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Abstract

This paper explores the macroeconomic and sectoral effects of trade in goods and trade in services on the economic performance of MENA countries for the period 1960- 2011. While the MENA region has been widely neglected in the trade and growth literature, this paper offers a decomposition of MENA GDP growth in order to disentangle the contributions of both service trade and goods trade. The results show a positive association between real GDP and both service and goods trade. The interaction term between trade in goods and trade in services is negative, suggesting that as goods trade increases, the marginal effect of service trade on real GDP decreases. However, the overall effect of service trade on real GDP is positive. The decomposition of GDP growth reveals a greater impact of goods trade, however, service trade is important, and for most countries greater than the effect of tertiary enrollment.

JEL Classifications: F11, F13, F14.

Keywords: Trade in Goods, Trade in Services, Growth, MENA region.

ملخص

تستكشف هذه الورقة الآثار الاقتصادية الكلية والقطاعية للتجارة في السلع والتجارة في الخدمات على الأداء الاقتصادي لبلدان المنطقة للفترة 1960 – 2011. وعلى الرغم من أن منطقة الشرق الأوسط قد تم تجاهلها في أدبيات التجارة والنمو على نطاق واسع ، فإن هذه الورقة تقدم تجزئة لنمو الناتج المحلي الإجمالي في منطقة الشرق الأوسط بهدف فصل مساهمات كل من تجارة الخدمات وتجارة السلع كل على حدة. أظهرت النتائج وجود علاقة إيجابية بين الناتج المحلي الإجمالي الحقيقي وكل من تجارة الخدمات وتجارة السلع. ويظهر أن مصطلح التفاعل بين التجارة في السلع والتجارة في الخدمات هو سلبي، مما يشير إلى أن تجارة السلع تزداد، وأن التأثير الهامشي من تجارة الخدمات في الناتج المحلي الإجمالي الحقيقي يقل. ومع ذلك، فإن التأثير الكلي لتجارة الخدمات في الناتج المحلي الإجمالي الحقيقي هو إيجابي. تظهر التجزئة من نمو الناتج المحلي الإجمالي تأثير أكبر من تجارة السلع، ولكن، تجارة الخدمات مهمة، وبالنسبة لمعظم البلدان تكون أكبر تأثيرا الالتحاق بالتعليم العالي.

1. Introduction

While the expanding importance of services in the economy has certainly been noticed, it is only recently that the international trade literature has started to study the linkages between trade in services and growth. Instead, it focused for a long time on the relationship between goods trade and growth, without reaching any empirical consensus[1]. It does not seem unreasonable to assume that some services, like certain goods, possess growth-generating characteristics. The fundamental function that many services perform in relation to overall economic growth is that they enhance the value of manufactured products and coordinate global value chains. Therefore, services trade barriers may spill over to other activities affecting the competitiveness of the entire supply chain. For this reason services trade restrictions have caught the attention of services trade negotiators. A new strand of the literature shows that countries with open services markets tend to be more competitive in manufacturing (Francois and Woerz 2008; Nordås 2010), and that services sector reform is associated with productivity gains in downstream manufacturing firms (Arnold et al. 2011).

This paper explores the effects of trade in goods and trade in services on the economic performance of Middle East and North Africa (MENA) countries. Although the region has made some progress in liberalizing goods trade, it is considered as one of the most restrictive regions in services trade, with relatively high values for the Services Trade Restrictiveness Index (Brochert et al. 2012), revealing serious competitiveness issues. Indeed, inefficient services, provided mostly by the public sector, and the high cost of key backbone services such as transport, telecommunications, storage and distribution are important factors that raise the cost of MENA exports (both services and manufacturing), while also impeding trade expansion in the MENA region.

Due to the difficulty in measuring openness, researchers have resorted to creative, sometimes complicated indicators, and most empirical growth studies have provided an affirmative answer in favor of trade liberalization (Ben-David 1993; Dollar 1992; Edwards 1998; Harrison 1996; Lee 1993; Sachs and Warner 1995; Wacziarg 1998). However, Rodriguez and Rodrik (2001) draw attention to the fact that existing cross-national evidence should be cautiously interpreted, due to misspecification problems or the use of openness indicators that are proxies for other policy or institutional variables that have an independent detrimental effect on growth. While the state of the debate seems to be in ferment, comparable analysis depicting the impact of services trade liberalization on economic growth is sparse, mainly due to data constraints on services trade and services openness indicators, and often the best that can be done are cross-sectional analyses focusing on financial, transport and telecommunication services. The literature reveals a positive association between financial openness and growth (Francois and Schuknecht 1999; Eschenbach and Francois 2006; Bayraktar and Wang 2006), although the dependent variables and financial openness indicators vary between studies according to data availability. Mattoo et al. (2006) construct a policy-based measure of the openness of a country's services regime for two key service sectors, basic telecommunications and financial services. They show a statistically strong positive relation between openness in financial and telecommunication services and long run growth performance. Eschenbach and Hoekman (2006) use three indicators of policy in banking, other financial services and infrastructure and show that measures of services policy reform are significantly positively related with the post-1990 performance of 20 transition economies. Another strand of the trade literature tackles the impact of transport, communication and distribution services on growth through their effects on trade costs that

[1]From a theoretical point of view, the neoclassical growth theory states that the steady state rate of output growth is determined exogenously, and is therefore not affected by trade policies. In endogenous growth models, trade liberalization has a positive impact on growth only if it promotes those sectors that generate more long run growth. See Baldwin (2004) and Rodriguez and Rodrik (2001) for a literature review.

are incurred in getting goods from point of production to point of consumption. It shows that infrastructure is a significant determinant of export levels and the likelihood of exporting (Francois and Manchin 2007) and the competitiveness of potential exporters (Djankov et al. 2006). A new strand of the literature investigates the effect of services liberalization on the productivity of manufacturing firms. Arnold et al. (2011) show a strong positive relationship between FDI in services and total productivity growth of manufacturing firms in Czech Republic. Arnold et al. (2012) show a significant positive relationship between Indian policy reforms in banking, telecommunications and transport and the productivity of manufacturing firms.

The MENA region has been widely neglected in the trade and growth literature, with the exception of some papers on the determinants of growth in the region, without emphasis on services trade (Nabli and Veganzones-Varoudakis 2004). The focus on trade in services in the MENA region is both timely and critical. Indeed, the World Bank MENA Economic Development and Prospects report of September 2011 finds that the service sector has been an important source of value added growth and job creation in MENA countries during the latter half of the 2000s, irrespective of whether the country was an oil exporter or importer. This paper investigates the effects of services trade and goods trade on the growth performance of MENA countries. Due to serious data limitations for the region, we are restricted in the choice of the dependent variable and the explanatory variables related to services and goods trade. We use real GDP as the dependent variable along with trade volumes[2] and the theoretical growth determinants as the independent variables. We run two sets of regressions for the period 1960-2011, at the macroeconomic and sectoral levels, and then we go a step further by decomposing GDP growth to disentangle the contributions of services trade and goods trade.

The results show a positive association between real GDP and both service and goods trade. The interaction term between trade in goods and trade in services is negative, suggesting that as goods trade increases, the marginal effect of services trade on real GDP decreases. However, the overall effect of services trade on real GDP is positive. The decomposition of GDP growth reveals a greater impact of goods trade, although services trade is important, and for most countries greater than the effect of tertiary enrolment.

The paper is structured as follows: Section 2 depicts the evolution of MENA growth and trade over years. Section 3 describes the methodology adopted in the paper and the data. Section 4 discusses the results and Section 5 shows the decomposition of GDP growth. Section 6 concludes and displays some policy recommendations.

2. Stylized Facts

Over the period 1969-2011, economic growth in the MENA region followed, up to a certain point, the growth pattern of the World economy, showing a period of relatively high growth in the 1970s followed by a slowdown of the economic activity in the following decades. The better growth performance of MENA countries in the 1970s is largely attributed to high energy export prices. This situation has been reversed in the 1980s where the effects of the world recession in the early 1980s appear to be more pronounced for the MENA region (Figure 1).

High volatility is a salient characteristic of MENA growth, and was particularly pronounced until mid-1990s, in comparison with world average. It is believed to be inextricably linked to the fact that MENA countries are highly concentrated in a few sectors and thus are vulnerable to external shocks. Indeed, two-thirds of the MENA countries depend on the oil sector as the

[2]The new Service Trade Restrictiveness Index database published by the World Bank would have been used to measure trade policy if it was available for all MENA countries and for a long period of time.

main source of earnings, with oil revenue accounting for almost 60% to 90% of their total export receipts and more than 60% of their GDP. Heavy reliance on oil has relentlessly exposed MENA to trade shocks and increased growth volatility over time.

Table 1 shows that the growth performance of MENA countries was less affected by the 2008 financial crisis than other regions, such as East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, North America who all experienced negative growth rates in 2009. The MENA region recovered from the financial crisis along with the global economy. Economic growth was positive in 2010 and 2011, back to almost 5%, after having reached 1.77% in 2009.

At the country level, the recovery from the crisis relied upon the initial conditions of the economy. Table 1 shows that GCC countries were leading the regional recovery as oil prices rebounded and the GCC financial sector was stabilizing. Growth in Kuwait reached 8.19% in 2010, a remarkable comeback, given the negative growth rate of -5.5% in 2009. Qatar was enjoying two-digit growth rates since 2006 (18.6%) with a slowdown in 2009 (to 12%) and a rebound to 18.8% in 2011. The United Arab Emirates' recovery was slower than other GCC countries, due to its high debt levels and its struggling real estate market, with only a positive growth of 1.43% in 2010, after a negative growth of -1.61% in 2009. Unlike the other GCC countries, Yemen's growth declined significantly from 7.7% in 2010 to -10.48% in 2011, due to the political crisis that hampered investment (such as the public investment program), as well as the activities of some private sectors that were unable to cover the cost of oil derivatives or private generators to provide electricity.

Developing oil exporters (such as Algeria and Iraq) also felt the impact of the crisis, and the recovery, largely through the oil price channel, due to the limited integration of their banking sectors into global financial markets (World Bank 2010). Iraq's growth rate reached 9.9% in 2011.

Oil importer countries were indirectly affected by the crisis due their connections with key markets, like the European Union and GCC countries, through trade, remittances, and foreign direct investment (FDI) flows (World Bank 2010).

The recovery in GCC countries had spillovers on other countries in the region, especially those with close economic ties through trade, remittances and financial linkages, namely Djibouti, Jordan and Lebanon. However, the feeble recovery in the euro zone had worked in the opposite direction, dragging down growth in the near term, particularly for the countries with strong links to EU markets (Jordan, Morocco, Lebanon, Tunisia). Table 1 shows that Malta and Israel were the most affected by the crisis with a negative growth rate of -2.65% for Malta and an nearly zero growth rate (0.84%) for Israel in 2009. On the contrary, Lebanon experienced high growth rate of 8% - 9% after the war in 2006 until 2010, then a much slower growth rate of only 3% in 2011, mainly due to political instability.

There is hardly any disagreement about the necessity for MENA countries to rely on less volatile sources of growth that would insulate the region from adverse shocks. The recent empirical growth literature has suggested a wide list of growth determinants, with trade openness among others. Data from the World Development Indicators, 2012 show that the share of trade in MENA GDP increased substantially between 2004 (79%) and 2008 (96%), then was driven down by the financial crisis to 72% in 2009, before going up again to 84% in 2010. Figure 2 shows that in 2010, the share of trade in MENA GDP was higher than the other regions, developed ones like North America (31%) as well as developing ones like Sub-Saharan Africa (65%), but this is in large part due to petroleum exports. Notably, MENA trade excluding oil is at about the world average but exports alone are below the world average. Behar and Freund (2011) show that, conditioning on GDP, distance and a number of

other factors, a typical MENA country under-trades with other countries: exports to the outside world are at only a third of their potential. However, intra-MENA trade is conditionally higher than extra-MENA trade. These results hold for aggregate exports, non-natural exports and non-petroleum exports.

The share of services trade in MENA GDP is low with nearly 20%, although this percentage is higher than the other developed and developing regions (Figure 2). The share of exports in GDP is much lower, around 7.6%, although higher than most of the other regions and the world average (Figure 3). Sectors like tourism, transportation, remittance, and to a lower extent, financial, transportation and telecommunication services are the driving forces behind this stylized fact (authors' calculations from trademap.org).

These figures are surprising especially that the MENA region is known as one of the most restrictive regions, at least when it comes to services trade. Brochert et al. (2012) compare the Service Trade Restrictiveness Index (STRI) between 103 countries and for 5 service sectors (Figure 4). They show that MENA countries, rich (GCC) or developing, are relatively closed to trade in services. GCC countries exhibit some of the most restrictive policies observed in the sample, with a regional average STRI score of 50, and so do some developing countries, including Egypt, Iran, Saudi Arabia and Tunisia. The pattern of the Middle East being the more restrictive region holds mainly in professional services and transportation. In addition, GCC members and other MENA countries generally do not allow majority ownership and control in a foreign invested financial institution. Those trade barriers will not only have a negative impact on services trade, but also on the competitiveness of manufacturing, especially that some services such as transport and telecommunication services, as well as financial services, are complementary to goods production and exports.

Table 2 shows that almost all GCC countries, in addition to Djibouti, Israel, Jordan, Malta and Tunisia exceed the region's average trade share in GDP, with the highest shares in 2010 for Malta (173%), United Arab Emirates (147%) and Jordan (117%). According to authors' calculations, Malta exhibits a comparative advantage[3] mainly in fish, crustaceans, tramway locomotives, machinery, nuclear reactors, pharmaceutical products, cereal, flour, milk preparations and products, clocks and watches, toys and games. Jordan has a revealed comparative advantage mostly in machinery, nuclear reactors, knitted or crocheted fabric, tramway locomotives, articles of apparel, paper and paperboard, beverages and vinegar, inorganic chemicals, tobacco and manufactured tobacco substitutes, salt, stone, and cement. GCC countries mainly have a revealed comparative advantage in mineral fuels and oils (Kuwait and Qatar); organic chemicals (Kuwait, Qatar and Saudi Arabia), milling products (Kuwait); dairy products, eggs, honey, edible animal products (Qatar and Saudi Arabia); essential oils, perfumes, cosmetics, furniture, lighting, miscellaneous articles of base metal, railway, tramway locomotives (Bahrain); stone, cement (Bahrain and United Arab Emirates); vehicles, live animals, tobacco and manufactured tobacco substitutes (Oman), ships and boats (Oman and Saudi Arabia); musical instruments (Qatar), plastics, soaps (Qatar, Saudi Arabia); paper (Saudi Arabia); iron and steel, wood articles, sugars, coffee, tea and spices, pearls, ceramic products (United Arab Emirates); manufactures of plaiting material, basketwork, leather, fish, crustaceans, mollusks (Yemen). The comparative advantage of Israel is in sectors like knitted or crocheted fabric, oil seed, oleagic fruits, grain, electrical and electronic equipment, pearls, miscellaneous chemical products, live trees and plants, stone, cement, pharmaceutical products. Tunisia benefits from a comparative advantage in inorganic chemicals, precious metal compound, products of animal origin, miscellaneous articles of

[3] The Revealed Comparative Advantage index is based on export data only. The results are available to the interested reader upon request.

base metal, articles of apparel, articles of leather, musical instruments, electrical and electronic equipment.

Table 2 also shows that Djibouti, Jordan, Bahrain, Lebanon and Malta exhibit higher shares for services trade in GDP than the region's average in 2010, mostly for Malta (85%), Lebanon (75%) and Jordan (38%). Authors' calculations for the Revealed Comparative Advantage index for services show that Malta exhibits high values of the index for personal, cultural and recreational services, financial services, royalties and license fees. Lebanon exhibits a comparative advantage in tourism, remittances, financial and construction services, Jordan in remittances and government services, and Bahrain in transportation and communications services.

A characteristic feature of trade's shares in GDP is their evolution over years for most countries. The changes that are worth mentioning are those for Libya, where the share of trade in GDP almost doubled between 2000 (51%) and 2008 (95%), the United Arab Emirates where the percentage moved up from 90% in 2001 to 147% in 2010, Djibouti and Saudi Arabia that saw their shares go up respectively from 85% in 2000 to 134% in 2007 and from 69% in 2000 to 92% in 2011.

Figures 5 and 6 plot the relation between average GDP growth and the average growth of goods/services trade by MENA country. The fitted regression line is trending upward, suggesting a positive relationship between GDP growth and the growth of goods/services trade. Both graphs show the existence of mainly 2 outliers: Djibouti and Oman. The average growth rates of Djibouti's GDP and trade are driven down by the negative growth values in the 1990s, a period characterized by a civil war. To this is added the border conflict between Ethiopia and Eritrea that disturbed the normal commerce in which Djibouti allowed Ethiopia the use of its port. Djibouti's economy began to grow again in the early 2000s as a result of a number of reforms. Oman experienced on average high GDP and trade growth rates due to the political and economic reforms that Sultan Qaboos undertook since 1970, among others, trade liberalization.

3. Methodology and Data

We run two sets of growth regressions, at the macroeconomic and sectoral levels, for a sample of 21 MENA countries for the period 1960-2011[4]. Due to serious data constraints for the MENA region, we are restricted in the choice of our variables. All data are obtained from the World Development Indicators database at the World Bank and nominal values are deflated using the GDP deflator of 2005.

The specification of the macroeconomic regression is given by:

$$G_{it} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 R_{it}$$

where G_{it} is real GDP in country *i* at year *t*, α_0 is the constant term, X_{it} is the vector of standard growth controls for country *i* at year *t*, R_{it} is a vector of services and goods trade real values for country *i* at year *t*.

The specification of the sectoral regression is given by:

$$G_{ijt} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 R_{ijt}$$

where G_{ijt} is the real value added of sector *j* in country *i* at year *t*, α_0 is the constant term, X_{it} is the vector of standard growth controls for country *i* at year *t*, R_{ijt} is a vector of trade real values of sector *j* for country *i* at year *t*.

[4] See Appendix 1.

Both sets of growth regressions are based on the pioneering work of Mankiw et al. (1992) who show that international differences in income per capita are best understood with an augmented Solow model, where output is produced using physical capital, human capital and labor. Therefore, the growth controls include the natural log of real investment (*lnINV*), the population growth rate (*popgrowth*) and the tertiary enrolment rate (*school*). We also add the natural log of arable lands (*lnLAND*) to have an exhaustive production function.

In the macroeconomic regressions, our variables of interest are the natural log of service trade (*lnSERVICES*) and the natural log of goods trade (*lnGOODS*), both in real values, as well as their interaction term (*lnGOODS*lnSERVICES*). The latter is used to capture whether trade in goods and trade in services are complementary or substitutes in their effect on growth. Furthermore, because oil exports are the engine of economic growth for a number of MENA countries, we add a dummy variable (*Oil)* that takes a value equal to 1 for oil exporter countries, and 0 otherwise. We also distinguish between the effects of goods and services trade on growth for oil exporter countries by including an interaction term between the *Oil* dummy and the natural log of each type of trade (*Oil*lnGOODS* and *Oil*lnSERVICES*).

Due to data deficiencies, the sectoral regressions can only be run for three aggregate sectors: agriculture, manufacturing and services. Our first variable of interest is the natural log of the real value of trade (*lnTRADE*). To assess the effect of services on growth, we add a dummy variable (*Serv*) equal to 1 in case of services, and 0 otherwise, as well as its interaction with the trade variable (*Serv*lnTRADE*). We also add the *Oil* dummy and its interaction with the trade variable (*Oil*lnTRADE*).

To capture the partial adjustment of GDP over years, we introduce some dynamic effects into the standard panel model, by including the lagged value of GDP (value added for the sectoral regressions) among the regressors. Theoretically, this can be done as follows:

$$y_{it}^{*} = \alpha_0 + \alpha_1 x_{it} + u_{it}$$

$$y_{it} - y_{it-1} = \lambda(y_{it}^{*} - y_{it-1})$$

where y* is the desired level of y. By substituting the expression for y* into the other equation we obtain the following estimating equation:

$$y_{it} = \alpha_0\lambda + (1-\lambda)y_{it-1} + \lambda\alpha_1 x_{it} + \lambda u_{it}$$

Unfortunately there is a problem with the estimation of this type of model, as the lagged dependent variable will be correlated with the error term (in small samples). To overcome this, an instrumental variable technique can be used, such as Generalized Method of Moments (GMM), where the instruments can be lagged values of the variables in the original models. There are two approaches to dynamic panel models; the most common is the Arellano-Bond dynamic panel, where individual or fixed effects are accounted for by differencing the data.

To summarize, our estimable equation at the macroeconomic level is:

$$lnGDP_{it} = \beta_0 + \beta_1 lnGDP_{it-1} + \beta_2 lnINV_{it} + \beta_3 lnLAND_{it} + \beta_4 popgrowth_{it} + \beta_5 school_{it} + \beta_6 lnGOODS_{it} + \beta_7 lnSERVICES_{it} + \beta_8 lnGOODS_{it} * lnSERVICES_{it} + \beta_9 Oil + \beta_{10} Oil * lnSERVICES_{it} + \beta_{11} Oil * lnGOODS_{it} + \epsilon_{it} \quad (1)$$

where ϵ_{it} is the discrepancy term,

and at the sectoral level:

$$lnVA_{ijt} = \beta_0 + \beta_1 lnVA_{ijt-1} + \beta_2 lnINV_{it} + \beta_3 lnLAND_{it} + \beta_4 popgrowth_{it} + \beta_5 school_{it} + \beta_6 lnTRADE_{ijt} + \beta_7 Serv + \beta_8 Serv * lnTRADE_{ijt} + \beta_9 Oil + \beta_{10} Oil * lnTRADE_{ijt} + \epsilon_{ijt} \quad (2)$$

where ϵ_{ijt} is the discrepancy term.

4. Empirical Results

4.1 Macroeconomic Results

Table 3 presents the macroeconomic results for our augmented growth model. Classical variables have the expected sign and are highly significant. Both physical (captured by investment) and human capital (captured by the tertiary enrollment rate) have a positively significant effect on GDP in all specification. Land increases GDP in the fixed and random effects specifications but its effect becomes insignificant in the dynamic panel estimation. As per population growth, its impact on growth is not significant.

Moving to the effects of trade in services and trade in goods, it is quite clear that both do increase GDP. This is in line with the previous findings of the literature according to which trade policy openness and higher ratios of trade volumes to gross domestic product (GDP) are positively correlated with growth, after controlling for a variety of other growth determinants. In addition, the effect of trade in goods seems to be higher than the effect of trade in services. The reason behind this finding is related to the fact that while the MENA region has significantly liberalized its trade in goods, trade in services is still facing several impediments and constraints making the effect of the latter on growth very limited. For this reason, the interaction between trade in goods and trade in services is negative and statistically significant showing that the higher the trade in goods, the lower the marginal effect of trade in services on MENA growth (see Figure 7). This result is surprising given the complementarity between trade in goods and trade in services. However, as it is mentioned above, inefficient services, provided mostly by the public sector, and the high cost of key backbone services such as transport, telecommunications, storage and distribution are important factors that raise the cost of MENA exports (both services and manufacturing), while also impeding trade expansion in the MENA region.

In the second set of regressions, we introduce a dummy variable taking the value of 1 when the country is a net exporter of oil and zero otherwise. We also interact this variable with trade in goods and trade in services. It is worth mentioning that the oil dummy is not significant showing that oil exporting countries do not perform much better than non-oil countries. Yet, we find that while the effect of trade in goods on growth is expected to be positive for oil exporting countries, the impact of trade in services seems to be negative. This result is associated to the fact that higher trade in goods is likely to be linked to more diversification which does impact growth in a positive way.

To decide between fixed or random effects, we run a Hausman test that checks a more efficient model against a less efficient but consistent one to make sure that the more efficient model also gives consistent results. We found that we can reject the null hypothesis (according to which the preferred model is the random effect). Therefore, since the fixed effects estimator yields consistent coefficients, we use it in the GDP decomposition presented in section 5.

To capture the partial adjustment of GDP over years, we introduce some dynamic effects into the standard panel model, by including the lagged value of GDP (value added for the sectoral regressions) among the regressors. We use the Arellano-Bond dynamic panel, where individual or fixed effects are accounted for by differencing the data. Results of this model

are quite satisfactory since the lagged GDP is positive and statistically significant and the results for other variables are quite similar to the fixed and the random effects specifications[5].

4.2 Sectoral Results

Sectoral results are presented in Table 4. First, we notice that those are quite similar to macroeconomic results since classical growth determinants have the expected sign and are statistically significant. The only difference with respect to macroeconomic results is that population growth, a finding in line with the literature, turns to have a negative and significant impact on growth. Second, the elasticity of GDP with respect to trade is positive and highly significant (at 1%): an increase in trade by 1% leads to an increase in GDP by 0.26%. In addition, while the services sector *per se* does not have an important impact on growth, trade in services does have a positively significant impact on production since the interaction term is positive and significant in both the fixed and the random effect estimation.

Results of the dynamic panel model are also satisfactory since the lagged value added is positive and statistically significant and the results for other variables are quite similar to the fixed and the random effects specifications but with lower values of trade elasticities.

Therefore, we can sum-up our findings in three main points: first, trade has a positive and highly significant impact on growth; second, trade in goods has a higher impact on growth than trade in services; finally, these results are relatively robust under a battery of econometric techniques.

5. Decomposition of GDP Growth

Before moving to the estimated GDP decomposition to determine whether trade in goods contributes more or less to growth, we can rely on simple accounting. Figures 8 and 9 present the contribution of trade in goods and trade in services to growth in MENA region (by year and by country). Contribution to growth has been computed by multiplying the share of trade in goods (in services) to GDP by its growth rate for a particular year. Obviously, in the MENA region, trade in goods has substantially contributed to the GDP growth more than trade in services, especially after 2000 due to significant tariff cuts. In addition, in 2009, GDP declined significantly due to a large decline in goods trade as it shown in Figure 8. Similar findings can be found in Figure 9 that plots the contribution of trade in goods and services to GDP at the country level. Most of the MENA countries are characterized by a higher contribution of trade in goods to GDP growth except Lebanon and Malta whom services sector account for 70 percent of GDP.

The models presented in Tables 3-4 help determine the relative importance of different factors in the evolution of GDP growth in MENA countries. Predicted change is calculated by multiplying the coefficients obtained in the previous section by the change in the explanatory variable throughout a given sub-period. We split our analysis in two main sub-periods: 1980-1999 during which several MENA countries implemented economic reforms and structural adjustment programs, and 2000-2010 during which significant trade liberalization efforts have been deployed.

Tables 5 and 6 show the results of the contribution of trade in services and trade in goods to GDP growth for the MENA region in general as well as for specific MENA countries. It is worth mentioning that, according to the fixed effect estimation, while trade in goods explains around 45% of the GDP growth during the period 1980-1999, trade in services account for 30.3%. The difference is more pronounced over the period 2010-2010 since they contributed by 54% and 25% respectively. By observing the decomposition using the Arellano-Bond

[5] We found similar results from regressions that have been run for exports and imports separately. For more details, see Appendix 2 (Tables A2-A6)

estimations, we get higher contributions of trade in goods compared to the fixed effects method (58% during the first sub-period and 66.5% during the second).

Similar conclusions can be drawn from Table 6 that shows the decomposition at the country level. On the one hand, trade in goods contributed more to GDP growth for most of the countries. On the second hand, this contribution increased in the second sub-period as compared to the first one for all countries except Algeria, Malta and Palestine. Furthermore, some countries experienced a reversal in goods and services contributions such as Egypt and Oman. Whereas trade in goods contributed by more than 60% and 45% over 2000-2010 for Egypt and Oman respectively, trade is services contribution declined to 24% (down from 47% and 45% over 1980-1999)[6].

6. Conclusion and Policy Recommendations

This paper investigates a timely and critical question for the MENA region, the effects of services and goods trade on GDP growth. Due to serious data limitations for the region, we choose real GDP as the dependent variable and we include the theoretical growth determinants along with trade volumes as the independent variables. We run two sets of regressions for the period 1960-2011, at the macroeconomic and sectoral levels, and go a step further by decomposing GDP growth to disentangle the contributions of services trade and goods trade.

The macroeconomic and sectoral regressions lead to quite similar results, revealing a positive association between real GDP and both services and goods trade. The interaction term between trade in goods and trade in services is negative, suggesting that as goods trade increases, the marginal effect of services trade on real GDP decreases. However, the overall effect of services trade on real GDP is positive. The decomposition of GDP growth shows a greater impact of goods trade, although services trade is important, and for most countries greater than the effect of tertiary enrolment.

The policy implication is clear. Regulatory reforms that reduce trade barriers, including entry and operating costs for foreign services providers, should stimulate investment and output, with positive employment effects. Growth volatility, high unemployment, debt and budget deficits across the region all argue for serious efforts at structural reforms of which trade liberalization in general, and services liberalization in particular, are keys.

This investigation can be useful in view of the Euro-Mediterranean and other WTO negotiations on goods and services liberalization in the MENA region. Policymakers can benefit from such studies to pursue the negotiations especially for services liberalization. This is particularly important since trade (including investment) policy has an important contributing role to play in helping countries harness the economic benefits emanating from the services integration. For this reason, governments at all levels of development today recognize the vital role that an efficient and vibrant services industry plays in the process of economic and social development.

[6] For more details, see Appendix 2, Tables A6 and A7.

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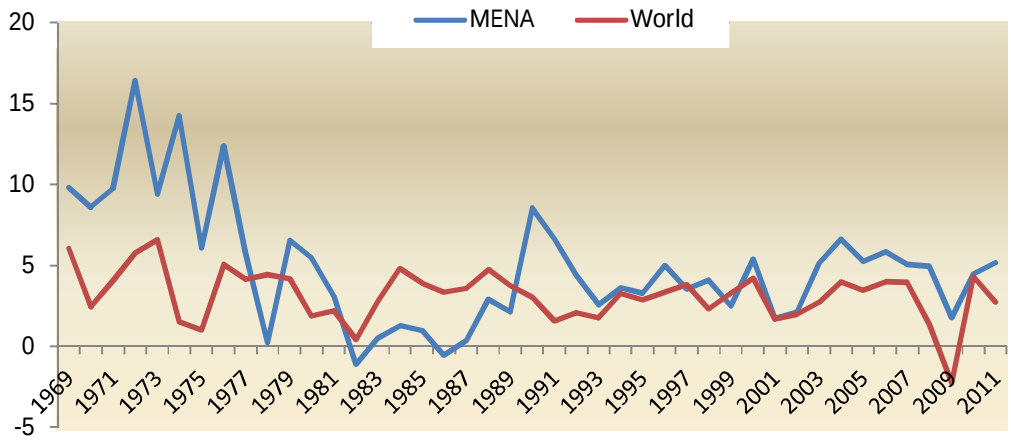
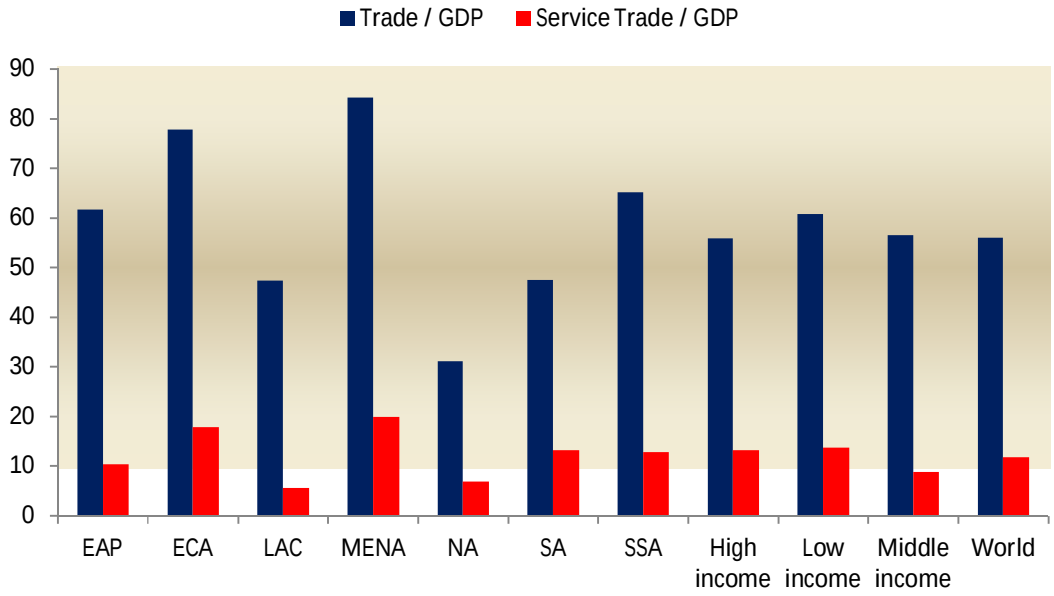
Figure 1: GDP Growth in the MENA Region (1969-2011)



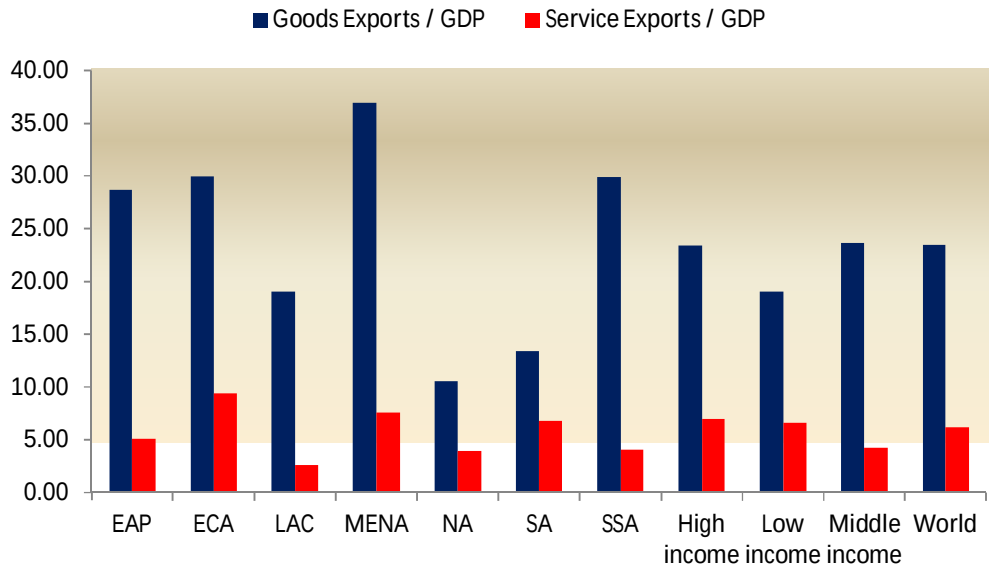
Source: World Development Indicators database, 2013.

Figure 2: Trade as a Percentage of GDP, 2010



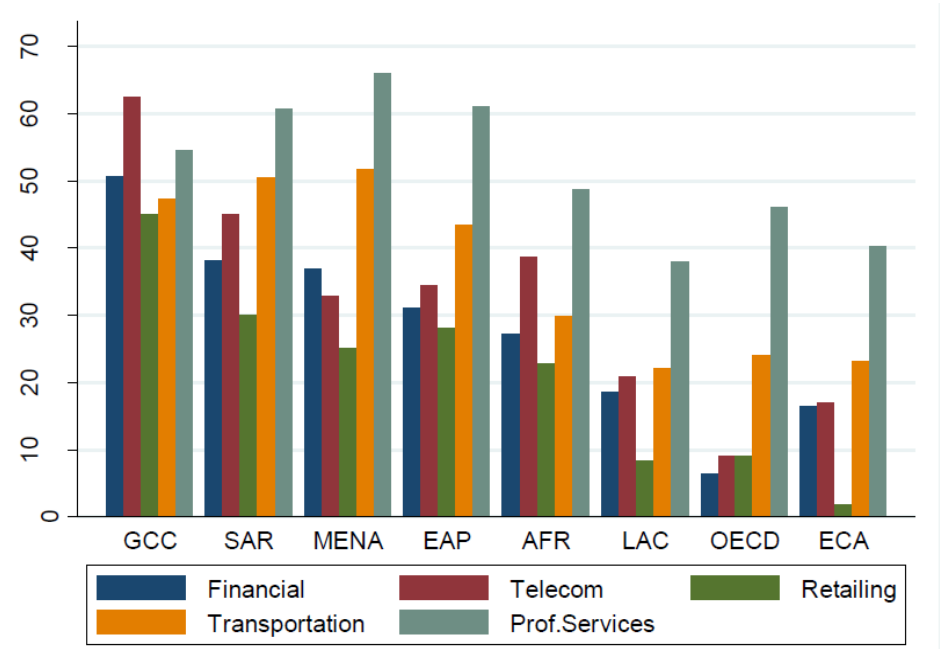
Note: (i) Trade is the sum of exports and imports divided by the value of GDP, all in current U.S. dollars. (ii) LAC: Latin America & Caribbean; NA: North America; EAP: East Asia & Pacific; SA: South Asia; SSA: Sub-Saharan Africa; ECA: Europe & Central Asia; MENA: Middle East & North Africa.
Source: World Bank, World Development Indicators database online, 2012.

Figure 3: Exports as a Percentage of GDP, 2010



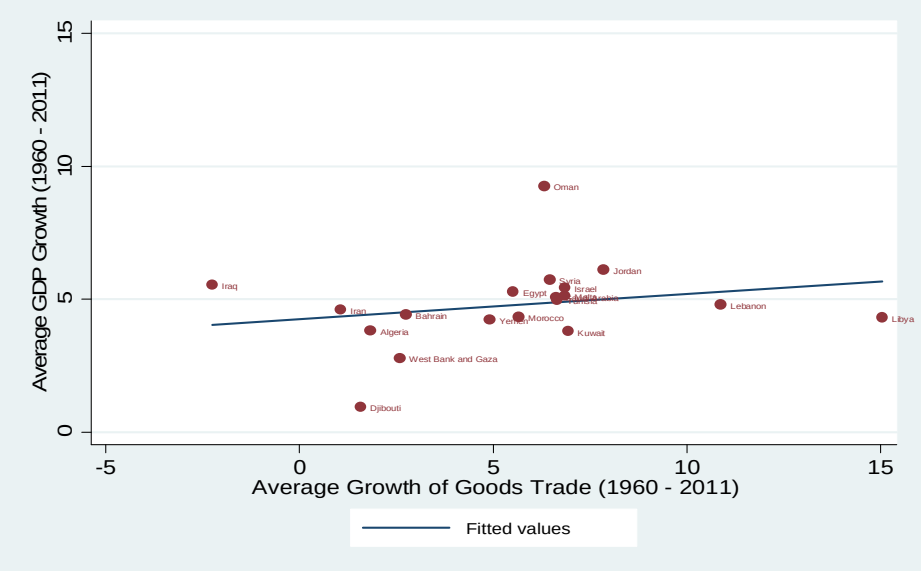
Note: (i) Trade is the sum of exports and imports divided by the value of GDP, all in current U.S. dollars. (ii) LAC: Latin America & Caribbean; NA: North America; EAP: East Asia & Pacific; SA: South Asia; SSA: Sub-Saharan Africa; ECA: Europe & Central Asia; MENA: Middle East & North Africa.
Source: World Bank, World Development Indicators database online, 2012.

Figure 4: Services Trade Restrictiveness Index by Sector and Region



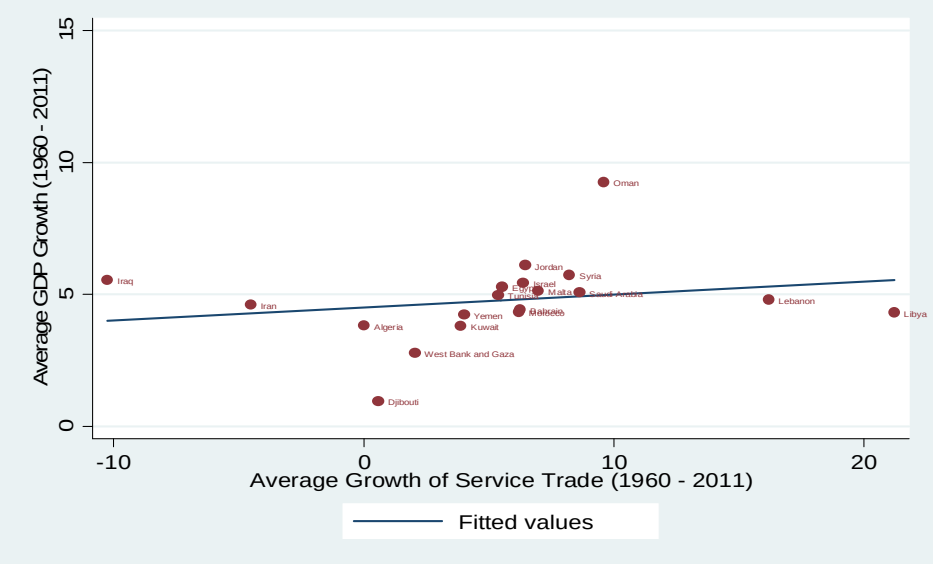
Note: The STRI at the regional level is calculated as a simple average of individual country's STRIs. The STRI in the cross-border air passenger transportation subsector comes from the QUASAR database of WTO (2007). Regional abbreviations: SAR – South Asia, EAP – East Asia and Pacific, MENA – Middle East and North Africa, AFR – Sub-Saharan Africa, LAC – Latin America and Caribbean, ECA – Europe and Central Asia, OECD – High income OECD.
Source : Brochert et al. (2012).

Figure 5: Growth of GDP and Goods Trade



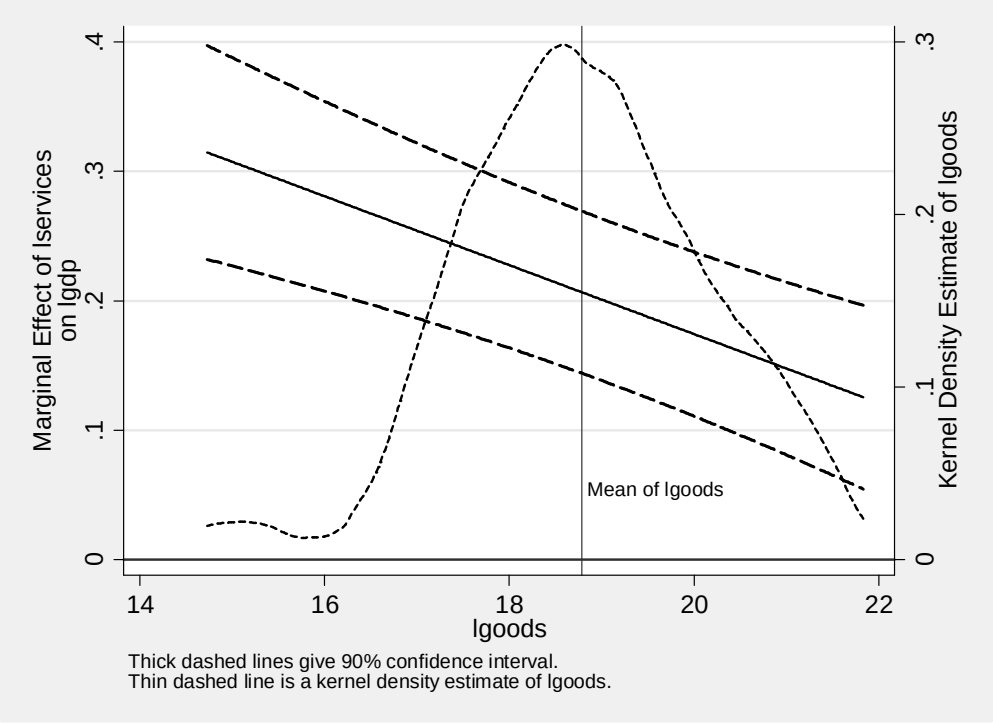
Source: Constructed by the authors using the World Development Indicators dataset (2013).

Figure 6: Growth of GDP and Services Trade



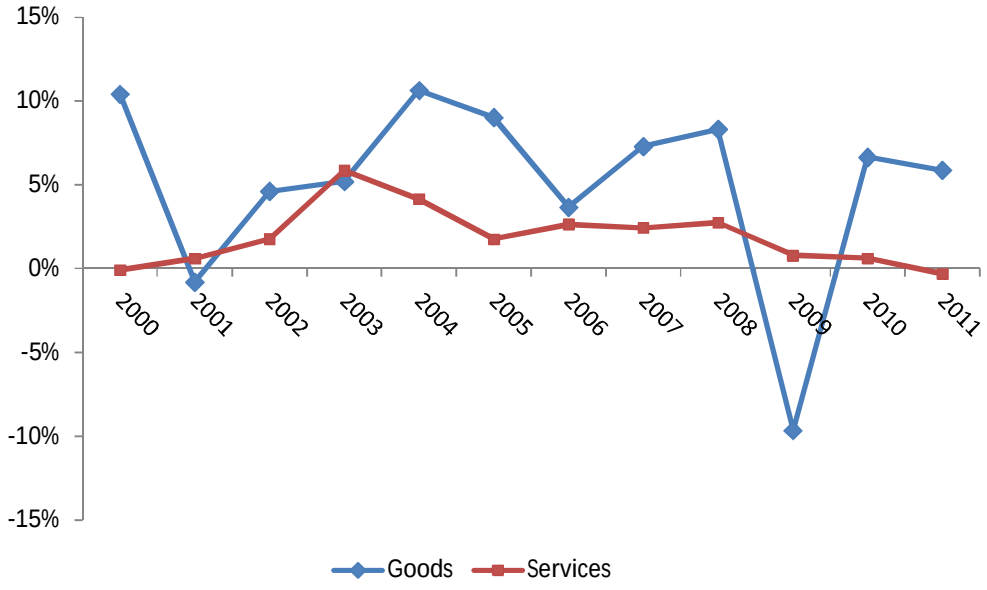
Source: Constructed by the authors using the World Development Indicators dataset (2013).

Figure 7: Interaction between the Effects of Trade in Services and Trade in Goods on Growth



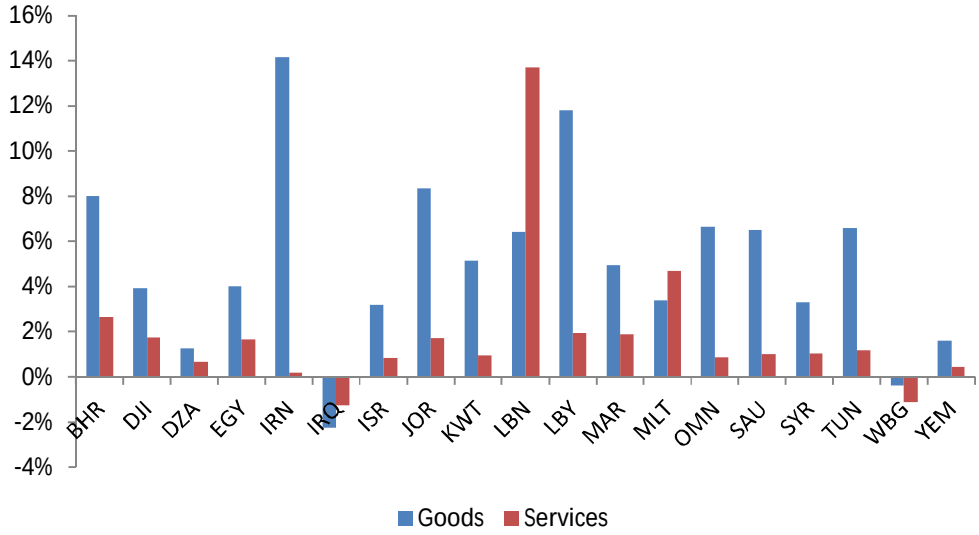
Source: Constructed by the authors.

Figure 8: Contribution of Trade in Goods and Trade in Services to Growth in MENA Region (by year)



Source: Constructed by the authors using the World Development Indicators dataset (2013).

Figure 9: Contribution of Trade in Goods and Trade in Services to Growth (Average by Country)



Source: Constructed by the authors using the World Development Indicators dataset (2013).

Table 1: GDP Growth, in Percentage by Country (2000 - 2011)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
East Asia & Pacific	4.17	1.95	2.94	3.67	4.63	4.08	4.85	5.69	2.49	-0.31	6.72	3.37
Europe & Central Asia	4.11	2.08	1.60	1.72	3.01	2.40	3.68	3.54	0.60	-4.40	2.53	1.95
Latin America & Caribbean	3.98	0.50	-0.29	2.12	6.00	4.76	5.72	5.68	4.09	-1.67	6.00	4.63
MENA	5.38	1.72	2.14	5.14	6.62	5.26	5.85	5.05	4.95	1.77	4.48	5.19
North America	4.25	1.14	1.90	2.51	3.45	3.07	2.67	1.93	-0.29	-3.48	3.03	1.75
South Asia	4.23	4.44	3.84	7.30	7.59	8.71	8.65	9.00	3.88	7.43	8.69	6.42
Sub-Saharan Africa	3.63	3.77	3.44	4.17	6.11	6.02	6.30	6.59	5.08	2.15	4.95	4.15
High Income	3.93	1.37	1.59	2.09	3.16	2.53	2.93	2.65	0.06	-3.75	3.28	1.54
Low Income	3.51	5.22	3.23	3.84	6.11	7.00	6.24	6.32	5.74	4.66	6.05	5.98
Middle Income	5.43	3.05	3.77	5.58	7.53	7.24	8.17	8.71	5.75	2.64	7.71	6.33
MENA Countries												
Oil Exporters												
Algeria	2.20	2.60	4.70	6.90	5.20	5.10	2.00	3.00	2.40	2.40	3.30	2.50
Bahrain	5.30	4.60	5.26	7.20	5.60	7.80	6.70	8.34	6.30	3.10	4.50	
Iran	5.14	3.67	7.52	7.11	5.08	4.62	5.89	7.82	2.30	1.80		
Iraq	-4.30	-6.60	-7.80	-41.30	46.50	-0.70	6.20	1.50	9.50	4.20	0.84	9.90
Kuwait	4.69	0.73	3.00	17.32	10.20	10.60	5.20	4.37	4.97	-5.15	3.41	8.19
Libya	3.70	-4.30	-1.30	13.00	4.40	9.90	5.90	6.00	3.80	2.10		
Oman	5.40	7.48	2.57	0.30	3.40	3.99	5.50	6.80	12.80	1.10	4.00	5.50
Qatar		3.33	7.13	3.49	20.84	7.60	18.60	18.00	17.70	12.00	16.60	18.80
Saudi Arabia	4.86	0.55	0.13	7.66	5.27	5.55	3.16	2.02	4.23	0.10	4.64	6.77
Syria	2.74	5.20	5.90	0.60	6.90	6.20	5.00	5.70	4.50	6.00	3.20	
United Arab Emirates	10.85	1.40	2.43	8.80	9.57	4.86	9.91	3.21	3.29	-1.61	1.43	4.90
Yemen	6.18	3.80	3.94	3.75	3.97	5.59	3.17	3.34	3.65	3.87	7.70	-10.48
Oil Importers												
Djibouti	0.42	2.05	2.62	3.20	3.83	3.17	4.80	5.10	5.80	5.00		
Egypt	5.37	3.54	2.37	3.19	4.09	4.47	6.84	7.09	7.16	4.69	5.15	1.80
Israel	9.25	-0.22	-0.58	1.51	4.84	4.94	5.59	5.50	4.03	0.84	4.85	4.71
Jordan	4.24	5.27	5.79	4.18	8.56	8.12	8.11	8.18	7.23	5.48	2.31	2.59
Lebanon	1.34	3.95	3.37	3.24	7.48	1.00	0.60	7.50	9.27	8.50	7.00	3.00
Malta	6.77	-1.55	2.81	0.13	-0.50	3.67	2.22	4.28	4.36	-2.65	2.71	2.10
Morocco	1.59	7.55	3.32	6.32	4.80	2.98	7.76	2.71	5.59	4.76	3.68	4.55
Tunisia	4.30	4.85	1.70	5.47	5.96	4.00	5.65	6.26	4.52	3.10	3.00	-1.80
West Bank and Gaza	-5.55	-14.79	-10.08	6.11	6.24	6.28						

Source: World Bank, World Development Indicators database online, 2012.

Table 2: Trade as a Percentage of GDP, by Country (2000 – 2011)

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Oil Exporters													
Algeria	Total	62.53	57.85	60.48	62.14	65.72	71.92	70.12	69.90	69.18	54.11	52.33	
	Services						7.12	6.28	7.07	8.52	10.62	9.55	8.62
Bahrain	Total	153.83	142.79	148.16	145.54	164.72	175.96	171.69	162.08	171.16	140.07		
	Services	21.21	21.64	23.71	22.23	34.93	33.17	31.08	28.29	26.34	27.92	25.94	
Iran	Total	40.14	39.29	49.27	52.94	54.98	57.71	56.87	53.72				
	Services	3.63											
Iraq	Total												
	Services						20.59	12.97	10.06	11.48			
Kuwait	Total	86.62	86.84	81.23	86.56	89.30	92.24	89.71	91.73	92.68	88.86	86.36	86.98
	Services	17.88	20.12	19.63	20.38	18.95	16.70	18.79	20.50	18.82	23.75	17.16	
Libya	Total	51.12	51.82	81.40	99.05	95.37	94.73	96.77	96.91	94.85			
	Services	3.15	4.29	9.80	8.47	7.04	6.55	5.41	3.86	4.89	8.74		
Oman	Total	90.53	93.40	77.38	82.90	90.58	89.85	88.79	96.89	96.18	94.13		
	Services	11.12	12.56	12.40	14.99	15.76	13.22	14.15	16.18	12.72	15.16	14.16	12.84
Qatar	Total	89.61	94.97	88.47	90.16	92.42	100.34	99.20	91.46	78.85	78.55		
	Services												
S. Arabia	Total	68.55	63.95	64.95	70.23	78.59	88.67	95.06	102.51	104.88	48.39	96.73	92.25
	Services	15.92	13.27	13.34	12.38	12.60	14.11	17.88	20.44	17.76	22.50	19.40	15.52
Syria	Total	63.97	64.61	68.61	62.04	79.87	82.01	78.23	76.48	73.57	60.22	71.08	
	Services	17.42	16.47	15.95	14.37	19.33	18.26	16.33	17.01	14.39	13.94	18.27	
UAE	Total		89.86	93.07	102.30	116.62	119.55	119.48	136.67	148.81	143.93	146.70	
	Services												
Yemen	Total	75.44	70.89	74.73	74.38	71.85	76.77	82.08	79.12	81.25	68.02	65.07	
	Services	10.59	10.29	10.30	11.22	10.30	9.63	12.60	11.96	13.20	13.41	12.76	10.43
Oil Importers													
Djibouti	Total	85.44	83.07	82.32	88.98	91.14	91.55	97.22	134.24				
	Services	42.23	43.36	42.96	45.46	43.54	46.86	44.31	42.01	43.40	42.86		
Egypt	Total	39.02	39.81	40.99	46.18	57.82	62.95	61.52	65.08	71.68	56.55	47.48	53.48
	Services	17.34	16.47	18.15	21.16	28.18	28.04	25.77	26.28	26.12	18.76	17.60	
Israel	Total	74.78	68.39	72.75	73.97	82.73	85.84	85.23	86.36	81.85	66.96	71.79	74.67
	Services	22.22	19.86	19.92	20.47	22.37	22.92	22.74	22.61	21.66	19.76	19.45	19.22
Jordan	Total	110.29	109.22	114.02	115.68	134.63	146.91	141.75	145.99	144.02	114.96	116.82	117.11
	Services	39.72	35.78	38.16	35.67	36.97	38.73	39.04	41.29	39.16	35.15	37.91	33.10
Lebanon	Total	50.12	55.56	51.04	54.09	61.74	63.99	63.40	71.21	77.89	68.21	64.73	62.18
	Services			40.64	79.42	82.31	85.79	90.54	90.77	103.19	88.59	75.38	77.34
Malta	Total	188.98	163.07	162.34	157.37	159.01	156.72	177.51	180.79	177.06	157.79	172.95	191.04
	Services	46.98	48.17	47.56	45.83	48.56	53.68	68.06	74.45	81.71	80.71	85.30	83.69
Morocco	Total	61.33	61.35	62.41	60.16	63.69	70.23	73.88	80.61	88.35	68.40	75.92	82.60
	Services	13.31	16.30	16.76	16.74	17.84	20.06	21.73	23.37	22.63	21.16	22.01	22.49
Tunisia	Total	82.46	89.55	85.34	82.39	86.95	90.25	93.94	104.04	114.30	93.01	102.83	103.99
	Services	18.56	19.65	17.85	16.57	18.01	19.24	19.63	19.87	20.91	19.47	20.68	
WBG	Total	87.16	86.38	86.77	84.26	83.34	82.24						
	Services	24.82	25.65	30.72	26.47	23.34	19.57						

Note: (i) Trade is the sum of exports and imports divided by the value of GDP, all in current U.S. dollars. (ii) UAE: United Arab Emirates; WBG: West Bank & Gaza.
Source: World Bank, World Development Indicators database online, 2012.

Table 3: Macroeconomic Results

	Basic			Oil Dummy and Interaction		
	RE	**FE**	**AB**	**RE**	**FE**	**AB**
	Ln(GDP)	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**
Ln(Inv.)	0.274***	0.229***	0.0419***	0.327***	0.312***	0.0682***
	(0.0325)	(0.0304)	(0.0124)	(0.0322)	(0.0315)	(0.0147)
Ln(Land)	0.122***	0.117**	-0.0378	0.122***	0.0674	-0.00754
	(0.0189)	(0.0497)	(0.0277)	(0.0209)	(0.0480)	(0.0309)
Pop. Growth	-0.00302	-0.00405	-0.00293	0.00784	0.00484	-0.00116
	(0.00807)	(0.00804)	(0.00317)	(0.00809)	(0.00839)	(0.00383)
School	0.0145***	0.0182***	0.00170**	0.0164***	0.0180***	0.00196***
	(0.00131)	(0.00130)	(0.000696)	(0.00125)	(0.00124)	(0.000739)
Ln(Goods)	0.887***	1.000***	0.373***	0.563***	0.555***	0.262***
	(0.121)	(0.130)	(0.0538)	(0.127)	(0.138)	(0.0760)
Ln(Services)	0.705***	0.936***	0.259***	0.667***	0.707***	0.232***
	(0.141)	(0.145)	(0.0601)	(0.141)	(0.148)	(0.0837)
Ln(Goods)*Ln(Ser.)	-0.0332***	-0.0436***	-0.0135***	-0.0252***	-0.0266***	-0.00968**
	(0.00702)	(0.00733)	(0.00299)	(0.00703)	(0.00749)	(0.00432)
Oil				0.641		
				(0.396)		
Oil*Ln(Services)				-0.218***	-0.228***	-0.0882***
				(0.0516)	(0.0509)	(0.0259)
Oil*Ln(Goods)				0.201***	0.216***	0.0693***
				(0.0563)	(0.0558)	(0.0259)
Lag Ln(GDP)			0.698***			0.683***
			(0.0216)			(0.0236)
Constant	-5.491**	-7.439***	-1.523	-2.694	-1.589	-0.738
	(2.283)	(2.737)	(1.115)	(2.267)	(2.773)	(1.411)
Observations	356	356	302	322	322	272
R-squared within	0.908	0.911	-	0.923	0.924	-
R-squared between	0.913	0.879	-	0.932	0.889	-
R-squared overall	0.928	0.899	-	0.957	0.925	-
Number of code	18	18	18	17	17	17

Notes: (i.) Standard errors in parentheses. (ii.) *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Sectoral Results

	Basic			Oil Dummy and Interaction		
	FE	RE	AB	FE	RE	AB
	Ln(VA)	Ln(VA)	Ln(VA)	Ln(VA)	Ln(VA)	Ln(VA)
Ln(Inv.)	0.0388	0.0888**	0.0485**	0.0425	0.0576	0.0504**
	(0.0428)	(0.0405)	(0.0232)	(0.0418)	(0.0414)	(0.0230)
Ln(Land)	0.357***	0.317***	-0.0293	0.436***	0.339***	-0.0405
	(0.0706)	(0.0264)	(0.0542)	(0.0702)	(0.0269)	(0.0538)
Pop. Growth	-0.0650***	-0.0609***	-0.00668	-0.0664***	-0.0669***	-0.00879
	(0.0112)	(0.0104)	(0.00575)	(0.0109)	(0.0102)	(0.00575)
School	0.0161***	0.0132***	0.00480***	0.0168***	0.0141***	0.00503***
	(0.00181)	(0.00175)	(0.00149)	(0.00177)	(0.00174)	(0.00148)
Ln (Trade)	0.267***	0.315***	0.0298	0.340***	0.375***	0.0613**
	(0.0402)	(0.0382)	(0.0281)	(0.0411)	(0.0394)	(0.0299)
Serv. Dum		-0.228			-0.350	
		(0.783)			(0.771)	
Ln (Trade)*Ser. Dum	0.158***	0.110**	0.0528	0.158***	0.117***	0.0512
	(0.0450)	(0.0438)	(0.0404)	(0.0440)	(0.0431)	(0.0401)
Lag Ln(VA)			0.711***			0.697***
			(0.0276)			(0.0277)
Oil					4.481***	
					(0.846)	
Oil*Ln(Trade)				-0.235***	-0.185***	-0.0772***
				(0.0392)	(0.0378)	(0.0265)
Constant	15.38***	14.55***	6.302***	15.06***	13.61***	6.921***
	(1.238)	(0.659)	(1.063)	(1.211)	(0.694)	(1.075)
Observations	798	798	654	798	798	654
R-squared within	0.580	0.576	-	0.599	0.596	-
R-squared between	0.787	0.856	-	0.199	0.846	-
R-squared overall	0.778	0.857	-	0.174	0.868	-
Number of code	50	50	46	50	50	46

Notes: (i.) Standard errors in parentheses. (ii.) *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Estimated Contribution of Trade in Services and Trade in Goods to GDP Growth for MENA Region (FE vs. AB)

1980-1999							
		FE			AB		
	Growth Rate (%)	Coefficient	Multiplication (%)	Shares (%)	Coefficient	Multiplication (%)	Shares (%)
Goods	3.4	0.744	2.6	44.8	0.322	1.1	57.9
Services	3.8	0.452	1.7	30.3	0.134	0.5	26.9
Inv.	4.0	0.312	1.2	21.7	0.068	0.3	14.2
Pop	2.9	0.000	0.0	0.0	0.000	0.0	0.0
School	10.2	0.018	0.2	3.2	0.002	0.0	1.1
Land	-0.4	0.000	0.0	0.0	0.000	0.0	0.0
2000-2010							
		FE			AB		
	Growth Rate (%)	Coefficient	Multiplication (%)	Shares (%)	Coefficient	Multiplication (%)	Shares (%)
Goods	8.5	0.744	6.3	54.3	0.322	2.7	66.5
Services	6.4	0.452	2.9	24.9	0.134	0.9	20.9
Inv.	7.4	0.312	2.3	19.9	0.068	0.5	12.3
Pop	1.9	0.000	0.0	0.0	0.000	0.0	0.0
School	6.4	0.018	0.1	1.0	0.002	0.0	0.3
Land	-0.5	0.000	0.0	0.0	0.000	0.0	0.0

Note: The coefficients of goods (services) are computed by adding the three coefficients: lnGood (lnService), the interaction between lnGood and lnService and the interaction between oil and lnGood (oil and lnService). This allows us to have the net effect of trade in goods and trade in services on growth.
Source: Authors' calculations.

Table 6: Estimated Contribution of Trade in Services and Trade in Goods to GDP Growth for Selected Countries

	1980-1999				2000-2010			
	Goods (%)		Services (%)		Goods (%)		Services (%)	
DJI	-3.8	66.2	-1.6	28.3	5.2	32.3	1.8	11.1
DZA	1.2	-181.1	-2.1	312.0	1.3	18.7	3.0	43.1
EGY	1.6	31.0	2.4	46.9	7.5	64.5	2.7	23.7
IRN	1.9	43.9	-1.7	-38.5	24.5	84.1	2.4	8.2
ISR	2.4	42.7	1.8	32.2	3.9	66.7	1.7	28.7
JOR	3.5	53.4	1.6	25.0	6.8	61.9	1.9	17.4
KWT	4.8	67.0	1.6	22.4	5.4	54.4	1.8	18.7
MAR	3.8	57.9	1.5	23.1	6.4	47.5	4.5	33.6
MLT	3.9	52.4	2.1	29.0	1.6	31.4	3.0	60.2
OMN	4.2	31.8	5.9	45.0	5.6	43.2	2.4	18.8
SAU	-0.2	-53.9	-0.2	-53.9	6.8	67.3	2.3	22.2
TUN	3.8	53.2	2.0	27.7	6.2	59.0	2.7	25.9
WBG	5.9	37.5	5.8	36.9	-0.7	13.1	-2.3	43.1
MENA	2.6	44.8	1.7	30.3	6.3	54.3	2.9	24.9

Source: Authors' calculations.

Appendix 1

Table A.1: List of MENA Countries

Oil Countries	Non-Oil Countries
Algeria	Djibouti
Bahrain	Egypt
Iran	Israel
Iraq	Jordan
Kuwait	Lebanon
Libya	Morocco
Oman	Malta
Qatar	Palestine
Saudi Arabia	Syria
UAE	Tunisia
	Yemen

Appendix 2

Table A.2: Macroeconomic Results for Exports Only

	Basic			Oil Dummy and Interaction		
	RE	**FE**	**AB**	**RE**	**FE**	**AB**
	Ln(GDP)	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**
Ln(Inv.)	0.356***	0.303***	0.0735***	0.305***	0.276***	0.0752***
	(0.0271)	(0.0260)	(0.0115)	(0.0258)	(0.0251)	(0.0115)
Ln(Land)	0.107***	0.132***	-0.0476*	0.137***	0.179***	-0.0396
	(0.0173)	(0.0476)	(0.0269)	(0.0185)	(0.0466)	(0.0270)
Pop. Growth	-0.00564	-0.000310	-0.00348	-0.00781	-0.00480	-0.00386
	(0.00816)	(0.00811)	(0.00324)	(0.00763)	(0.00775)	(0.00326)
School	0.0143***	0.0187***	0.00253***	0.0153***	0.0176***	0.00284***
	(0.00131)	(0.00136)	(0.000697)	(0.00130)	(0.00131)	(0.000711)
Ln(Exp. Goods)	0.640***	0.811***	0.228***	0.535***	0.682***	0.196***
	(0.104)	(0.111)	(0.0495)	(0.102)	(0.107)	(0.0575)
Ln(Exp. Services)	0.436***	0.715***	0.164***	0.540***	0.723***	0.195***
	(0.120)	(0.124)	(0.0556)	(0.120)	(0.122)	(0.0650)
Ln(Exp. Good)*Ln(Exp.Ser.)	-0.0230***	-0.0367***	-0.00852***	-0.0214***	-0.0310***	-0.00828**
	(0.00647)	(0.00672)	(0.00301)	(0.00637)	(0.00652)	(0.00358)
Oil				2.691***		
				(0.562)		
Oil*Ln(Exp.Ser)				-0.132***	-0.141***	-0.0500***
				(0.0336)	(0.0338)	(0.0160)
Oil*Ln(Exp.Goods)				0.00539	-0.00376	0.0449**
				(0.0416)	(0.0421)	(0.0200)
Lag Ln(GDP)			0.697***			0.690***
			(0.0203)			(0.0207)
Constant	-0.545	-3.610	0.882	-0.596	-2.536	0.826
	(1.880)	(2.262)	(0.999)	(1.826)	(2.169)	(1.158)
Observations	356	356	302	356	356	302
R-squared within	0.909	0.914	-	0.921	0.923	-
R-squared between	0.936	0.893	-	0.935	0.194	-
R-squared overall	0.944	0.909	-	0.952	0.235	-
Number of code	18	18	18	18	18	18

Notes: (i.) Standard errors in parentheses. (ii.) *** p<0.01, ** p<0.05, * p<0.1.

Table A.3: Macroeconomic Results for Imports Only

	Basic			Oil Dummy and Interaction		
	RE	**FE**	**AB**	**RE**	**FE**	**AB**
	Ln(GDP)	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**	**Ln(GDP)**
Ln(Inv.)	0.294***	0.240***	0.0401***	0.268***	0.214***	0.0431***
	(0.0390)	(0.0371)	(0.0149)	(0.0392)	(0.0369)	(0.0150)
Ln(Land)	0.114***	0.0639	-0.0924***	0.136***	0.145***	-0.0787***
	(0.0231)	(0.0522)	(0.0285)	(0.0176)	(0.0539)	(0.0291)
Pop. Growth	-0.0101	-0.0131	-0.00383	-0.0212**	-0.0183**	-0.00281
	(0.00882)	(0.00883)	(0.00335)	(0.00879)	(0.00860)	(0.00336)
School	0.0178***	0.0199***	0.00234***	0.0146***	0.0172***	0.00219***
	(0.00137)	(0.00133)	(0.000736)	(0.00147)	(0.00145)	(0.000739)
Ln(Imp. Goods)	0.981***	1.018***	0.393***	0.572***	0.781***	0.302***
	(0.130)	(0.140)	(0.0583)	(0.147)	(0.151)	(0.0727)
Ln(Imp. Services)	0.969***	1.000***	0.348***	0.610***	0.802***	0.258***
	(0.140)	(0.145)	(0.0630)	(0.146)	(0.146)	(0.0731)
Ln(Imp. Good)*Ln(Imp.Ser.)	-0.0466***	-0.0486***	-0.0184***	-0.0214***	-0.0328***	-0.0126***
	(0.00728)	(0.00774)	(0.00321)	(0.00821)	(0.00827)	(0.00408)
Oil				4.328***		
				(0.831)		
Oil*Ln(Imp.Ser)				-0.0940	-0.122*	-0.0149
				(0.0718)	(0.0691)	(0.0302)
Oil*Ln(Imp.Goods)				-0.111	-0.0880	-0.0444
				(0.0852)	(0.0813)	(0.0364)
Lag Ln(GDP)			0.730***			0.723***
			(0.0227)			(0.0228)
Constant	-7.605***	-6.594**	-1.671	-1.825	-3.226	-0.0636
	(2.235)	(2.737)	(1.136)	(2.326)	(2.760)	(1.321)
Observations	357	357	303	357	357	303
R-squared within	0.895	0.897	-	0.902	0.905	-
R-squared between	0.87	0.845	-	0.929	0.022	-
R-squared overall	0.891	0.865	-	0.947	0.039	-
Number of code	18	18	18	18	18	18

Notes: (i.) Standard errors in parentheses. (ii.) *** p<0.01, ** p<0.05, * p<0.1.

Table A.4: Sectoral Results for Exports Only

	Basic			Oil Dummy and Interaction		
	FE	**RE**	**AB**	**FE**	**RE**	**AB**
	Ln(VA)	**Ln(VA)**	**Ln(VA)**	**Ln(VA)**	**Ln(VA)**	**Ln(VA)**
Ln(Inv.)	0.142***	0.226***	0.0678***	0.0799**	0.123***	0.0696***
	(0.0375)	(0.0341)	(0.0205)	(0.0373)	(0.0363)	(0.0211)
Ln(Land)	0.195***	0.278***	-0.0389	0.356***	0.309***	-0.0399
	(0.0694)	(0.0263)	(0.0535)	(0.0708)	(0.0266)	(0.0536)
Pop. Growth	-0.0525***	-0.0395***	-0.00524	-0.0607***	-0.0554***	-0.00490
	(0.0115)	(0.0109)	(0.00576)	(0.0112)	(0.0108)	(0.00584)
School	0.0148***	0.0123***	0.00401***	0.0129***	0.0110***	0.00409***
	(0.00185)	(0.00178)	(0.00149)	(0.00181)	(0.00176)	(0.00151)
Ln (Exports)	0.167***	0.188***	0.0470***	0.324***	0.327***	0.0416*
	(0.0206)	(0.0200)	(0.0170)	(0.0296)	(0.0281)	(0.0231)
Serv. Dum		1.318***			0.922*	
		(0.486)			(0.475)	
Ln (Exp.)*Ser. Dum	0.0410	0.0158	-0.0250	0.0548**	0.0337	-0.0265
	(0.0284)	(0.0281)	(0.0249)	(0.0276)	(0.0273)	(0.0252)
Lag Ln(VA)			0.702***			0.702***
			(0.0285)			(0.0284)
Oil					3.549***	
					(0.486)	
Oil*Ln(Exp.)				-0.215***	-0.189***	0.00888
				(0.0299)	(0.0279)	(0.0251)
Constant	18.35***	15.14***	6.560***	16.18***	14.22***	6.570***
	(1.170)	(0.594)	(1.054)	(1.172)	(0.608)	(1.055)
Observations	798	798	654	798	798	654
R-squared within	0.579	0.575	-	0.607	0.605	-
R-squared between	0.836	0.865	-	0.242	0.857	-
R-squared overall	0.807	0.846	-	0.19	0.859	-
Number of code	50	50	46	50	50	46

Notes: (i.) Standard errors in parentheses. (ii.) *** p<0.01, ** p<0.05, * p<0.1.

Table A.5: Sectoral Results for Imports Only

	Basic			Oil Dummy and Interaction		
	FE	**RE**	**AB**	**FE**	**RE**	**AB**
	Ln(VA)	**Ln(VA)**	**Ln(VA)**	**Ln(VA)**	**Ln(VA)**	**Ln(VA)**
Ln(Inv.)	0.0853*	0.126***	0.0595**	0.0720*	0.0925**	0.0604**
	(0.0436)	(0.0418)	(0.0239)	(0.0432)	(0.0428)	(0.0239)
Ln(Land)	0.341***	0.311***	-0.0248	0.421***	0.326***	-0.0240
	(0.0721)	(0.0274)	(0.0541)	(0.0736)	(0.0277)	(0.0539)
Pop. Growth	-0.0739***	-0.0705***	-0.00586	-0.0786***	-0.0790***	-0.00521
	(0.0113)	(0.0104)	(0.00573)	(0.0112)	(0.0106)	(0.00577)
School	0.0176***	0.0150***	0.00508***	0.0163***	0.0142***	0.00555***
	(0.00181)	(0.00176)	(0.00149)	(0.00181)	(0.00179)	(0.00152)
Ln(Imports)	0.199***	0.254***	0.000725	0.314***	0.342***	-0.0184
	(0.0428)	(0.0407)	(0.0285)	(0.0499)	(0.0469)	(0.0342)
Serv. Dum		-0.397			-0.404	
		(0.835)			(0.828)	
Ln(Imp.)*Ser. Dum	0.187***	0.131***	0.0701*	0.185***	0.131***	0.0707*
	(0.0501)	(0.0480)	(0.0412)	(0.0495)	(0.0476)	(0.0412)
Lag Ln(VA)			0.728***			0.727***
			(0.0269)			(0.0267)
Oil					3.347***	
					(0.842)	
Oil*Ln(Imp.)				-0.221***	-0.175***	0.0381
				(0.0507)	(0.0477)	(0.0376)
Constant	15.91***	15.07***	6.010***	14.72***	13.89***	6.077***
	(1.270)	(0.685)	(1.056)	(1.284)	(0.765)	(1.054)
Observations	799	799	656	799	799	656
R-squared within	0.564	0.561	-	0.575	0.572	-
R-squared between	0.757	0.845	-	0.327	0.84	-
R-squared overall	0.749	0.855	-	0.298	0.864	-
Number of code	50	50	46	50	50	46

Notes: (i.) Standard errors in parentheses. (ii.) *** p<0.01, ** p<0.05, * p<0.1.

Table A.6: Share of Contribution to GDP Growth (using FE estimates)

	1980-1999						
	Goods (%)	**Services (%)**	**Inv. (%)**	**Pop (%)**	**School (%)**	**Land (%)**	**Total (%)**
BHR	26.3	75.5	-7.6	0.0	5.8	0.0	100.0
DJI	66.2	28.3	11.1	0.0	-5.7	0.0	100.0
DZA	-181.1	312.0	-23.8	0.0	-7.1	0.0	100.0
EGY	31.0	46.9	22.7	0.0	-0.7	0.0	100.0
IRN	43.9	-38.5	87.1	0.0	7.5	0.0	100.0
ISR	42.7	32.2	24.5	0.0	0.6	0.0	100.0
JOR	53.4	25.0	20.2	0.0	1.4	0.0	100.0
KWT	67.0	22.4	8.9	0.0	1.6	0.0	100.0
MAR	57.9	23.1	18.4	0.0	0.6	0.0	100.0
MLT	52.4	29.0	16.4	0.0	2.2	0.0	100.0
OMN	31.8	45.0	15.8	0.0	7.5	0.0	100.0
SAU	-53.9	-53.9	155.9	0.0	51.9	0.0	100.0
SYR	45.5	44.5	10.0	0.0	0.0	0.0	100.0
TUN	53.2	27.7	17.4	0.0	1.7	0.0	100.0
WBG	37.5	36.9	24.2	0.0	1.4	0.0	100.0
MENA	**44.8**	**30.3**	**21.7**	**0.0**	**3.2**	**0.0**	**100.0**
	2000-2010						
	Goods (%)	**Services (%)**	**Inv. (%)**	**Pop (%)**	**School (%)**	**Land (%)**	**Total (%)**
DJI	32.3	11.1	52.4	0.0	4.3	0.0	100.0
DZA	18.7	43.1	36.7	0.0	1.5	0.0	100.0
EGY	64.5	23.7	11.5	0.0	0.2	0.0	100.0
IRN	84.1	8.2	7.2	0.0	0.5	0.0	100.0
ISR	66.7	28.7	3.8	0.0	0.8	0.0	100.0
JOR	61.9	17.4	20.2	0.0	0.5	0.0	100.0
KWT	54.4	18.7	27.4	0.0	-0.4	0.0	100.0
LBN	45.0	40.7	13.8	0.0	0.5	0.0	100.0
LBY	39.8	34.1	26.0	0.0	0.1	0.0	100.0
MAR	47.5	33.6	18.4	0.0	0.4	0.0	100.0
MLT	31.4	60.2	5.8	0.0	2.6	0.0	100.0
OMN	43.2	18.8	37.1	0.0	1.0	0.0	100.0
SAU	67.3	22.2	9.6	0.0	0.9	0.0	100.0
TUN	59.0	25.9	13.8	0.0	1.2	0.0	100.0
WBG	13.1	43.1	46.3	0.0	-2.5	0.0	100.0
YEM	48.6	46.2	3.6	0.0	1.6	0.0	100.0
MENA	**54.3**	**24.9**	**19.9**	**0.0**	**1.0**	**0.0**	**100.0**

Source: Authors' calculations.

Table A.7: Share of Contribution to GDP Growth (using AB estimates)

	1980-1999						
	Goods (%)	**Services (%)**	**Inv. (%)**	**Pop (%)**	**School (%)**	**Land (%)**	**Total (%)**
BHR	34.7	68.4	-5.1	0.0	1.9	0.0	100.0
DJI	73.7	21.6	6.3	0.0	-1.6	0.0	100.0
DZA	-945.4	1117.6	-62.9	0.0	-9.3	0.0	100.0
EGY	41.6	43.2	15.4	0.0	-0.2	0.0	100.0
IRN	69.2	-41.7	69.5	0.0	3.0	0.0	100.0
ISR	55.2	28.5	16.0	0.0	0.2	0.0	100.0
JOR	65.8	21.2	12.6	0.0	0.4	0.0	100.0
KWT	76.8	17.6	5.1	0.0	0.5	0.0	100.0
MAR	69.6	19.1	11.2	0.0	0.2	0.0	100.0
MLT	64.6	24.5	10.2	0.0	0.7	0.0	100.0
OMN	43.9	42.5	11.0	0.0	2.6	0.0	100.0
SAU	-5040.6	-3458.7	7375.6	0.0	1223.6	0.0	100.0
SYR	56.1	37.7	6.2	0.0	0.0	0.0	100.0
TUN	65.3	23.3	10.8	0.0	0.5	0.0	100.0
WBG	49.8	33.5	16.2	0.0	0.5	0.0	100.0
MENA	**57.9**	**26.9**	**14.2**	**0.0**	**1.1**	**0.0**	**100.0**
	2000-2010						
	Goods (%)	**Services (%)**	**Inv. (%)**	**Pop (%)**	**School (%)**	**Land (%)**	**Total (%)**
DJI	47.8	11.3	39.3	0.0	1.6	0.0	100.0
DZA	27.8	44.0	27.6	0.0	0.6	0.0	100.0
EGY	74.4	18.8	6.7	0.0	0.1	0.0	100.0
IRN	89.9	6.0	3.9	0.0	0.1	0.0	100.0
ISR	75.4	22.2	2.2	0.0	0.2	0.0	100.0
JOR	73.5	14.2	12.2	0.0	0.1	0.0	100.0
KWT	67.2	15.8	17.1	0.0	-0.1	0.0	100.0
LBN	56.2	34.9	8.7	0.0	0.1	0.0	100.0
LBY	52.1	30.6	17.2	0.0	0.0	0.0	100.0
MAR	59.4	28.8	11.7	0.0	0.1	0.0	100.0
MLT	41.1	54.2	3.8	0.0	0.9	0.0	100.0
OMN	57.5	17.2	25.0	0.0	0.3	0.0	100.0
SAU	76.8	17.4	5.5	0.0	0.3	0.0	100.0
TUN	70.2	21.2	8.3	0.0	0.4	0.0	100.0
WBG	20.1	45.1	35.8	0.0	-1.0	0.0	100.0
YEM	58.9	38.4	2.2	0.0	0.5	0.0	100.0
MENA	**66.5**	**20.9**	**12.3**	**0.0**	**0.3**	**0.0**	**100.0**

Source: Authors' calculations.