

**FOR  
AGENDA**

SM/10/330

December 29, 2010

To: Members of the Executive Board

From: The Acting Secretary

Subject: **Algeria—Selected Issues**

This paper provides background information to the staff report on the 2010 Article IV consultation discussions with Algeria (SM/10/328, 12/28/10), which is tentatively scheduled for discussion on **Friday, January 14, 2011**. Unless an objection from the authorities of Algeria is received prior to the conclusion of the Board's consideration, the document will be published. Any requests for modifications for publication are expected to be received two days before the Board concludes its consideration.

Questions may be referred to Mr. Toujas-Bernaté (ext. 36936) and Mr. Gijon (ext. 35400) in MCD, and Mr. De Bock, MCM (ext. 39670).

Unless the Documents Section (ext. 36760) is otherwise notified, the document will be transmitted, in accordance with the procedures approved by the Executive Board and with the appropriate deletions, to the WTO Secretariat on Friday, January 7, 2011; and to the African Development Bank, the Arab Monetary Fund, the European Commission, the European Investment Bank, the Food and Agriculture Organization, the Islamic Development Bank, and the United Nations Development Programme, following its consideration by the Executive Board.

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INTERNATIONAL MONETARY FUND

ALGERIA

**Selected Issues**

Prepared by Reinout De Bock (MCM) and José Gijón (MCD)

Approved by Middle East and Central Asia Department

December 27, 2010

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## I. DEVELOPMENTS IN GLOBAL GAS MARKETS: CHALLENGES FOR ALGERIA<sup>1</sup>

### A. Introduction

1. **Recent developments in global natural gas markets point to important structural changes.** The United States (US), one of the world's top producers and the largest producer of nonconventional gas, became self-sufficient in terms of natural gas needs in 2009 largely due to a sharp increase in nonconventional gas production. In the last two decades, unconventional US production has more than quadrupled, currently amounting to about half of US production.<sup>2</sup> Moreover, the growing trade of liquefied natural gas (LNG), market liberalization in several countries, changes in the supply chain, and falling transportation costs, have eroded barriers between regionally segmented markets in the largest gas consuming markets (North America, Asia, and Europe).<sup>3</sup> In select markets spot gas price indexation has appeared as an alternative to traditional pricing based on long-term and oil-price indexed contracts. Finally, new emerging markets have increased global supply and eroded the market share of traditional gas producers.

2. **The 2009 recession has depressed European gas demand at levels of 2004, the steepest contraction since 1970.** The slow recovery has left gas buyers in Italy and Spain, Algeria's biggest export markets, significantly over-contracted in volume terms in 2010 (Schels (2010)). Moreover, the International Energy Agency (IEA) expects that the development of shale production on the European continent might further depress the demand for non-EU gas imports in the next years.<sup>4</sup>

3. **The changes in global gas markets could have lasting consequences for Algeria.** Around 49 percent of Algeria's total exports are natural gas exports. The significant contraction of hydrocarbon prices in late 2008 and early 2009 showed Algeria's macroeconomic vulnerability to a prolonged period of low hydrocarbon prices. In 2009, the fiscal balance registered the first deficit in a decade and the current account surplus dwindled to just 0.3 percent of GDP. A recovery encompassing higher oil prices but a modest recovery in gas prices and demand would still have a sizable impact on Algeria's fiscal and external balances. Algeria's recent efforts to coordinate prices between major gas exporters reflects increasing concerns on gas demand and pricing in its main export markets (MEES (2010)).

4. **This paper assesses recent developments in gas markets and the implications for Algerian gas demand and prices.** We document the changing relationship between oil and

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<sup>1</sup> Prepared by Reinout De Bock (MCM) and José Gijon (MCD).

<sup>2</sup> See MIT Energy Initiative (2010).

<sup>3</sup> See Neumann (2009).

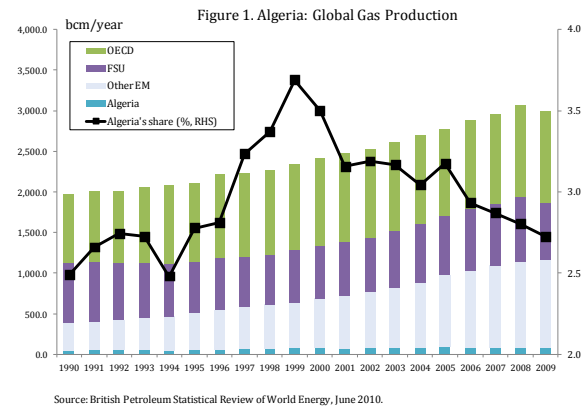
<sup>4</sup> International Energy Agency, "Presentation to the CSIS Medium term oil and gas markets 2010" [http://www.iea.org/speech/2010/Cronshaw\\_MTOGM\\_CSIS.pdf](http://www.iea.org/speech/2010/Cronshaw_MTOGM_CSIS.pdf)

gas prices in the US over the past decade. We then examine the drivers of Algerian gas exports and prices before evaluating the country's fiscal and external accounts in a medium-term scenario with lower gas demand and prices.

## B. Global Environment

### Increase in production and producers

5. **Global gas output increased substantially in the past two decades (Figure 1).** With the exception of 2009, production increased every year since 1990. Producers in emerging markets outside the former Soviet Union have driven the expansion of global gas production. These producers have doubled their share in global gas production from 19 percent in 1990 to 39 percent in 2009. European producers and non-EU OECD (mostly the US and Canada) have seen their share in total production decline.



6. **During the last five years, the share of non-EU OECD producers has recovered.** The main reason is the production of significant amounts of nonconventional gas in the US. This gas is mostly produced from shale deposits, and its production has increased more than four fold since 1990.

7. **The production of shale gas started over 100 years ago but became economically profitable only in recent years.** Higher natural gas prices and technological advances in drilling have led to increased investments in shale gas exploration. In turn, lower well risks pushed up production and profit margins. The economic success in North American shale gas production has stimulated the exploration of shale gas in Europe (Austria, Germany, Hungary, Poland, Sweden, and the U.K), China, Canada, and India.<sup>5</sup>

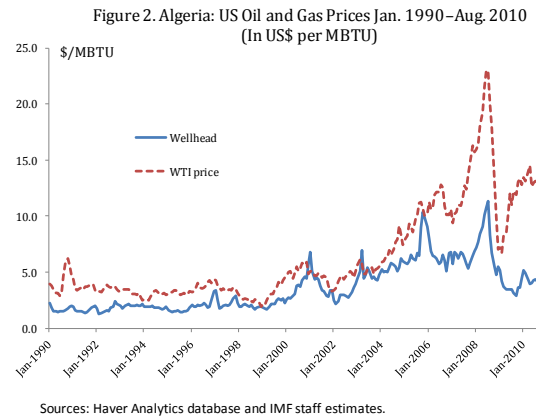
8. **Algeria's gas production is stable but its share in global gas production has been on a downward trend since the early 2000s (Figure 1).** Nonetheless Algeria remains the world's 8<sup>th</sup> largest producer and is a key supplier for European gas markets. Natural gas represents nearly 49 percent of total exports, oil exports cover another 49 percent and nonhydrocarbon exports amount to less than 2 percent. Hydrocarbon exports are the key source of fiscal revenues and foreign exchange. The importance of natural gas for its

<sup>5</sup> Chapter 11 of IEA (2009) provides further information on nonconventional gas production.

economy has made Algeria an active player in the Gas Exporters Countries Forum (GECF) which attempts to create an OPEC-like organization for the gas market.<sup>6</sup>

### Gas versus oil prices in the US market

9. **The behavior of US gas prices relative to oil prices reflects the latest developments in energy markets.** Figure 2 presents the US\$ evolution of the US Wellhead gas price reported by the Energy Information Administration (EIA) versus the Western Texas Intermediate oil price (WTI) in energy equivalent Million British Thermal Units (MMBTU).<sup>7</sup> In general gas prices co-move strongly with oil prices. However, as oil prices recovered after the 2008 crisis, there has been a marked decoupling with gas prices. Oil prices doubled from \$6.7 per MMBTU in February 2009 to \$13.7 in August 2010. Wellhead gas prices, on the other hand, registered a more modest increase of 44 percent from \$2.9 per MMBTU in September 2009 to \$4.2 in August 2010.



10. **Additional supply of nonconventional gas, the weak economic recovery and high storage levels, are the main reasons behind the relative weakness of US gas prices.** Pydrol and Baron (2003) also argue that direct fuel switching capabilities between natural gas and residential fuel have become relatively limited.

11. **The expansion of nonconventional gas production has cut almost all the needs of LNG imports.** It has also put downward pressure on gas prices in other regions (EIA (2009) and IEA (2010)) and leaves Asia and Europe as key destinations for the growing supply of LNG. In the case of Europe, pipeline suppliers such as Norway's Statoil and Russia's Gazprom have been forced to renegotiate contracts (Barysch (2010)).

### Relationship in a state of flux

12. **The impact of a change in the spot oil price (WTI) on gas prices can be statically examined with a Vector Auto-Regression (VAR).<sup>8</sup>** The variables included in the VAR are

<sup>6</sup> See MEES (2010).

<sup>7</sup> The EIA's wellhead price is the sales price obtainable from a third party in an arm's length transaction. It pertains to all transactions occurring in the United States and covers purchase commitments of all durations.

<sup>8</sup> Villar and Joutz (2006) and Brown and Yucel (2008) find a quantitative effect of changes in crude oil on natural gas prices. Both studies do not reproduce Impulse Response Functions or examine the effect of sample breaks.

$Z_t = [\ln(Wellhead_t), \ln(WTI_t)]'$ . For both oil and gas prices, we cannot reject the hypothesis that this period's value equals last period's value plus a random error. Each series could contain a so-called "unit root". However, statistical tests indicate that a combination of the two series moves in tandem along a trend, i.e., they are co-integrated. The reduced-form VAR is then:

$$Z_t = c + Trend + \sum_{j=1}^p B_j Z_{t-j} + u_t, E(u_t u_t') = V, \quad (1)$$

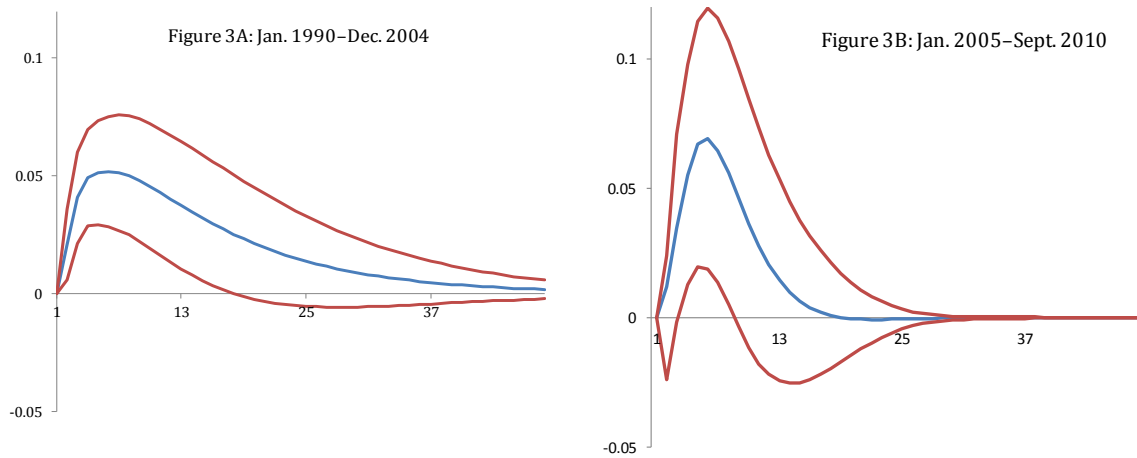
where  $c$  is a constant,  $Trend$  a time trend and  $Z_t$  is the matrix with variables. The inverse of the Choleski factor of the variance-covariance matrix  $V$  can be used to identify structural shocks that are orthogonal to each other. Given the ordering of the variables in  $Z_t$  this corresponds to the assumption that on impact an innovation in the spot oil price has a zero effect on gas prices.

**13. To assess if there was a structural shift in the impact of oil prices on gas prices, we estimate the VAR for two sub-samples: (1) 1990m1-2004m12 and (2) 2005m1-2010m9.**<sup>9</sup> For the first period, the Impulse Response Function (IRF) in panel 3A shows a persistent and long-lived response of gas prices to an oil price shock. Panel 3B displays a less long-lived response in the later period.

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<sup>9</sup> The analyses for 1990–2004 and 2000–04 show similar impulse response functions and forecast error variance decompositions.

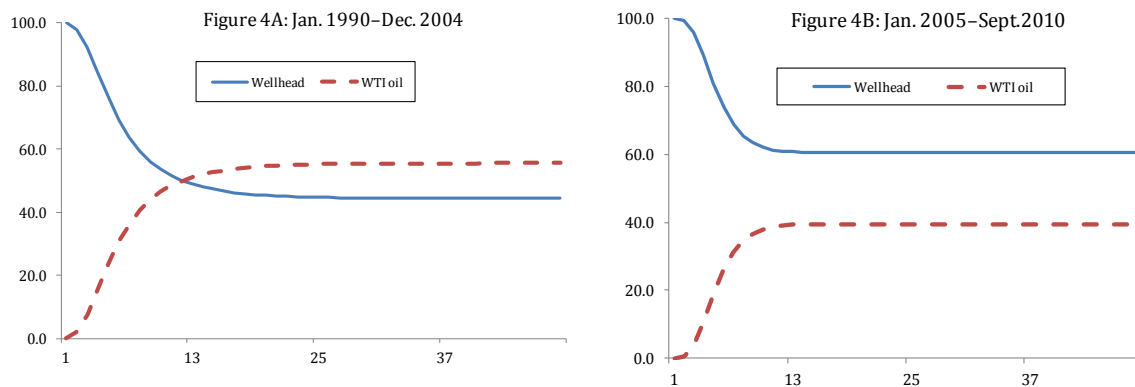
Figure 3. Algeria: IRF of US Gas Prices after an Oil Price Shock



Source: IMF Staff Estimates.

14. **Forecast error variance (FEV) decompositions suggest that oil price shocks are becoming a less important driver of gas prices.** In the earlier sample period, the FEV of natural gas prices at lower frequencies is primarily driven by oil prices (Panel 4A). In recent years, own shocks have explained most of the FEV of gas prices (Panel 4B). The results are consistent with a weakening impact of spot oil prices on US natural gas prices.

Figure 4. Algeria: FEV Decompositions of US Gas Prices



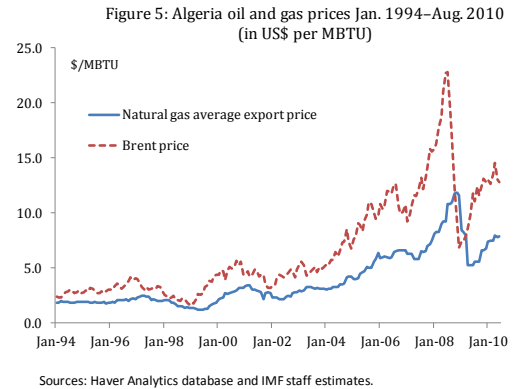
Source: IMF Staff Estimates.



## C. Algerian Gas Exports

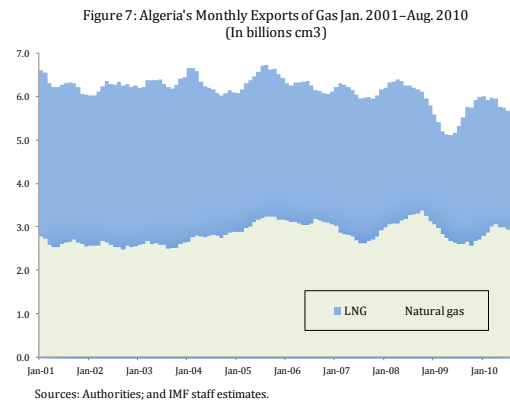
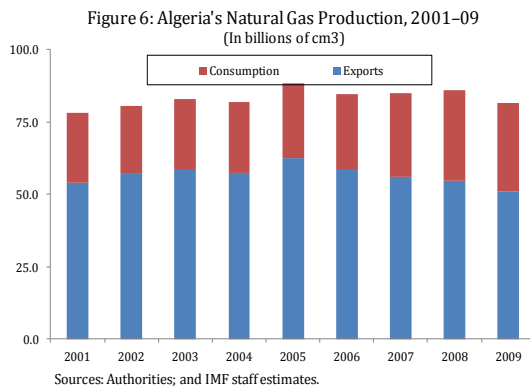
### Composition and destination

15. **Compared to the US, Algeria's gas prices have tracked spot oil prices more closely.** Figure 5 shows that contracted export prices for Algerian gas and spot oil (Brent in US\$ per MMBTU) co-move strongly, even in recent years.<sup>10</sup> Contrary to the US gas market there is no apparent decoupling between gas and oil prices. This is in line with anecdotic evidence that most of Algeria's gas is purchased under oil-indexed contracts.



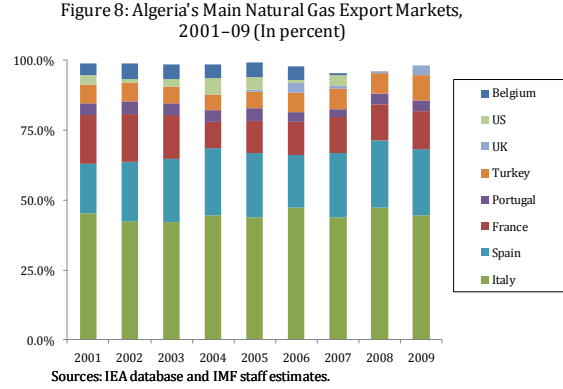
16. **The recent recovery in Algerian gas prices has not been matched by volumes.**

Figure 6 shows that annual production has remained more or less stable during the last decade but exports have been declining while domestic consumption has been growing. In turn, Figure 7 shows that neither type of gas exports (LNG or natural gas) has increased during the last decade and export volumes have decreased in the past years.



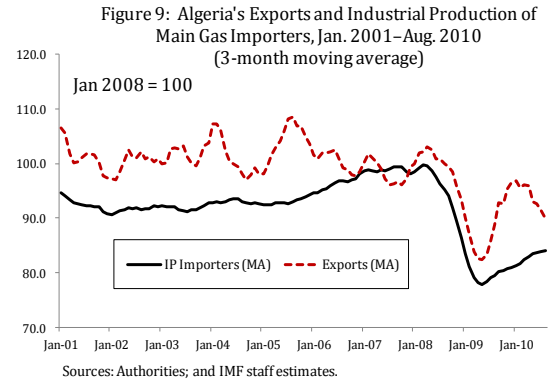
<sup>10</sup> Brent prices and the Algerian export oil price behave very similarly.

17. **While exports have declined in recent years, export markets have become more concentrated.** The gazoducs linking Algeria with Spain and Italy have made these two countries the largest export destinations (Figure 8). The pipelines ensure very stable export destinations with long-term contracts indexed to oil prices and guaranteed minimum purchases. On the other hand LNG exports to the US and Belgium, which represented 10 percent of Algeria's total gas exports in 2005, have stopped in the last years. In the case of the US, the lack of demand reflects higher nonconventional gas production.



### Cyclical links with gas buyers

18. **Although long-term contracts and pipelines ensure stable export markets, Algerian gas export are highly dependent on the economic performance of its gas buyers.** Figure 9 plots the 3-month moving average of Algeria's natural gas exports and the buyers' export-weighted average headline industrial production (IP). The crisis of 2008 and the collapse of industrial gas demand in Europe sharply reduced Algeria's gas exports. Following an unusually cold winter in 2010, the modest industrial recovery, especially in Spain and Italy, has kept natural gas export at relatively low levels. Another indication is that natural gas buyers have recently been purchasing only the minimum volume required by long-term gas supply contracts.



### Drivers of Algeria's gas demand and prices

19. **The interrelations between Algeria's natural gas exports, prices, spot oil prices, and economic activity in partner countries can be examined with a VAR.** The monthly variables included in this multivariate VAR are (in natural logs over 2000m1–2010m8):

$$Z_t = [\ln(Q_t^{Gas}), \ln(P_t^{Gas} / CPI^{US}), \ln(Brent_t / CPI^{US}), \ln(IP_t)]'. \quad (2)$$

The variable  $Q_t^{Gas}$  is Algeria's monthly volume exports,  $P_t^{Gas} / CPI^{US}$  is the real gas price (Algeria's export price deflated by US CPI),  $Brent_t / CPI^{US}$  the real oil price and  $IP_t$  is export-weighted headline IP in Algeria's gas buyers. As before, statistical tests fail to reject

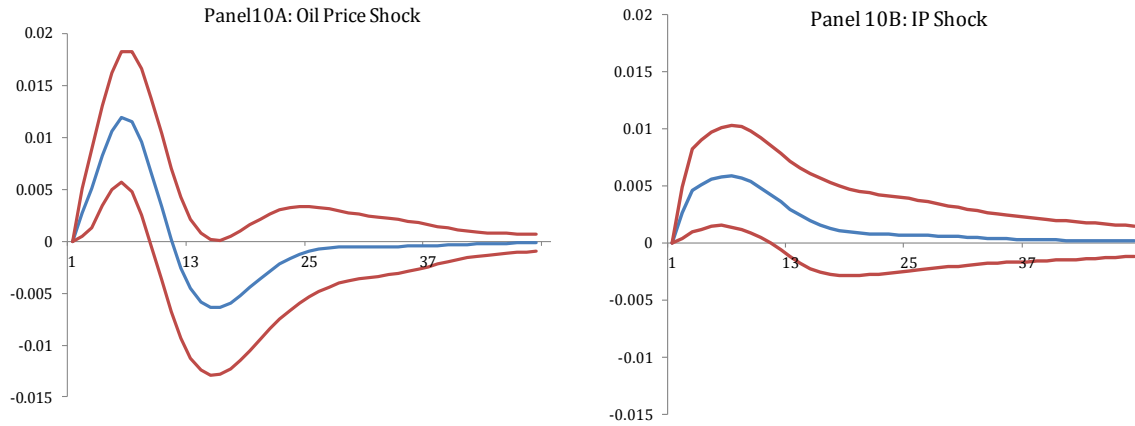
the hypothesis that these variables contain a unit root but indicate co-integration along a trend. The reduced-form VAR is:

$$Z_t = c + Trend + \sum_{j=1}^p B_j Z_{t-j} + u_t, E(u_t u_t') = V, \quad (3)$$

where  $c$  is a constant,  $Trend$  a time trend and  $Z_t$  is the matrix with variables. The inverse of the Choleski factor of the variance-covariance matrix  $V$  can be used to identify structural shocks that are orthogonal to each other.

20. **The IRFs in Figure 10 show that there is a positive short-run effect of oil prices on gas exports, which subsequently turns negative at lower frequencies.** This suggests that high oil-indexed contract prices can depress demand and is in line with recent industry analyses of the European gas markets (Schels (2010)). One of the reasons is that oil-indexed gas prices make gas-intensive manufacturing less competitive. In addition, renewable energy and nuclear output offer reliable alternatives for gas-fired power generation. Following the recession and the subsequent recovery in spot oil prices, utilization rates in gas-fired power generation have remained low. On the other hand, there is a general positive effect of a pick-up in importers' industrial production on Algerian gas exports (Panel 10B).

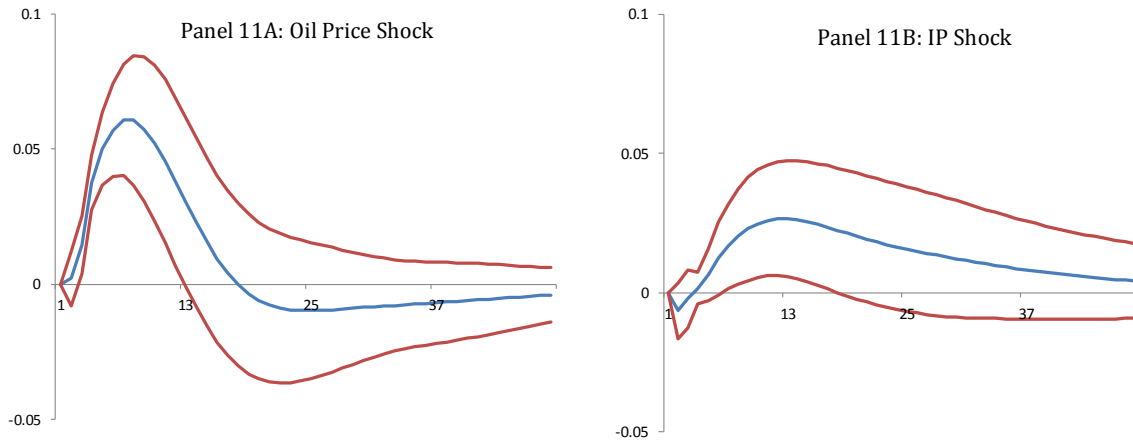
Figure 10. Algeria: IRF of Algerian Gas Exports after an Oil price and an IP Shock



Source: IMF staff estimates.

21. **Turning to gas prices, we find that there is a positive effect of oil prices and IP in importing countries on natural gas prices (Figure 11).** The response of contracted gas prices to spot oil is quantitatively similar to what we observed in the US.

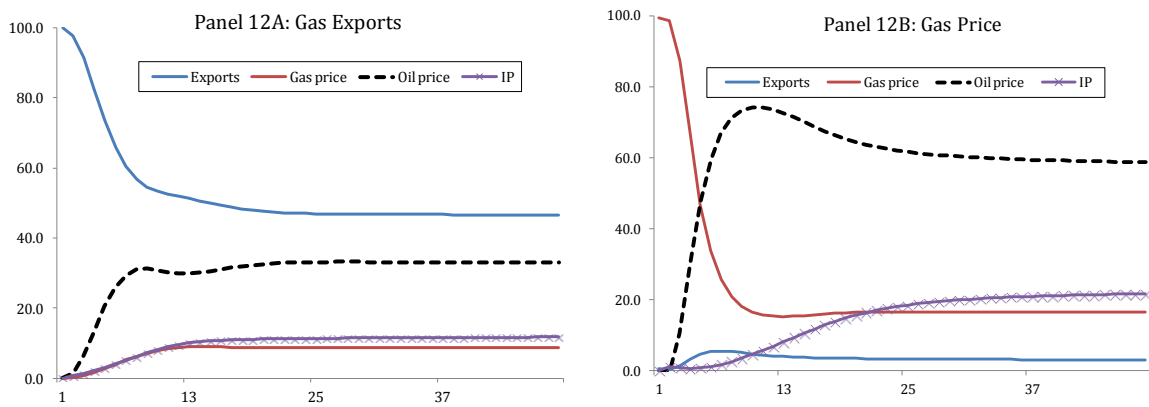
Figure 11. Algeria: IRF Algerian Gas Prices after Oil Price and IP Shock



Source: IMF staff estimates.

22. **The FEV analysis also indicates that the level of oil prices matters for gas export volumes though own shocks dominate (Figure 12).** In the case of gas prices, Panel 12B shows that oil price shocks explain most of the FEV of gas prices at frequencies lower than six months.

Figure 12. Algeria: FEV Decompositions of Algeria's Gas Exports and Prices



Source: IMF staff estimates.

23. **The estimates give rise to a long-run relationship for gas exports.** The following relationship between gas exports, gas prices, oil prices and industrial production in export markets (t-stats between parentheses):

$$\ln(Q^{Gas}) = 4.23 + 1.09 \ln(P^{Gas} / CPI^{US}) - 1.03 \ln(Brent_t / CPI^{US}) + 0.63 \ln(IP_t) \quad (4)$$

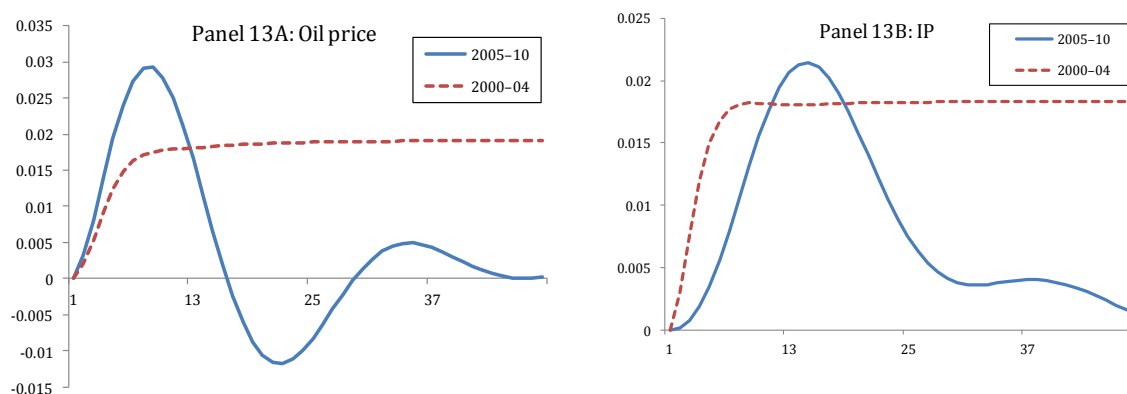
(8.27) (8.86) (3.26)

In line with the IRF analysis, there is a positive link between export volumes and real gas prices whereas higher oil prices tend to depress gas demand in the long run and growth in industrial production tends to boost it. All coefficients are significantly different from zero.

### Subsample analysis

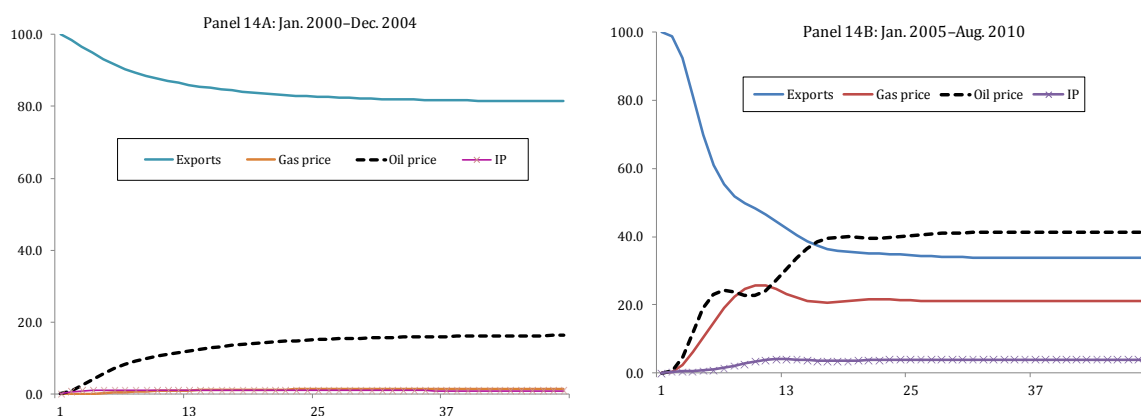
24. We carry out two subsamples estimates for (1) 2000m1—2004m12 and (2) 2005m1—2010m8. The subsample analysis hints at a changing role for oil prices and IP as drivers for Algerian gas demand. Figure 13 shows that the negative effect of oil prices on gas exports at certain frequencies only arises in the second subsample. IP has a positive effect in both subsamples. The FEV decompositions in Figure 14 show that at lower frequencies oil price shocks explain most of the FEV of gas exports in the later period.

Figure 13. Algeria: Accumulated IRF of Algerian Gas Exports to Oil Price and IP Shocks



Source: IMF staff estimates.

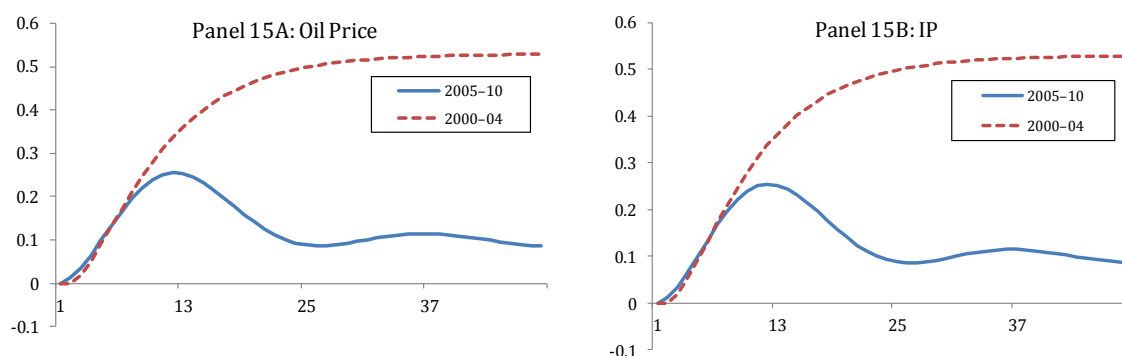
Figure 14. Algeria: Subsample FEV Decomposition of Algeria's Gas Exports



Source: IMF Staff Estimates.

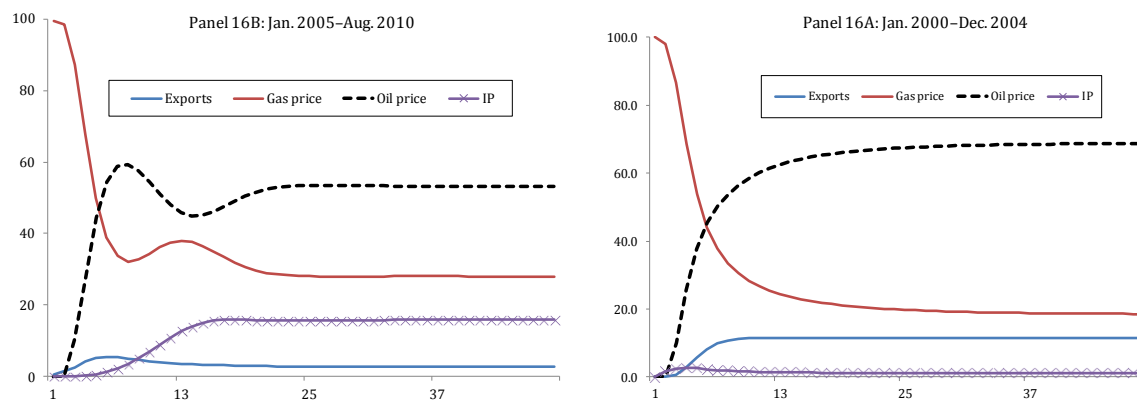
25. **The positive effects of oil price shocks on gas prices became less long-lived in Algeria (accumulated IRFs in Figure 15).** However, the FEVs in Figure 16 show that, in contrast to the US, oil price shocks still dominate.

Figure 15. Algeria: Accumulated IRF of Algerian Gas Price to Oil Price and IP Shocks



Source: IMF staff estimates.

Figure 16. Algeria: Subsample FEV Decomposition of Gas Prices



Source: IMF staff estimates.

## D. Scenario Analysis

26. **The previous section examined the interrelationships between Algerian gas demand, gas prices, spot oil prices, and industrial production in gas buyers.** The link between the price for Algerian gas and spot oil remains strong even after the global crisis of 2008 and the increase in production of nonconventional gas in North America. However, some of the evidence hints at a slower recovery in gas prices for Algeria. Efforts to turn the Gas Exporters Countries Forum (GECF) into an OPEC for natural gas, is another indication of this potential trend. Moreover, in the case of Algeria the threat of lower gas prices is coupled with declining export volumes and growing domestic demand, making the issue all the more pressing for Algerian authorities.

27. **To assess the potential impact of a fall in natural gas exports and prices, we evaluate a medium-term macroeconomic scenario which assumes that gas prices would fall to US levels and export volumes would decline.** This scenario could be overly pessimistic due to the current long-term structure of Algerian gas contracts and the hitherto absence of substantial nonconventional gas production in Europe. However, it offers a good illustration of what could happen if nonconventional gas production would take off in Europe and across the world in five to ten years.

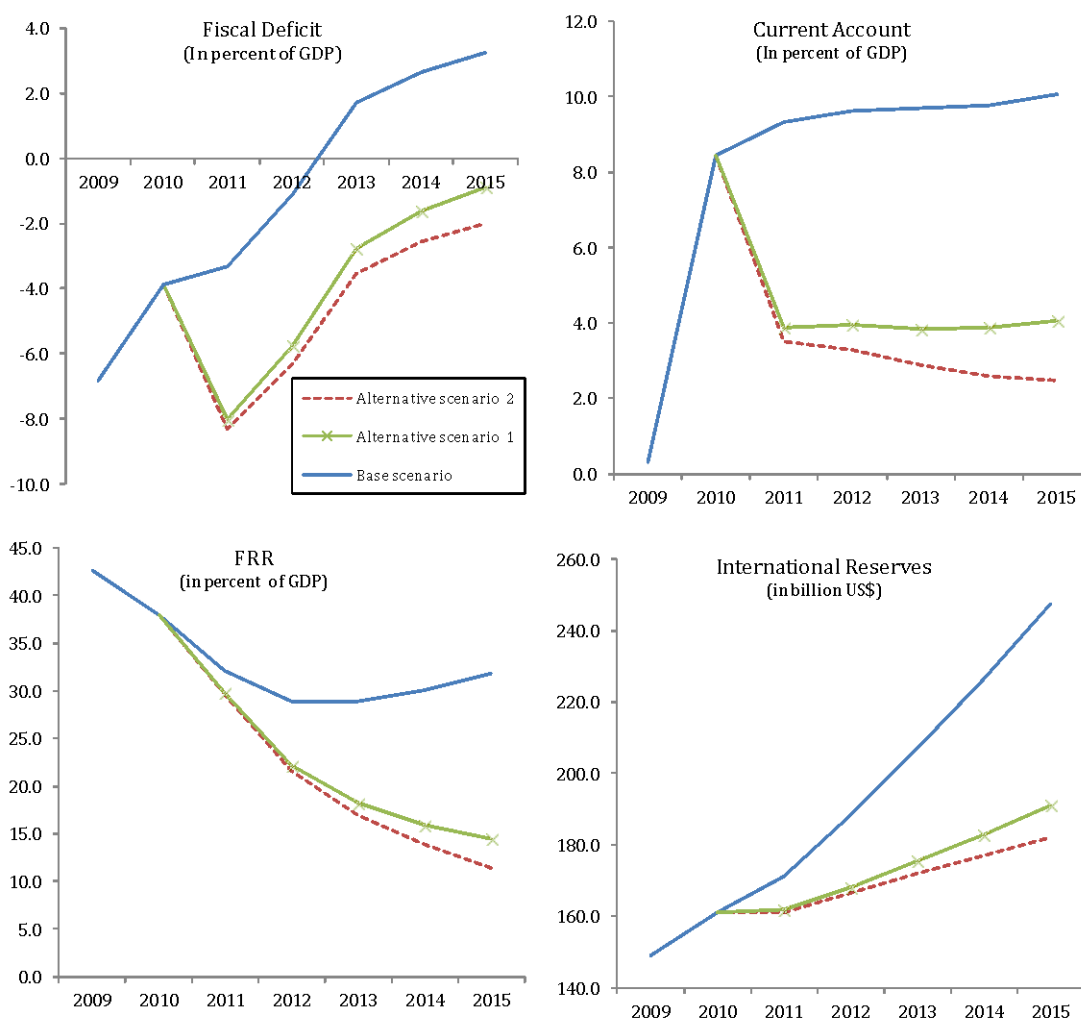
28. **Figure 17 presents the current scenario together with two alternative scenarios.** The first alternative scenario assumes an average gas price kept real at current US levels (the 2010 nominal price increasing with inflation in advanced economies) and constant export volumes. The second alternative scenario makes the same price assumption but incorporates an annual fall in natural gas export volumes of 5 percent per year.<sup>11</sup> The data show an important deterioration of the fiscal balance (-0.9 of GDP and -2.0 of GDP in alternative scenarios 1 and 2 versus 3.2 of GDP in the base scenario in 2015), the current account surplus (4.0 and 2.5 percent of GDP in alternative scenarios 1 and 2 versus 10.1 percent of GDP in the base scenario in 2015), the oil stabilization fund (*Fonds de Regulation de Recettes, FRR*) (14.5 percent and 11.4 percent of GDP in alternative scenarios 1 and 2 versus 30.1 percent of GDP in the base scenario in 2015) and international reserves (US\$191 billion and US\$182 billion in alternative scenarios 1 and 2 versus US\$247 billion in the base scenario in 2015).

Table 1. Current Assumptions and Alternative Scenarios for Algeria's Gas Prices

<b>Current assumptions</b>	2009	2010	2011	2012	2013	2014	2015
International oil price (US\$/bbl)	61.8	76.2	78.8	82.3	84.8	86.0	87.5
Gas price for Algeria's exports (US\$/MMBTU)	6.6	7.6	7.9	8.3	8.6	8.7	8.9
Algeria's exports in volume (billion of cm3)	53.7	53.8	53.8	53.8	53.8	53.8	53.8
<b>Alternative scenario 1: fall in prices and volumes constant</b>	2009	2010	2011	2012	2013	2014	2015
International oil price (US\$/bbl)	61.8	76.2	78.8	82.3	84.8	86.0	87.5
Gas price for Algeria's exports (US\$/MMBTU)	6.6	7.6	4.4	4.5	4.5	4.6	4.7
Algeria's exports in volume (billion of cm3)	53.7	53.8	53.8	53.8	53.8	53.8	53.8
<b>Alternative scenario 2: fall in prices and 5 percent fall in volumes</b>	2009	2010	2011	2012	2013	2014	2015
International oil price (US\$/bbl)	61.8	76.2	78.8	82.3	84.8	86.0	87.5
Gas price for Algeria's exports (US\$/MMBTU)	6.6	7.6	4.4	4.5	4.5	4.6	4.7
Algeria's exports in volume (billion of cm3)	53.7	53.8	51.1	48.5	46.1	43.8	41.6

<sup>11</sup> A 5 percent fall corresponds to a scenario where a boom of nonconventional gas production in Europe or a glut in global LNG supply entails a gradual fall of Algerian gas exports. We do not expect this to occur in the next five years but we wish to examine the macroeconomic impact using the current medium term macroeconomic assumptions. That said, despite increasing capacity Algeria's average gas exports have been declining in the past years (by 6 percent with respect to 2000 levels).

Figure 17. Algeria's Economic Indicators Under the Baseline and the Alternative Scenarios



Source: IMF staff estimates.

## E. Conclusion

29. **This paper assesses recent developments in natural gas markets.** Econometric analysis shows that the tight link between US gas and spot oil prices has weakened. This decoupling coincided with a significant increase in the production of nonconventional gas (especially shale gas) in the US. The additional supply has discontinued plans for sizable LNG imports into the US.

30. **Conversely, the impact of spot oil prices on Algeria's contracted gas price remains strong but export volumes are under pressure.** Oil prices and industrial activity have a significant and important impact on Algerian natural gas prices. Although long-term contracts and pipelines to main markets ensure demand stability, recent developments in international gas markets and a slow recovery in partner countries has led to declining export volumes.



31. **Even with a continued recovery of oil prices, Algerian gas priced at US levels and tepid demand would have a sizable effect on Algeria's economy.** A medium-term scenario analysis assumes an increase in nonconventional gas production on the European continent or a global glut in LNG supply. Under this constellation, natural gas prices are kept constant in real terms at current US prices and exports fall with 5 percent per year. Our current assumptions imply a significant negative impact on Algeria's macroeconomic balances.

32. **The development of alternative gas production in Europe is not imminent and would take five to ten years.** However, this paper shows the dangers of relying on a limited basket of exports and the importance of boosting the diversification of the Algerian economy.

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## II. COULD THE NEW FDI REGULATIONS PROMOTE DIVERSIFICATION<sup>1</sup>

### A. Introduction

1. The first decade of the 21<sup>st</sup> century was very positive for the Algerian economy. During the past 10 years, the economy recovered from the deep socioeconomic crisis of the 1990s. Between 2000 and 2009, real GDP and nonhydrocarbon GDP grew respectively at an annual average of 3.7 and 5.6 percent, whereas real GDP per head increased by 22 percent, and unemployment fell from 29.5 percent to 10.2 percent. The reasons for this success were a favorable international macroeconomic environment marked by high oil prices, and prudent macroeconomic policies that resulted in large fiscal surpluses and increasing foreign exchange reserves. Despite the progress made, the economy remains extremely dependent on the hydrocarbon sector (98 percent of exports), private investment is too small, and a weak business climate remains a major barrier for private investment-led economic growth.
2. In an effort to increase the competitiveness of the economy, the authorities launched in 2004 a US\$200 billion public investment program (PIP) to enhance or build new infrastructure. Moreover, a set of rules (such as trade liberalization, public sector enterprise restructuring and privatization, support to private investment or financial sector reforms) were adopted in since the late 1990s to help promote the diversification of the economy based on a vibrant domestic private investment sector. So far, the adoption of these measures had mixed results and has failed to boost domestic private investment in a significant way.
3. The 2009 Supplementary Budget Law<sup>2</sup> and the 2010 addendum to the money and credit law introduced new foreign direct investment rules (FDI), which could have important economic consequences for Algeria. Although the reported goal is to promote domestic investment, it may have opposite consequences and hamper efforts to diversify the economy out of hydrocarbons, Algeria's main export.
4. The two main objectives of this paper are to explain the potential (likely negative) effects of the new FDI rules on export diversification and the importance of export diversification for commodity exporters. To provide useful policy lessons to Algeria, we present a discussion on the benefits of export diversification and the importance of FDI in achieving this goal. Several commodity exporters that had successful export diversification strategies (e.g. Chile, Colombia, Indonesia or Malaysia) relied heavily on FDI to foster diversification.

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<sup>1</sup> Prepared by José Gijon (MCD).

<sup>2</sup> The new rules were adopted through the 2009 Supplementary Budget Law issued on July 26, 2009 (see [http://www.joradp.dz/JO2000/2009/044/F\\_Pag.htm](http://www.joradp.dz/JO2000/2009/044/F_Pag.htm)).

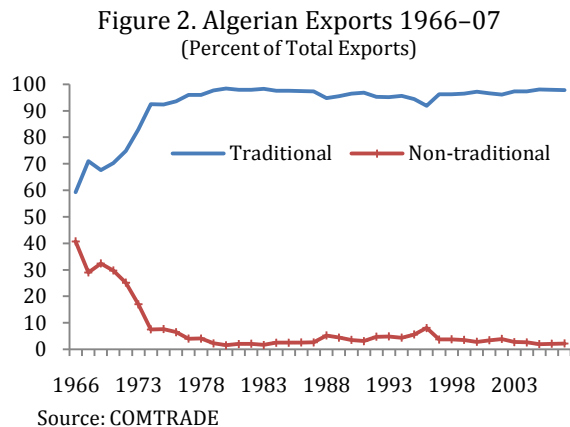
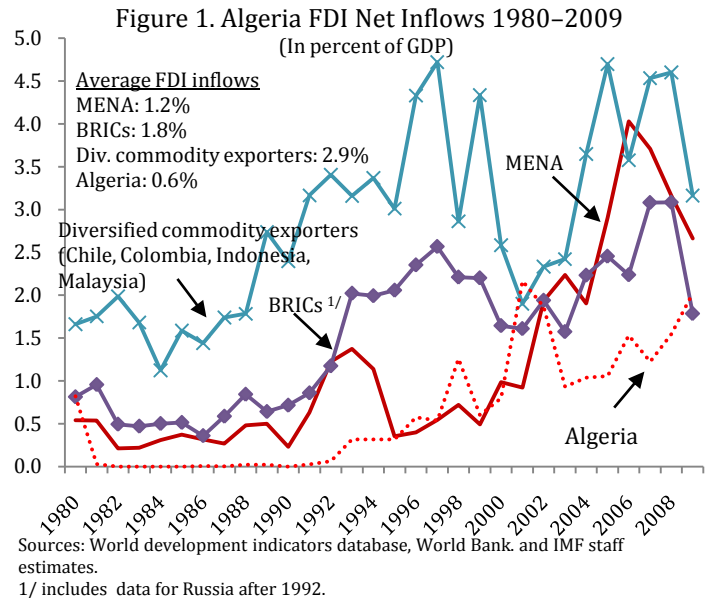
## **B. Possible Consequences of Algeria's New FDI Rules**

5. The FDI rules introduced a set of measures aimed at promoting economic activity and job creation. To reach this objective, the SBL offered fiscal incentives to businesses for hiring permanent workers, financial incentives to small- and medium-sized enterprises, and targeted measures to develop the agricultural, tourism, and real estate sectors. Specific sector-support measures included fiscal exonerations for agricultural producers, tourism entrepreneurs and landlords; and subsidized mortgage rates for public sector employees. The FDI rules also included some actions to curb the growth of imports, which had grown significantly in recent years and were considered a potential risks to economic stability. These measures included more stringent controls on external trade operations and a ban on consumer credit (excluding mortgages).
6. Although the main objective was to support economic growth, the authorities devised the SBL to favor national production and domestic investment. The FDI rules introduced tax exonerations for businesses purchasing domestically produced goods, new tax rules for the import of goods and services, a series of actions to encourage the participation of domestic financial institutions in the economy, and a more restrictive FDI regime.
7. The most important aspect of the new FDI legislation is a 49 percent ceiling on foreign investor stakeholding in any new FDI project—which in 2010 was extended to the financial sector. Although the new rules allow foreign investors to remain the largest shareholder in, and manage, new projects by partnering with two or more domestic investors, there are serious risks that the legislation may have a deterrent effect on FDI.
8. Unlike other middle-income economies, for many decades, Algeria has not been able to attract large amounts of FDI. Figure 1 presents the evolution of FDI flows to Algeria, the countries of the Middle East and North Africa (MENA) region, middle-income countries, the BRICs (Brazil, Russia, India, and China) and a group of diversified commodity exporters from 1980 to 2009. It shows that Algeria has received little FDI, with the largest share of it (36 percent of total) believed to have been directed to the hydrocarbon sector, and well below MENA and income level averages. Conversely, the group of diversified commodity exporters and the BRICs received large amounts of FDI flows, well above the middle-income category.
9. The lack of FDI could have negative effects on Algeria's growth prospects as empirical research has proved extensively the positive impact of FDI on economic growth (Borezstein, de Gregorio and Lee, 1995, and Ram and Zhang, 2002). Moreover, in a world economy where control of knowledge and technology are essential assets for companies, ownership limits on foreign subsidiaries, such as those contained in Algeria's new FDI rules,

could deter foreign investors. Seminal research by Kogut and Zander (1993)<sup>3</sup> points to that direction: for today's multinational corporations, wholly-owned subsidiaries are essential for carrying out the majority of overseas projects to safeguard the internal knowledge of the firm.

10. An additional consequence of the FDI rules is the negative impact on export and economic diversification. Recent research has shown that foreign investment can help promote export diversification and performance (Banga, 2006 and Buckley et al, 2002). These results imply that a fall of FDI in Algeria may hamper the government's efforts to diversify the economy away from hydrocarbons.

11. For Algeria, the negative effect of the heavy dependence on a limited basket of goods was evidenced during the global crisis, when the fall in hydrocarbon prices eroded fiscal and external surpluses. Long periods of low oil prices in the 1980s had already dramatic consequences for Algeria, setting the ground for the socioeconomic crisis of the 1990s. Although Algeria has built up large reserves and financial buffers since 2002 thanks to prudent macroeconomic policies, its medium-term financial outlook remains highly dependent on oil price fluctuations, and a decline in energy prices over an extended period could jeopardize long-term growth prospects. Furthermore, Algeria needs competitive and diversified export activities to improve productivity and provide jobs for the relatively high number of unemployed youth (around 21 percent in 2009).



<sup>3</sup> Kogut and Zander (1993) was awarded 2003 Decade Award Winning Article by the Journal of International Business studies.

### **New Findings in Export Diversification Research and the Case for Economic Diversification<sup>1</sup>**

Export diversification is a key aspect of economic development as it represents the structural shift from the production of low-income country goods (i.e., unprocessed commodities) to high-income country goods (i.e. high value added goods). Export diversification is particularly relevant for commodity dependent countries because it makes their economies less vulnerable to negative terms of trade shocks and promotes growth and job creation (Hesse, 2006, and Hammouda et al., 2008).

Two major conclusions stand out from empirical research on export diversification: (a) it is important for economic development, and (b) public policy has a positive role to play. Several studies have found a positive relationship between export diversification and growth thanks to, among other reasons, increases in total factor productivity (Hammouda et al., 2008) or increased export growth (Hasan and Toda, 2004). In a cross-country study covering more than 100 countries, Hesse (2006) also finds strong evidence of correlation between export diversification and per capita GDP growth.

The role of proactive policies and adequate institutions make a difference for export diversification as they can create a favorable incentive structure for exporters, and lower costs of trade-related services (Klinger and Ledermann, 2005 and Nassif, 2009). Conversely, empirical research finds that clear constraints to diversification include limited access to finance, weak national innovation systems, trade policies that overtax exporters, and the lack of support for exporters to access new markets.

World Bank (2009) finds that building adequate institutions is essential for successful export diversification but it is a process that takes time. Moreover, there are other major factors that are necessary preconditions to make these institutions successful, including (a) an efficient infrastructure—especially in transportation and telecommunications—to reduce costs, improve product quality, and enhance the speed and the reliability of their delivery; (b) well functioning tax and customs services to facilitate transactions and access to international conformity standards; (c) stable and predictable macroeconomic policies, including an efficient financial sector, an appropriate exchange rate, and open trade policies to enable market access and improve exporters' competitiveness; and (d) adequate structural reforms to create a regulatory climate that stimulates private sector growth, including legislation supporting domestic private investment and FDI.

World Bank (2009) also finds that two types of “new” exports, services and tourism, have a substantial effect in boosting developing countries' exports. Export services have benefited from trade liberalization and advances in information technologies and contribute to growth and export diversification through different channels by expanding existing export activities, or creating new ones, or by lowering the transactions costs in the export industry, making them more competitive. Similarly, World Bank (2009) finds that tourism offers a “low cost” alternative to face foreign demand, understand foreign preferences and quality standards by bringing foreign demand to the home country.

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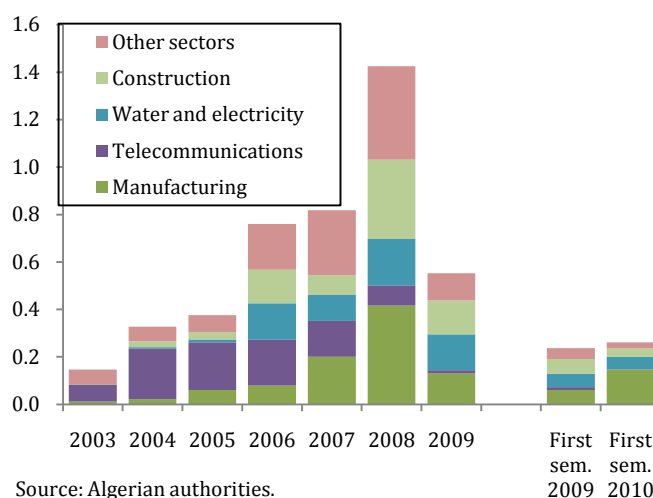
<sup>1/</sup> For a detailed list of empirical studies of the links between export diversification and growth, please refer to Newfarmer, Shaw and Walkenhorst (2009), henceforth World Bank (2009).

12. In terms of export diversification, Algeria has been moving toward a concentrated basket of goods during the past four decades. Figure 2 shows that in the late 1960s and early 1970s, Algeria's nontraditional exports represented around 40 percent of total exports; today, they represent only around 2 percent. This decline is the result of the failure of certain policies, such as the post-independence agricultural reforms, and the lack of progress in structural reforms.

13. The examples of successful export diversification provide lessons for Algeria. World Bank (2009) shows that a broad array of targeted policies, such as the creation of a well adapted export incentive structure, a reduction in trade-related costs, and proactive public export promotion institutions can help promote export diversification. In the case of Algeria, progress in certain areas (e.g. sound macroeconomic policies) has not been accompanied by a more aggressive stance in others (e.g. structural reforms), which has hindered the export diversification efforts.

14. One source of concern is the fact that foreign investors may be even more reluctant to invest in Algeria after the enforcement of the FDI rules. Figure 3 presents the evolution of FDI to Algeria from 2003 to the first semester of 2010—excluding the hydrocarbon and financial sectors<sup>4</sup>—shows a significant fall in 2009 with no signs of recovery 2010 whereas in other emerging regions there has been a sound recovery in 2010.

Figure 3. Algeria: FDI net inflows to Algeria,<sup>1</sup>  
USD billion, 2003–10



15. World Bank (2009) provides the following lessons for Algeria:

- First, infrastructure development and macroeconomic stability are essential for export diversification. Algeria should be praised for its efforts to maintain macroeconomic stability and develop infrastructure. In this respect, prudent macroeconomic management and the implementation of the PIP are steps in the right direction. At the same time, it is crucial to ensure the good quality and efficiency of public expenditure, which plays a key role in the Algerian economy. It may be of concern that, despite relatively large investment ratios, Algerian productivity gains appear to continue to lag behind most of its

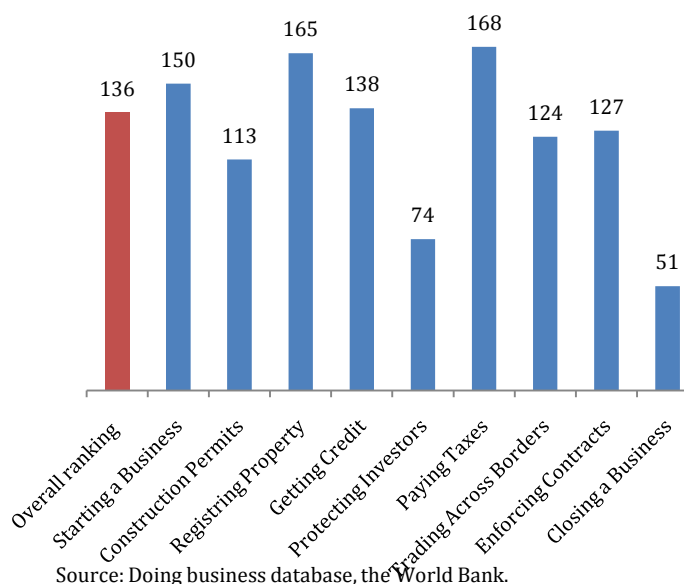
<sup>4</sup> Hydrocarbon FDI is excluded because it is Algeria's traditional export sector whereas FDI in the financial sector was affected by the mandatory four-fold capital increase in banks enacted in 2009.

partners and competitors, although one could argue that infrastructure investments can take time to lead to productivity gains.

- Second, open FDI regimes are essential for the development of a private sector-led export sector. FDI to Algeria has been traditionally scarce (see Figure 1) and has been mostly flowing to the hydrocarbon sector. The new FDI regulations adopted under the 2009 SBL are likely to deter—not attract—more FDI by putting a ceiling on foreign investors' stake in new FDI projects. Algeria should consider a comprehensive review of FDI policies to attract more foreign capital by creating a more FDI-friendly regime.

- Third, a good business climate is essential for export diversification. Algeria must take concerted action to improve its business climate. In this respect, the country has been falling behind due to very timid structural reform measures. As Figure 4 indicates, Algeria ranks poorly in the World Bank's 2011 *Doing Business* overall index (136<sup>th</sup> out of 183 countries) as well as across categories. Reforms in key sectors, such as banking and finance are essential to make Algeria more attractive for private investment development.

Figure 4: Algeria 2011 Doing Business Rankings



Source: Doing business database, the World Bank.

- Fourth, trade openness is essential for opening new markets for export products. Successful diversified commodity exporters followed aggressive trade openness strategies, joined the World Trade Organization (WTO), and signed numerous free trade agreements. Algeria should follow a more aggressive trade openness strategy by renewing efforts to join the WTO, advancing into the next stages of the implementation of the Association Agreement with the European Union, and promoting regional integration.
- Fifth, the service and tourism sectors play a positive role in export diversification. The World Bank (2009) shows that export diversification can be achieved through very different paths that do not require the export of physical goods. Like other countries in the Maghreb region, Algeria should exploit its potential in export services and tourism to promote export diversification.



- Sixth, successful export diversification can be state-driven or not: there is not a unique recipe for success. Algeria has traditionally promoted economic development based on strong public sector participation. It should be able to develop a successful export diversification strategy with strong state involvement.
- Seventh, export support institutions, like export promotion agencies and export promotion zones, are instrumental in advancing export diversification. Algeria should assess the quality of its export institutions and, if necessary, reinforce them to support export diversification efforts.
- Eighth, targeted and adjustable export support policies can help the development of the export sector. Algeria should attempt to put in place similar type of policies.

### **C. Conclusion**

16. During the past decade, Algeria has made important efforts to ensure long-term sustainable economic growth and improve living conditions of the population. The authorities are conscious of the challenges lying ahead and are determined to make good use of hydrocarbon revenues. So far, prudent macroeconomic management and implementation of the PIP programs have provided adequate—but not sufficient—steps for ensuring long-term prosperity.

17. The major challenge for the Algerian economy is to diversify out of the hydrocarbon sector and ensure sustained private investment led growth. This paper has argued that economic diversification has huge benefits for exporting economies. Moreover, the examples of successfully diversified commodity exporters show that successful economic diversification for commodity exporters follow very different paths.

18. Whether economic diversification strategies rely more on the public or the private sector, key policies must be adopted. Among these is a friendly and open FDI regime. FDI provides private investment-scarce countries with the know-how and technology transfer required for creating and developing strong private domestic investment. This is particularly true in today's world economy where the service industry and technology transfer plays a fundamental role in the international competitiveness of firms and countries.

19. Foreign capital is essential for Algerian development prospects, but the FDI rules may have a deterrent effect on foreign investors who prefer to hold majority stakes in their Algerian subsidiaries. While policymakers may be wary of the loss of control implied by a minority shareholding by nationals in various sectors of the economy, this can be mitigated by the creation of institutions charged with supervising foreign investment and improving the business climate.

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