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Algeria—The Real Exchange Rate, Export Diversification, and Trade Protection

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Abstract

Given the tendency of the oil sector to appreciate the equilibrium real exchange rate (RER) in Algeria, trade liberalization with its depreciating impact on the RER is important for diversification of exports. This paper shows that reduction in trade protection would depreciate the RER in Algeria, which in turn would improve competitiveness of, and incentives to invest in, non-oil exports. The paper then discusses existing levels of protection in Algeria and directions for reform.

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I. Introduction

The oil sector has been a dominant feature of Algeria's economy for decades making it vulnerable to changes in world oil markets. Dependence on oil and related products is striking even when compared to a number of other oil-exporting countries (Table 1)—hydrocarbons in Algeria accounted for 95 percent of exports, 60 percent of government revenue, and 30 percent of GDP in 1997. Therefore, the reduction in the dependence on oil and other hydrocarbons including the development of other exports, and the creation of a sustainable basis for growth have been the main long term objectives of the government's adjustment effort since 1994. But despite successful stabilization in the past few years, progress in the structural areas has been slower. The pickup of growth in the nonhydrocarbon sector and exports has not yet materialized. For example, non-oil exports in 1998 were still only 5 percent of total.

Diversification of exports is a way to address a number of problems in the Algerian economy. First, dependence on oil increases the vulnerability of Algeria to external shocks. This can have important costs in terms of instability of the macroeconomic framework, which can effect investment decisions and growth. As oil revenues are also a large share of overall government revenues, changes in oil prices also lead to large changes in fiscal balances.[2] Second, in Algeria the vulnerability to changes in oil prices is exacerbated by the high burden of both domestic and foreign debt, which reduce the room for maneuver in economic policies. Third, the high unemployment in Algeria at nearly 30 percent and the expected large number of new entrants to the labor force require substantial growth rates in the non-oil economy to absorb the unemployed. This is unlikely to be achieved without substantial growth in exports. Fourth, the development of nonhydrocarbon exports is likely to have positive externalities for the rest of the economy in terms of learning-by-doing. This has been underlined in recent literature on endogenous growth (see, e.g., Sachs and Warner, 1995).

One constraint to export diversification is the "natural" appreciation of the real exchange rate in Algeria from the presence of the oil sector. Much of it is unavoidable and reflects many of the fundamentals in Algeria, unless the rate of resource extraction is slowed down. This is unlikely, given the government's development needs, and the high debt burden. A key issue for policy then becomes whether there are other ways to slow down the real appreciation. Any policy aiming at manipulating the nominal rate by devaluations would lead to macroeconomic disequilibria and consequent problems in managing the economy, and have no real effects in the long run. Thus the answer to the above question has to lie in some factors influencing the fundamentals. A key policy in this can be trade liberalization. In addition, trade liberalization has well-known beneficial effects on the efficiency of resource allocation.

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[2]One option to deal with this issue is to cut the direct link from oil revenues to the budget by increasing other sources of revenues or by establishing an oil fund to manage revenues from the oil sector. Another option is to encourage diversification of the economy.

This paper argues that reduction in trade protection in Algeria would tend to depreciate the equilibrium real exchange rate, which in turn would improve competitiveness of and incentives for investing in non-oil exports. First, the importance of trade protection as a determinant of the real exchange rate in Algeria is analyzed and estimated. Second, present trade policies are discussed and a reform program proposed.

II. The Determinants of the Real Exchange Rate (RER) in Algeria

The links of a resource sector with the rest of the economy and the real exchange rate have been much studied in the literature of the so called Dutch disease (Corden, 1984; Edwards, 1992; and Gelb, 1988). The word "disease" mainly means that the presence of a resource sector via its tendency to appreciate the equilibrium real exchange rate makes macroeconomic management more difficult and reduces competitiveness of other exports. The appreciation can take place via a number of channels such as an increase in permanent income, spending on nontraded goods or increase in capital inflows.

Understanding of the dynamics of the real exchange rate can help in devising policy responses to deal with the real appreciation. Thus, we estimate the determinants of the RER for Algeria. This relies heavily on the methodology developed in a number of recent papers for other developing countries (Edwards, 1992; Elbadawi, 1994; and Baffes and others, 1997), which have used single equation techniques to estimate levels and determinants of real exchange rates. The model for Algeria relies on a model developed by Edwards (1992) for Venezuela, another oil-exporting country.

The above studies point out that an analysis of real exchange rates needs to make a distinction between the equilibrium level of the rate and deviations from that rate. The former represents changes in fundamentals, while the latter represent often temporary effects of macroeconomic disequilibria on the real exchange rate. Following the analysis of Edwards (1992), the various determinants of the RER can be represented by decomposing changes in the real exchange rate into its fundamental and monetary determinants:

$$\Delta \log e_t = \theta(\log e^*_t - \log e_{t-1}) + \rho(\log M^s_{t-1} - \log M^d_{t-1}) + \phi\, DEV_t \qquad (1)$$

Thus changes in the RER will respond to three forces: differences between the equilibrium RER (e^*_t) and its lagged actual value (e_{t-1}); macroeconomic disequilibrium (difference between supply (M^s) and demand for money (M^d); and nominal devaluation (DEV); θ, ρ, and ϕ are positive parameters.

Adjustment in the fundamentals that effect the equilibrium real exchange rate (e.g., increased spending from an increase in oil production, changes in import protection, or changes in the terms of trade) to either an excess supply or demand take place via adjustments in prices and wages, which will gradually bring the RER closer to its equilibrium level. Monetary pressures (e.g., from an increase in reserves from higher oil exports) on the other hand tend to cause real appreciation by increasing the supply of money vis-à-vis demand. Changes in the nominal

exchange rate affect the RER only if it is not in equilibrium. Thus, manipulating the exchange rate will have no long-run impact on the equilibrium rate.

In Algeria, the equilibrium exchange rate is likely to be determined by the following fundamentals:

$$\log e^*_t = \lambda_0 + \lambda_1 \log p_t + \lambda_2 \log z_t + \lambda_3 \log g_t + \lambda_4 \log trade_t \qquad (2)$$

in which p = real price of oil, z = volume of oil or hydrocarbon production, g = government expenditure on nontradable goods, and trade = level of protection. It is expected that all the coefficients are positive. Other important determinants of the RER can be the ratio of debt service to exports[3] or capital inflows. These were not significant for Algeria and were thus left out.

By combining the above two equations the dynamics of the real exchange rate equation become :

$$\log e_t = \alpha_0 + \alpha_1 \log p_t + \alpha_2 \log z_t + \alpha_3 \log g_t + \alpha_4 \log trade_t + \rho (\log M^s_{t-1} - \log M^d_{t-1}) + \phi DEV_t + \alpha_5 \log e_{t-1} + \epsilon_t \qquad (3)$$

where $\alpha_0 = \theta\lambda_1$; $\alpha_2 = \theta\lambda_2$; $\alpha_3 = \theta\lambda_3$; $\alpha_4 = \theta\lambda_4$; and $\alpha_5 = (1-\theta)$. ϵ_t is the error term.

The following are the expected effects of the various variables of the real exchange rate:

Oil price and oil deposits or production—the spending and resource effects. Given the large share of oil in Algeria's economy changes in the price of oil have important effects on overall spending. Discoveries of new oil reserves or gas deposits can also affect overall spending overtime by increasing permanent income.[4] Similarly, declines in oil prices should result in lower spending with corresponding effects on relative prices. The impact on permanent income of changes in oil prices is likely to be smaller than that of oil production as the latter is in general perceived to be of a more permanent nature (Edwards, 1992). In addition, the increased demand for nontraded goods by the government will tend to increase

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[3]See a paper on Egypt by Mongardini (1997).

[4]The real appreciation can take place either via nominal appreciation (if exchange rates are flexible) or via increases in domestic prices. As the increased income is spent domestically mostly on nontraded goods, and if the goods' markets are in equilibrium, the excess demand will tend to increase the price of nontradables. The increase in prices on nontraded goods can be mitigated if a large share of the labor force in unemployed. The increased profitability in turn of the nontraded goods sector will tend to attract resources from tradables goods sectors. The real appreciation will also tend to reduce the competitiveness of other exports.

wages in these sectors and attract resources from the traded goods sectors. This resource effect will in turn contribute to the real appreciation of the exchange rate, and make development of other exports more difficult.

In Algeria, where the oil sector is government owned, much of the spending effect is likely to take place via government budgets given that 60 percent of government revenues are from the oil sector. The effect of changes in oil prices on demand for traded goods (or the current account) in Algeria has been small, as the spending by the government is mostly on nontraded goods.[5] Thus total government spending can be a good proxy for expenditure on nontraded goods. Given the present high unemployment levels the impact of changes in oil prices on wages in the nontraded goods sector and thus on the real appreciation is likely to be smaller than expected by theory. These effects are measured by OILPRICE, which is the WEO price of oil deflated by U.S. CPI; and HYDROPRO, which is the volume of production of hydrocarbons in Algeria.

Trade restrictions. High trade barriers will tend to appreciate the real exchange rate. An increase in protection tends to increase the relative price of importables, which tends to divert more spending to nontradables increasing their price. The associated real appreciation in turn will tend to reduce the competitiveness of exportables and import competing industries. Depending on the strength of these effects import competing and nontradable industries are likely to become more profitable attracting resources from exportables production. Thus protection will hit exportables twice.

Trade policy restrictiveness here is measured by an index of trade restrictiveness. The lack of appropriate measures for a country's trade policy stance has been a frequent problem in past studies assessing the impact of trade policies on other economic variables. Most studies have used various openness indicators such as share of exports and imports in GDP (Edwards, 1992; Elbadawi, 1994; Baffes and others, 1997; and Mongardini, 1998) as proxies to measure the degree of restrictiveness of a country's trade policies. For Algeria the openness indicator is a particularly biased measure of trade restrictiveness because of the dominant presence of oil in total exports and GDP. The index used is a composite measure of the restrictiveness of a country's trade policies taking into account both tariff and nontariff barriers (NTBs) (for details, see Sharer and others, 1997). It takes values between 1 (open) and 10 (restrictive). Tariffs fall into five categories[6] and NTBs into three.[7] The index is a weighted average of these two measures of protection, with a higher weight assigned to NTBs due to

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[5]Changes in the fiscal balance can also effect overall spending via its impact on the real interest rate and thereby on the current account.

[6]These are below 10 percent; 10–15 percent; 15–20 percent; 20–25 percent; and above 25 percent.

[7]NTBs cover up to 1 percent, between 1 and 25 percent, or above 25 percent of trade.

their assumed higher distortion costs. While the index captures large changes in countries' trade policies and is likely to be superior to various statistical measures of openness, it is subject to a number of caveats. No account is taken of tariff dispersion[8] or exemptions in increasing the distortiveness of a country's trade regime. In the case of Algeria, these caveats seem moderate, however. Given the important changes in the country's trade regime from nearly central planning to moderate restrictiveness (from an index rating of 10 to 7 during the 1990's, see below) the index seems to capture relatively well the major changes in policies. However, the impact of high dispersion in rates in Algeria and the importance of exemptions is not captured.

Monetary expansion and nominal devaluation. In the short run, changes in oil prices are also likely to lead to changes in monetary conditions, which may affect the real exchange rate via reserve accumulation. An increase in reserves unless sterilized will increase the money supply, which may exceed money demand related to the price change. This is likely to increase demand for both tradables and nontradables. If the price of nontradables increases there will be a real appreciation. However, the expansionary effect is reduced in economies where the oil sector is government owned, in which there will be two opposing effects (Edwards, 1992). The higher reserves will tend to increase money supply while the lower government borrowing requirements from higher revenues will tend to reduce the demand for credit by the government. The conditions in the money market ($\log M^{s}_{t-1} - \log M^{d}_{t-1}$) are measured by share of broad money to GDP and nominal devaluation (DEV) by the percentage change in the nominal dollar exchange rate.

Transition issues. Apart from the above variables transition related issues may have an independent impact on the real exchange rate in Algeria. Although the country was never formally a centrally planned economy, economic management until the early 1990s was very similar to central planning with government controls on production and prices. Thus the subsequent adjustment to a more market based economy has made Algeria face similar issues as centrally planned economies. A number of studies (see, e.g., Rosenberg and Saavalainen, 1997) have shown that transition from central planning to a market-based economy tends to have an independent effect on the real exchange rate. Initially, the introduction of market prices and correction of the nominal exchange rate is likely to lead to undervaluation of the exchange rate. This is because at the start of transition demand for foreign assets tends to bypass its supply leading to a large depreciation, as macroeconomic imbalances and inflation expectations cause a flight to foreign assets. As asset markets adjust faster than goods markets overshooting of the real exchange rate can take place. Over time administrative price adjustments, productivity growth, and capital inflows tend to lead to real appreciation. In Algeria, drastic adjustments have taken place between 1994 and 1998 and the exchange rate may have initially been overshooting downwards, and some of the subsequent appreciation may be due to productivity growth and administrative price adjustment.

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[8]However, in practice tariff dispersion is likely to be higher in countries with higher average tariffs.

III. Estimation Results

The estimation procedure follows closely the methodology described in Elbadawi (1994) and Baffes and others (1997). The estimation is constrained by a relatively small sample size (18 observations), as most of the data are available only in annual series. The estimation period chosen was 1980–1997 for the availability of data.

To determine the estimation method for the equation of the equilibrium real exchange rate the data of the RER and its "fundamentals" were first tested for stationarity. The results (Table 2) show that all variables have unit roots, but are stationary in first differences. Although the test statistics are slightly below the critical value, the small size of the sample makes it difficult to reject stationarity at first difference level given that the values are only slightly below the critical ones. The next step was to test for cointegration between the variables to establish a long-run relationship between the RER and its fundamentals. To save degrees of freedom the lag length was made to 1. The Johansen test showed support for cointegration, and that the rank of the system would be 1 meaning that there would be one cointegrating vector. The test was adjusted for a small sample bias (Table 3), which confirms the rejection of the null hypothesis for no cointegration. However, the test is weaker for the hypothesis of only one cointegrating vector.

To estimate the long-run parameters two methods were used. Following Baffes and others (1997), the long-term relationship was estimated by OLS with the levels of RER and the fundamentals in a static regression. Other options considered were the use of first differences and a lagged dependent variable to estimate the equation by OLS, and the Johansen method to estimate equations with cointegration (for a discussion, see Baffes and others, 1997). These were rejected as the first method is likely to leave out much information and the second is not well suited for small sample estimates. Thereafter the dynamic model was estimated with the error correction method (ECM). The above authors note that both the static regression and the ECM deliver consistent estimates of long-run multipliers when cointegration is present. Table 4a gives estimates of the determinants of the long-run equilibrium real exchange rate, while Table 4b gives the results from the unrestricted ECM. The residuals of the static regression were tested for unit roots to confirm the presence of cointegration. The Dickey-Fueller test suggests that the residuals are stationary.

All the coefficients in the static long-run regression are significant and have the expected signs. The HYDROPRO variable representing the amount of production of hydrocarbons was dropped from the equation to save degrees of freedom as it proved to be nonsignificant. The results indicate that trade protection has an important impact on the equilibrium real exchange rate. Thus trade liberalization would depreciate the RER. The other two determinants included in the equation, public expenditure and the real price of oil, are also significant with a one period lag. Thus an increase in oil prices and public expenditure would appreciate the real exchange rate. As discussed earlier the transition related factors can also be important determinants of movements in the equilibrium real exchange rate, and are not captured by the coefficients. Figure 1 shows the estimation results for the long-run equation and the evolution

of the trade openness and the oil prices. Given the small sample problems the results should, however, be treated with some caution. But as the purpose of the exercise is to point to a direction of influence between trade liberalization and the real exchange rate and not to obtain precise parameter estimates, the results seem robust for this goal.

The error correction specification ECM also confirms the predictions of theory. All four determinants of the equilibrium RER have the expected signs. The short-run effects of the fundamentals (trade restrictiveness, government expenditure, and oil prices) have the same signs as the long-term variables, but only the trade policy variable has a significant coefficient. Among the other short-run variables (devaluation and monetary equilibrium) the coefficient for the nominal devaluation is significant, but small. The coefficient for the monetary conditions is not significant perhaps reflecting the sterilization of foreign exchange receipts in Algeria. Devaluation could also have some transitory effects in the short-run on the RER. Again the reliability of these estimates is reduced by the problems related to the small sample bias. But the results do suggest that trade liberalization has an important short and long-run impact on the real exchange rate.

IV. Nature of Protection in Algeria

Given the importance of trade liberalization as a determinant of the RER, this section describes in more detail the nature of present trade policies in Algeria. As discussed above trade liberalization via its impact on the RER and on incentives between producing for exports and import substitution can have an important impact on the diversification of exports. Trade policies here are defined in a broad sense covering those with an impact on trade in both goods and services. As services are an increasing share of national income in many countries and an important input in exports or in producing goods in a globalizing world economy, efficient provision of services at competitive prices is becoming increasingly important for the competitiveness of exports.[9] Thus liberalization of services becomes an important element of the modern trade policy framework as well. Furthermore, the discussion also includes investment policies, as these in Algeria can influence incentives of investing in various sectors. It is shown that despite some trade liberalization since 1994 present levels of protection remain high, and that trade and investment policies are biased against the development of nonhydrocarbon exports. Thus further efforts in this area are important if export diversification is to be achieved.

A. Algeria's Trade Regime in Goods

At the start of its structural adjustment program in the early 1990s Algeria made rapid progress in dismantling trade barriers despite one reversal in 1993. Many NTBs were removed and tariffs were lowered bringing Algeria from a 10 in the index of trade restrictiveness to

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[9]See Jones and Kierzkowski (1990).

7 between 1991 and 1997 (Figure 1). However, progress since has been very slow and incentives for the production of non-hydrocarbon exports remain distorted.

Currently *tariff protection* in Algeria remains high[10] and dispersed leading to uneven incentives between sectors. In 1998 average tariffs were about 25 percent. Nominal protection was highest on consumer and food products, many of which are taxed at the maximum rate of 45 percent (Table 5). The cost of the protection is thus mainly borne by Algerian consumers in higher prices for their daily consumption baskets and can help explain the relatively low share of consumer goods in total imports (11 percent). Main beneficiaries are enterprises producing these goods, which until recently have been mostly state-owned. Average statutory protection on most inputs and capital goods is relatively high at 15 percent.

The distortions created by the tariff regime can be measured by *effective protection rates* (ERPs) that compare value-added of an activity at domestic tariff-inclusive prices in relation to international prices. ERPs in Algeria indicate a high dispersion in protection levels and the existence of an anti-export bias especially in labor-intensive goods. In 1996, for which most recent ERP estimates are available, the rates were estimated to range between 20–110 percent[11] among main sectors of the economy, with the highest rates in food products (110 percent), and textiles and clothing (60 percent). Especially the latter sector tends to be labor-intensive, and in many developing countries has been the basis of export success. While some of the highest nominal rates have been reduced since the above study was undertaken, the high dispersion of incentives between sectors remains as the structure of tariff rates has not changed. The numbers suggests that effective protection is high in labor-intensive sectors, textiles and many food products, in which Algeria may potentially have a comparative advantage in exports. Development of labor-intensive exports can be an important source of employment creation to solve Algeria's chronic unemployment problem.
Dispersion of protection in Algeria is increased and its transparency reduced by duty exemptions.[12] About a third of imports paid lower than statutory duties (Table 5), which amounted to a loss of customs revenue of about DN 253 billion per year or 5 percent of

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[10]Between 1994 and early 1997 the maximum tariff was lowered from 60 percent to 45 percent. The unweighted average tariff at present is 22 percent with 6 bands (0, 3, 15, 25, 40, 45) compared to 24 percent in 1996. In addition, there is a 2 percent customs fee and a 0.4 percent additional customs fee on all imports bringing the total average of customs duties to 24.8 percent.

[11]Based on a World Bank study reflecting 1996 tariffs, which had seven bands (0, 3, 7, 15, 25, 40, and 60).

[12]The weighted average of customs duties was about 17 percent, and revenue collection from customs duties was about 14 percent of the value of imports in 1996. The latter measures indicate high dispersion of rates leading to important differences in incentives between sectors.

imports and 1 percent of GDP (in 1996). As Algeria has no major free trade agreements on imports that could explain lower collection rates of customs duties and the export duty draw back system has not been used, low collection rates mainly reflect duty exemptions or reductions.[13] Table 2 indicates that most exemptions concern capital goods, for which collection rates are about 50 percent, but also that many food and consumer goods imports enter at reduced duties. Duty reductions on inputs further increase the effective protection enjoyed by the final products resulting in increased levels of protection for final goods and dispersion of incentives between sectors. A streamlining of these exemptions would increase revenue collection and make effective protection more uniform between sectors.

Algeria's tariffs are high by international standards and likely to work against the development nonhydrocarbon exports. Figure 2 and Table 5 compare the export and growth performance and the level of protection in selected transition and developing countries with proximity to Europe. The table shows that Algeria's protection levels are in line with its North African neighbors, but well above those in many other countries (e.g., Eastern Europe) who are likely to compete with Algeria in access, for example, to the EU market. Figure 1 also shows that exports and GDP have grown much faster in the more open East European countries than in the more closed North African ones. As discussed above protection and the implied economic rents tend to create an anti-export bias by appreciating the real exchange rate and attracting resources to import-competing activities, making exporting less attractive.[14] While many factors influence countries' export and growth performance, several studies (see e.g., Warner and Sachs, 1995) have underlined the importance of openness for export development.

While most NTBs) in Algeria have been removed, some remain on a limited number of imports and exports.[15] Three export products (dates, tomato concentrate, and hides) are subject to minimum export prices to discourage capital flight, control the marketing system, and preserve the products' international reputation in the case of dates. In practice, the minimum prices are likely to work against developing exports by raising their price. They are unlikely to prevent capital flight as the products covered represent less than one percent of

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[13]About 100 items at 6-digit level are exempt from customs duties (cereals as seed, oil products for certain projects, military equipment, air and sea transport equipment, medical equipment art). In addition the Investment Code provides customs duty rebates—all inputs to projects approved under the Investment Code enter at a 3 percent duty. Oil sector imports enter duty free.

[14]For a definition of an anti-export bias, see Thomas and and others (1991).

[15]Exports of 10 8-digit HS items (national treasures, palm tree seedlings, live bovine and ovine breeding animals, raw and semi-finished coral) are banned for reasons of protection of animal and plant life and national treasures. Certain imports such as firearms, books, tobacco, medicinal products, certain animal and plant products require prior authorization (cultural and health reasons).

total exports. About 200 items are subject to mandatory import reference prices accounting for about 10 percent of imports, to prevent underinvoicing. By raising the basis for duty collection the reference prices increase protection, and penalize properly invoiced imports. Removal of the remaining nontariff measures and adoption of more appropriate means of customs valuation of imports would help increase transparency of border protection and modernize Algeria's trade policies.

In sum, to reduce the anti-export bias and increase transparency of protection Algeria should lower its tariffs substantially, reduce duty exemptions and remove the remaining few NTBs. First, lowering of protection at this stage of development in Algeria is especially important to give proper signals to the ongoing restructuring and privatization of public enterprises, and to new investments. Second, continued high protection will create vested interests in the maintenance of protection making it more difficult to lower tariffs later. Third, lower protection now is essential for export development by changing incentives from import substitution to export production and by depreciating the equilibrium real exchange rate. This would enable it to take better advantage of its close access to the European markets and of its potential in exporting sun- and labor-intensive products. Waiting to do so in the context of WTO accession or negotiation of EU Association Agreement, which are likely to take some years to complete, would result in a missed opportunity to generate sustainable growth. A preannounced strategy of lowering expeditiously maximum tariffs in stages to 15 percent on an MFN basis coupled with the elimination of the reference price system in imports and exports in 1999 would substantially shift the bias in incentives against exporting. Reducing the existing tariff exemptions would help mitigate losses in customs revenue from lowering of tariffs.

B. Services Barriers

In Algeria many service sectors, including financial services, are relatively open to establishment (ability of foreigners to start operations in Algeria) or to limited provision of services across borders (ability of Algerian residents to purchase services abroad). However, four important service sectors have restrictions or bans to entry (state monopolies in communications and transport, mandatory local partnerships[16] in hydrocarbon-related services), or have other restrictions such as nationality requirements (some insurance services, tourism), see Table 7 for details. The restrictions are likely to raise the price and reduce the potential quality and variety of the products offered.

To improve efficiency and competitiveness of exports Algeria would gain from opening more service sectors to foreign (and local) competition. Transport and telecommunications are important inputs to exports and their availability at competitive price and quality is important

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[16]To engage in activities like exploration, and research foreigners are required to conclude a contract with the national monopoly in hydrocarbon related services, or with a national company in mining services.

in developing competitive export industries. Once the security situation stabilizes Algeria is likely to have a comparative advantage in tourism services as well, and removal of present nationality requirements would promote foreign presence in the sector and related transfer of know-how and capital in this sector.

C. Investment Incentives

Investors benefit from national treatment, and special fiscal incentives are given to projects under the Investment Code and in the hydrocarbon sector. In principle, national treatment is granted for all investments—foreign and local investors are subject to equal treatment. The Investment Code offers both time limited and permanent incentives for new enterprises, that vary according to different economic zones in the country.[17] Some tax reductions or exemptions can be granted for up to 10 years, and special advantages can be negotiated for large projects of "national interest". In addition, the enterprises benefit from permanent advantages such as exonerations from certain taxes conditional on exporting (profit taxes, contractual taxes, and taxes on industrial activity) or lower social security payments. Special fiscal incentives apply to hydrocarbon exploration (exemption from import duties, VAT and other fiscal advantages) and duty-free zones (no customs duties, rebates on other taxes if over 80 percent of production is exported). There are no estimates of potential fiscal losses from the benefits, but so far most projects have been quite small,[18] and foreign participation has been limited. Incentives for investments in hydrocarbon related activities are under a separate regime. Although it is hard to calculate the exact importance of the fiscal benefits granted, the full exemption from customs duties and the VAT, in addition to other fiscal advantages, suggests that investment incentives for this sector are quite generous.

The incentives seem biased in favor of hydrocarbon related activities. While most of the investment incentives in the Investment Code are time-bound and relatively neutral from an allocational point of view, the apparently more favorable treatment of hydrocarbon related investments seem to introduce a bias in incentives against other sectors. This would go against the government's goal of diversifying the economy and exports. More generally, experience with fiscal incentives in attracting investment in other countries has at most been mixed (Moran, 1998). They can have high costs in terms of fiscal revenue losses, administrative burden in management and follow-up, and in rent-seeking. Their success in attracting marginal

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[17]The main benefits on establishment are reduction in customs duties to 3 percent on inputs, exemption of real estate transfer tax, reduced incorporation fee, exemption from VAT on inputs, and lower profit taxes during 3 years.

[18]According to the authorities (Agence de Promotion des Investissements-APSI) over 2000 projects were approved in 1996 with an average size of US$1.4 million. The positive trend continued in 1997, when about 1900 projects were approved during the first half of the year. Foreign investors participated in a small number of projects (49 in 1996), and the average investment per project was quite small (US$ 5.7 million)

investments can be limited. Many investors underline the importance of stable policy frameworks, generally low tax levels, quality of the labor force and good infrastructure in attracting investments. Furthermore, export development is better achieved by reducing the anti-export bias from high tariff protection than by granting fiscal incentives[19] for exports. To make investment incentives more neutral Algeria should at the minimum remove the bias in incentives in favor of the oil-sector by removing the exemptions to customs duties and other taxes.

V. Conclusions

To achieve higher growth and facilitate macroeconomic management of its economy Algeria needs to reduce its reliance on the hydrocarbon sector. An important element in this strategy is the development of nonhydrocarbon exports. However, the presence of the resource sector makes the attainment of this goal more difficult by its tendency to appreciate the real exchange rate, which is an important determinant of export competitiveness and thus of success in diversifying exports. The paper has argued that to achieve export diversification in a Dutch-disease environment more attention is needed to other fundamentals that have an impact on the equilibrium real exchange rate. While many of the fundamentals such as terms-of-trade are exogenous to a small open economy, others such as government spending and the level of import protection can be influenced by policy. This paper has focused on the role of trade liberalization in affecting the equilibrium real exchange in Algeria.

Despite the caveats of the small sample size, a single equation estimation of the determinants of the real exchange rate in Algeria show that trade policy along with the price of oil and government spending has an important impact on its long-run level. Thus further trade liberalization should be an important element in Algeria's export diversification strategy.

A review of existing trade policies in Algeria reveals that existing levels of protection are high and uneven between sectors. This is likely to attract resources from export-oriented activities, maintain them in inefficient import-substituting activities and encourage rent seeking with an adverse impact on growth. There are also many barriers in trade-related services and trade in services as such. As availability of services at internationally competitive prices can be an important element in export development, further liberalization of services barriers is also recommended. Finally, investment incentives in Algeria are also biased against the development of nonhydrocarbon exports. Thus a pre-announced strategy to gradually lower tariff and nontariff barriers, trade in services and the establishment of more neutral investment incentives are a high priority, if export diversification is to succeed.

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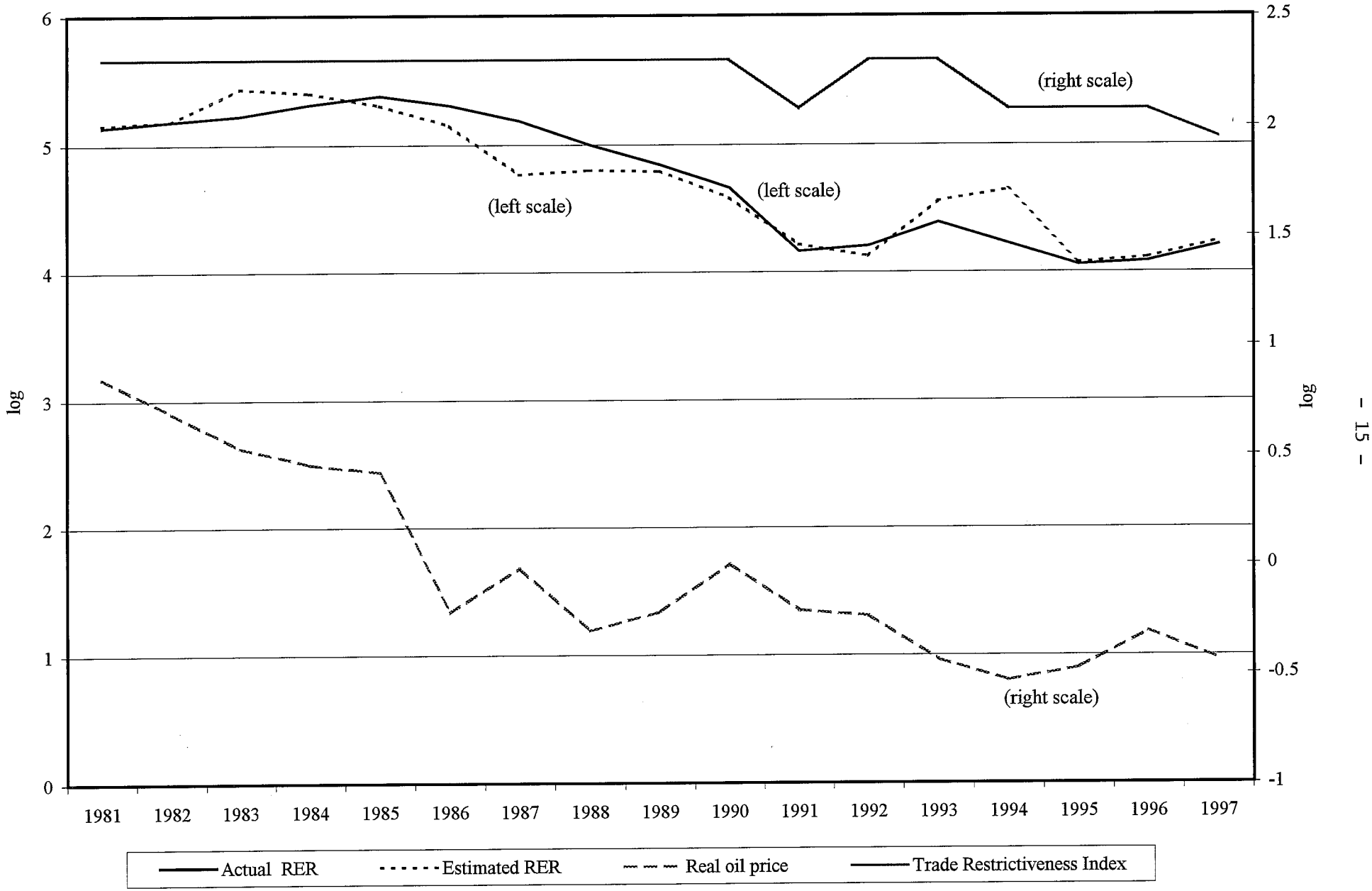
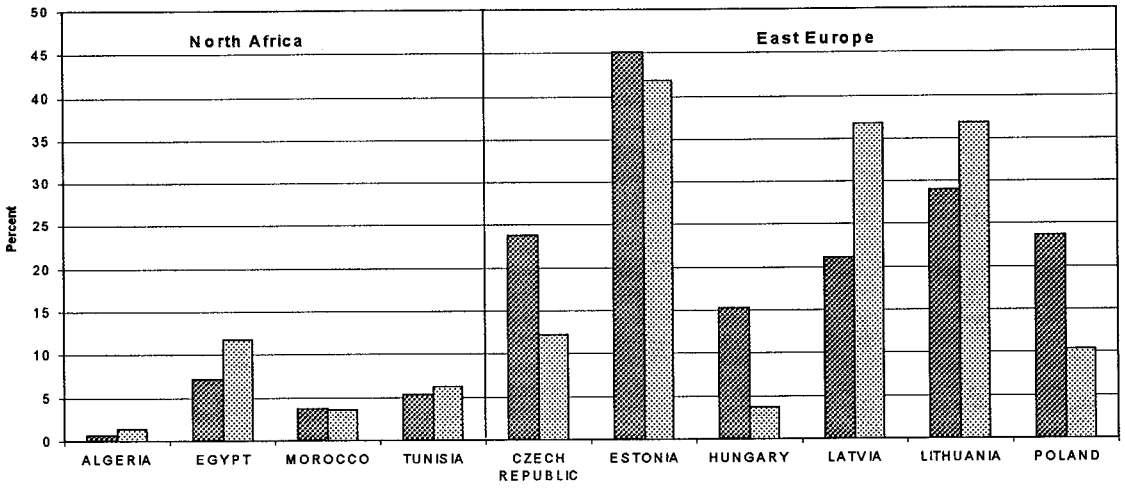
[19]Under the Investment Code exporters benefit from lower profit taxes in relation to their exports. A special export promotion fund (financed by the proceeds of a tax of imports and local production) provides subsidies (50 percent of cost) for information gathering and to facilitate transport from Algerian ports. So far these export subsidies have been approved for participation in international fairs only.

Figure 1. Algeria: Evolution of The Real Exchange Rate



Source: IMFstaff estimates.

Figure 2. Growth in Exports vs Growth in GDP, Average, 1993-97, US dollars



Source: IMF World Economic Outlook (WEO)

Table 1. Oil Dependence in Selected Oil Producers (1996/1997)

Country	Share of oil in exports (%)	Share of oil in government revenue (%)	Share of oil in GDP (%)
Algeria	95	60	30
Indonesia	25	24	7
Mexico	15	37	1
Venezuela	77	70	21

Source: Fund staff estimates.

Table 2. Unit Root Tests

Variable	Trend stationary, I(0)	Difference stationary, I(1)
Real effective exchange rate	-0.89	-2.79
Trade index	-0.23	-5.34
Real oil price	-1.99	-2.9
Public expenditure	-2.62	-3.37
Oil production	-1.58	-2.79
Production of hydrocarbons	-0.56	-2.16

Note: The Augmented Dickey-Fuller Test Statistic critical value is -3.06 (5 % percent confidence).

Table 3. Johansen's Maximum Likelyhood Test of Cointegration

	5 % critical value		
	adjusted	**unadjusted**	**L-Max**
r=0	75.66	54.64	76.80
r<1	44.42	34.55	41.53

Notes: The first row (r=0) tests the null hypothesis of no cointegration; the second (r<1) tests the null hypothesis of at most one cointegrating vector. The L-Max is the Johannesen estimated likelyhood value. Adjusted refers to a small sample correction by an adjustment factor of T/(T-nk) where T is the number of observations (18), n is the number of variables including the intercept and k is the number of lags (1).

Table 4A. Regression Results—Long-term Relationship

LS // Dependent Variable is RER
Sample(adjusted): 1981 1997
Included observations: 17 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTINDEX(-1)	1.802868	0.600197	3.003794	0.0102
LPEXP(-1)	1.650873	0.404871	4.077531	0.0013
C	-5.118877	1.896504	-2.699112	0.0182
LOILPRICE(-1)	0.708810	0.123376	5.745102	0.0001

R-squared	0.873589	Mean dependent var	4.738386
Adjusted R-squared	0.844418	S.D. dependent var	0.507836
S.E. of regression	0.200311	Akaike info criterion	-3.013448
Sum squared resid	0.521616	Schwarz criterion	-2.817398
Log likelihood	5.492356	F-statistic	29.94646
Durbin-Watson stat	1.066086	Prob(F-statistic)	0.000004

Table 4B. Regression Results—Short-term Relationship

Sample(adjusted): 1982 1997
Included observations: 16 after adjusting endpoints
Standard errors & t-statistics in parentheses

Cointegrating Eq:	CointEq1		
Error Correction:	D(RER)		
CointEq1	-0.008987	(0.01647)	(-0.54572)
D(RER(-1))	0.527536	(0.18282)	(2.88555)
D(LTINDEX(-1))	0.602353	(0.24849)	(2.42408)
D(LOILPRICE(-1))	0.042729	(0.13253)	(0.32240)
D(LPEXP(-1))	0.279138	(0.27216)	(1.02566)
C	-0.020169	(0.02249)	(-0.89684)
D(DEVP)	-0.004070	(0.00088)	(-4.62483)
D(LMON(-1))	0.004764	(0.54805)	(0.00869)

R-squared	0.906993	Adj. R-squared	0.825611	
Sum sq. resids	0.040333	S.E. equation	0.071004	
Log likelihood	25.16247	Akaike AIC	-4.983185	
Schwarz SC	-4.596891	Mean dependent	-0.057911	
S.D. dependent	0.170029	Determinant Residual Covariance		2.72E-12
Log Likelihood	122.2212	Akaike Information Criteria		-22.12916
Schwarz Criteria	-20.39083			

Table 5. Summary Indicators of Tariff Protection and Duty Collection in Algeria

Sector	Number of tariff lines	Average tariff (%) (1998)	Actual duty collection as percent of potential (1996)	Share in total imports (%) (1996)
Food	702	33	77	29
Energy	93	2	64	1
Raw materials	449	10	97	6
Semi-finished products	2028	15	68	20
Capital goods	1247	15	48	33
Consumer goods	1684	36	84	11
Total	6203	22	66	100

Source: Fund staff estimates.

Table 6. Average Tariffs in Selected North African and East European Countries

Country	Simple Average Tariff (1998 or latest)	For reference: Index of Trade Restrictiveness) 1/
North Africa		
Algeria	24	7
Egypt	26	8
Morocco	26	8
Tunisia	25	8
Eastern Europe		
Czech Republic	7	1
Estonia	0	1
Hungary	14	5
Latvia	12	2
Lithuania	8	1
Poland	12	2

Source: Fund staff estimates.

1/ For the methodology, see Sharer and others, "Trade Liberalization in IMF-Supported Programs," *World Economic and Financial Surveys* (1998).

Table 7. Summary of Main Barriers in Trade in Services

Sector 1/	Conditions of market entry
1. Business services	In most subsectors no restrictions. *Hydrocarbon exploitation, prospecting and exploration.* Purchase of services from foreign service companies located abroad is subject to a contract with Sonatrach (state monopoly). Establishment in Algeria subject to a 49 percent equity limit, a contract with Sonatrach, and that its representative chairs the board. *Research and extraction of minerals.* Establishment in Algeria subject to partnership with a national company within a joint venture or joint stock company. *Energy distribution services.* Establishment in Algeria subject to authorization.
2. Communication services	Regular *postal services* subject to state monopoly—no foreign access allowed. *International courier services* open to foreign establishment and cross border provision. *Telecommunication* services (voice, mobile) is a state monopoly. No foreign access allowed. Value-added services open to foreign providers.
3. Construction services	No major restrictions.
4. Distribution services	No major restrictions.
5. Educational services	No major restrictions.
6. Environmental services	No major restrictions.
7. Financial services	In *banking and securities* no restrictions to open subsidiaries, branches and representative offices, but establishment of subsidiaries subject reciprocity requirements. Purchase of banking services from abroad by Algerian residents is allowed only in foreign financing, documentary transactions, guarantees, and cash management transactions of commercial banks. In *insurance* no restrictions to establishment, but certain insurance sub-sectors (intermediaries, loss adjusters) subject to nationality requirements.
8. Health-related services	No major restrictions.

Table 7. Summary of Main Barriers in Trade in Services (concluded)

9. Tourism	In principle open. *Travel agencies and tourist guides* subject to nationality requirements.
10. Recreational services	No major restrictions.
11. Transport services	No restrictions in road transport. Maritime, air and rail transport are a state monopoly - concessions are given to state enterprises. In maritime transport bilateral agreements with certain countries limit competition. Port services (lighterage and cargo handling in ports, chartering of vessels, pushing and towing) are a state monopoly with no local or foreign access allowed.

Source: World Trade Organization
1/ The classification follows that used in international statistics and in the WTO GATS negotiations.

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