firms wanting to adjust their labor force. These include the need for prior authorization, the notification period, and an appeal procedure that can account for a large cost in time and money that may be larger than the transfer itself. For example, it takes an average of 6 months to lay off a worker and in the case of collective dismissals, the employer has to negotiate with the unions which workers will be laid off. In the specific case of a privatized firm, the employer is not allowed to lay any worker off right after the takeover. In addition, to allow a laid-off worker to receive unemployment benefits, the employer is subject to pay 80 percent of the worker's monthly wage for each year of tenure, up to 12 months of salary, to the unemployment insurance system.

<sup>17</sup> Ruppert (1999) discussed unemployment insurance in Algeria.

Table II.2. MENA and Transition Countries: Severance Legislation

Country	Level	Maximum	Notes
Algeria	1 month per year of tenure	6 months of salary	Before 1994, maximum was 15 months of salary; current unemployment insurance system pays monthly benefits for 1-3 years, ranging from 0.75 to 3 times the minimum wage.
Egypt	No layoffs allowed except for liquidation.	n.a.	Unemployment insurance pays benefits for 28 weeks at 60 percent of salary; benefits are financed by a 2 percent employer payroll tax.
Jordan	1 month per year of tenure; civil servants entitled to 1 month per year of tenure for years 1-10, 1.5 per year for > 10 years.	n.a.	Benefits are available for voluntary resignation; they are paid by Social Security Corporation
Lebanon	1 month per year of tenure	10 months of salary	n.a.
Morocco	1 monthly wage up to six years of service, 1.15 monthly wages for each year of service for a worker with 11 to 15 years of service. After 15 years of service, a constant rate of 1.43 monthly wages per year of service applies.	36 months of salary	The maximum ceiling is reached after 26 years of service.
Tunisia	Minimum 12 days per year of tenure (under the labor code); Sectoral collective agreements stipulate 15 days to 1 month per year of tenure.	3 months of salary	n.a.
Yemen	1 month per year of tenure unless covered by Social Insurance Act.	n.a.	Layoffs are allowed for economic reasons, legislation is pending for civil servants.
Bulgaria	Severance pay is set at 2 average monthly wages for workers with job tenure below 10 years, and at 6 monthly wages for those with job tenure of 10 and more years	n.a.	Redundant workers can also opt for a lump sum of BGL 1,000 instead of monthly paid unemployment benefits and they can collect another BGL 1,000 if deciding to start their own business or accept a new job.
Czech Republic	Severance pay is a two-month salary.	n.a.	Collective agreements may increase severance pay with no upper limit set by law.
Estonia	Severance pay is set at 2 monthly wages for those serving less than 5 years, 3 monthly wages for workers with service between 5 and 10 years and 4 monthly wages for those with more than 10 years of service.	n.a.	n.a.
Poland	No severance pay	n.a.	The employer is obliged to inform the trade union organization of the intended redundancy (except for redundancy due to liquidation or bankruptcy of the enterprise), which should give its agreement, otherwise the matter is submitted to a higher-level trade union body.

n.a. Not applicable

Sources: World Bank (2004) and Dyer (2005) for MENA countries, Cazes and Nesporova (2003) for transition countries.

## Labor taxation

18. A common measure of the tax burden on labor is the tax wedge. The tax wedge is the difference between workers' take-home pay and the costs of employing them, including income taxes and social security contributions (OECD, 2006). It is calculated as follows:

$$\text{Tax wedge} = 100 * \frac{\begin{aligned} &(\text{Central government income tax} \\ &+ \text{Employee's social security contributions} \\ &+ \text{Employer's social security contributions} \\ &+ \text{Payroll tax}) \end{aligned}}{(\text{Gross earnings} + \text{Employer's social security contributions} + \text{Payroll tax})}$$

In Algeria, social contributions account for 34 percent of the gross wage, 9 percent of which is paid by the employee. The one percent payroll tax was waived in 2006.

19. Currently the tax wedge for a single person with average earnings accounts for 41 percent of total labor costs in Algeria, relatively close to transition economies' levels (Table II.3). In addition, estimates of the family tax wedge suggest that labor taxation tends to be lower in Algeria than in former transition countries, suggesting that unemployment in the country may not be a taxation issue. However, as productivity is low, firms may not benefit from lower labor taxation (Sensenbrenner, 2006).

Table II.3. Algeria and Selected Economies: Tax Wedge  
in Percent of Labor Cost, 2005

Country	Single Person Tax Wedge (1)	Family Total Tax Wedge (2)
Algeria	41	28
Czech Republic	44	27
Estonia	40 *	...
Hungary	51	40
Latvia	42 **	...
Lithuania	43 **	...
Poland	44	42
Slovak Republic	38	23
Slovenia	43 **	...
Turkey	43	43

\*Data from 2001

\*\*Data from 2003

(1) Single persons without children at the income level of the average worker.

(2) Average single worker without children and one-earner married couple with two children.

Sources: OCDE (2006), World Bank (2005) and author's calculations.

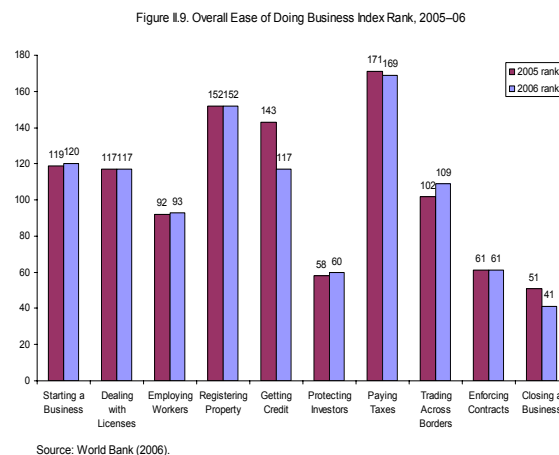
## Other factors

### *Business environment*

20. Despite some improvements, Algeria's business climate ranks below that of most MENA and former transition countries.

According to the World Bank's Doing Business indicators, Algeria's overall ease of doing business rank has improved by 7 points from 2005 (ranked 123) to 2006 (ranked 116),<sup>18</sup> mainly reflecting the improvements in credit information (Figure II.9).

However, Algeria remains behind countries such as Tunisia (ranked 80) and Poland (ranked 75). Improvements in the business environment would enable private firms to become more productive, and in turn improve their ability to create more jobs.



### *Dominance of the public sector*

21. Although significant downsizing has occurred since 1995, the public sector still plays a substantial role in certain production activities, limiting private sector development. The public sector represented 20 percent of gross nonhydrocarbon value added (excluding government services) in 2004, compared to 32 percent in 1995. Significant divestments by the public sector have occurred since 1995 in construction, industry, and transportation. However, the public sector's share of gross nonhydrocarbon value added in industry was still 63 percent in 2004, mainly in construction materials, chemicals, metallurgy, and paper. The public sector also owns 90 percent of financial institutions by assets, with most of the remainder controlled by foreign banks. In addition, government intervention in the labor market has traditionally been substantial. The public sector, the largest employer after the agricultural sector, accounted for 18 percent of total employment and almost 50 percent of the wage bill in 2004.

## D. Conclusion and Policy Recommendations

22. Algeria's unemployment rate is one of the highest among MENA and former transition countries. To address this issue, the following actions could be considered in order to improve Algeria's employment performance:

<sup>18</sup> Country ranking from 1 (best) to 175 (worst).

- The government should pursue growth enhancing policies that will create conditions for long-term employment sufficient enough to absorb the growing work force and reduce unemployment.
- Structural reforms aimed at increasing productivity are critical to ensure a durable reduction in the unemployment rate. Private sector-led growth and investment should be the main engine of job creation and this is unlikely to occur in a low labor productivity environment. Productivity improvements coupled with moderate wage increases are key factors contributing to faster employment growth.
- The tax burden on labor in Algeria is quite close to that of former transition countries, but given Algeria's high unemployment rate, the fiscal space provided by higher oil revenues could be used to lessen the tax burden on labor-intensive activities. The authorities' intention to lower employers' social contributions is appropriate, but this measure should not be limited to some sectors and/or regions.
- Also, labor market regulations seem to not be a major issue. However, lowering hiring and firing restrictions would increase labor market flexibility in Algeria and help to reduce the high unemployment rate. Specifically, shortening the notification period and the length of the procedure for dismissal, lowering employer contributions intended to allow laid-off workers to receive unemployment benefits, removing the employer's obligation to maintain the employment and activity of privatized firms, and allowing the employer to choose which workers to lay off without constraints, could make the labor market more flexible and ease employment creation.

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