

# A New Dawn for MENA Firms: Service Trade Liberalization for More Competitive Exports

Fida Karam<sup>1</sup>

Chahir Zaki<sup>2</sup>

*Theme: International Economics*

*November 2017*

## Abstract

With the ongoing debates on the Doha Agenda, micro-level empirical evidence has emerged to highlight the positive effect of services deregulation on the productivity of manufacturing firms in developing countries. While the MENA region has been neglected in this literature so far, the current paper fills the gap by exploring the effect of service liberalization on the productivity, extensive and intensive margins of manufacturing and services firms in selected MENA countries for 2013. The results show that service trade restrictiveness weighted by the input-output technical coefficient of service sectors, has a significantly negative effect on both the intensive and the extensive margins of trade, without any effect on firms' total factor productivity. The results are robust to different measures of service trade restrictiveness, namely the tariff equivalent of services and the service trade restrictiveness index.

**J.E.L. classification:** D24, F12, F13, F14.

**Keywords:** Service trade liberalization, Total factor productivity, Trade margins, MENA.

---

<sup>1</sup>Associate Professor, Department of Economics and Finance, Gulf University for Science and Technology, Kuwait; E-mail: [Karam.f@gust.edu.kw](mailto:Karam.f@gust.edu.kw)

<sup>2</sup> Associate Professor, Faculty of Economics and Political Science, Cairo university, Egypt; E-mail: [chahir.zaki@feps.edu.eg](mailto:chahir.zaki@feps.edu.eg)

## 1. Introduction

Services have always been embedded in the manufacturing value chain. Some are needed early in the pre-production stage (research and development), some are needed at the post-production stage (retail, maintenance and repair), and some are needed at every stage (telecommunications and financial services). But in recent years, the importance of services in the manufacturing value chain has gained much attention due to advances in transportation and communications technology, that enabled the fragmentation of production process in different locations. Consequently, international exchange is increasingly taking the form of trade in “tasks” (services) as opposed to trade in products (Grossman and Rossi-Hansberg, 2008; Robert-Nicoud, 2008). Intuitively, given that access to services such as retail distribution and transport directly affect the ability of firms to get their production to market, countries that maintain high barriers to trade in services, impede the ability of local firms to become competitive on world markets.

The paper explores the effects of service trade liberalization on the productivity and export profiles of manufacturing firms in the Middle East and North Africa (MENA) region. The region performs poorly on most competitiveness indicators and faces difficulties competing in global export markets. According to Hoekman (2016), “the MENA region, with over 400 million people, exports roughly the same amount as Switzerland”, excluding petroleum exports. At the same time, while many MENA countries have succeeded to lower import tariffs and other explicit trade restrictions, the MENA region is known as one of the most restrictive regions when it comes to trade in services. Borchert et al. (2014) compare the Service Trade Restrictiveness Index (STRI) between 103 countries and for 5 service sectors and show that MENA countries are relatively closed to trade in services.

With the ongoing debates on the Doha Agenda (Hoekman et al., 2010), recent micro-level studies have emerged to highlight the positive effect of services deregulation on the productivity of manufacturing firms in several countries. Arnold et al. (2011) distinguish 3 channels through which services liberalization affects manufacturing firms: first, those new entering services may be provided by more technologically advanced providers that may bring knowhow and international best practices to the country (new financial instruments, multi-modal transport services, etc.). This will exert pressure on domestic manufacturers to make similar improvements and introduce productivity enhancing changes to their operations (such as receiving production orders on line or setting up on-line bidding systems for suppliers). Second, services liberalization may lead to an easier access to services that were restricted for certain users (for example due to a remoteness problem), that in turn may lead to enhanced performance of remotely located enterprises. Third, the reliability of existing services may improve as a result of privatization, competition and the entry of international providers and those improvements reduce operating costs in downstream manufacturing sectors (investments in infrastructure, fewer financial constraints due to increased competition among banks). Arnold et al. (2011) shows that service trade liberalization has a positive effect on the total factor productivity (TFP) of manufacturing

firms in the Czech Republic for the period 1998-2003. Several aspects of services liberalization are considered, namely, the presence of foreign providers, the progress of privatization in services industries and the level of competition in services industries. Fernandes and Paunov (2011) find a positive effect of foreign direct investment (FDI) inflows in producer service sectors on the TFP of Chilean manufacturing firms. Bas and Causa (2013) explore the heterogeneous productivity impact of trade, product market and financial market policies in China. They conclude that further product, trade and financial market reforms would bring substantial manufacturing productivity gains in China. Arnold et al. (2016) find that reforms in banking, telecommunications, insurance and transport services, captured by a constructed policy indexed, all had a significant positive effect on the productivity of manufacturing firms in Indian for the period 1993 to 2005. Arnold et al. (2006) show a significant and positive relationship between firm productivity and service performance in telecommunications, electricity and financial services, in 10 Sub-Saharan African countries. Shepotylo and Vakhitov (2012) construct a firm-specific index of services liberalization and show that a standard deviation increase in services liberalization is associated with a 9% increase in the TFP of manufacturing Ukrainian firms for 2001–2007. One point that is highlighted by Francois and Hoekman (2010) and recognized by most of the above-cited authors, is noteworthy: establishing a causal link between reforms in service trade liberalization to increase in productivity is afflicted by the difficulty of disentangling the effect of service reforms from the effect of other reforms.

Given the well-documented empirical evidence that service input liberalization enables manufacturing firms to improve their productivity gains, one should also expect a positive – indirect - impact of service liberalization on their export performance. Indeed, recent developments in international trade models with heterogeneous firms show that trade forces the least productive firms to exit and reallocates market shares towards more productive exporting firms (lower productivity firms only serve their domestic market). Export decision is chiefly determined by firm productivity and occurs after firms observe their productivity, since a firm enters export markets only if the net profits generated from its exports in a given country are sufficient to cover the fixed exporting costs (Melitz, 2003; Bernard et al., 2003; Melitz and Ottaviano, 2008). In her study on Indian manufacturing firms, Bas (2013) shows that the reform of energy, telecommunications and transport services in India (captured by the ETCR index constructed by the OECD) has increased the probability of exporting and export sales shares of firms producing in downstream manufacturing industries, for the 1994-2004 period.

This paper investigates the effect of service liberalization on the productivity, probability of export (extensive margin) and export intensity (intensive margin) of manufacturing and services firms in the MENA region. In general, the trade literature on the MENA region is shy and in particular, micro-level studies started to emerge only recently, after the World Bank's Enterprise Surveys Database became available for MENA firms (Fakih and Ghazalian, 2013; Jaud and Freund, 2015; Aboushady and Zaki, 2016). The current paper is the first, to our knowledge, to

address the effect of service reform on the productivity and intensive and extensive margins of firms in the MENA region. Therefore, it combines both the literature on service liberalization and firms' productivity with the scarce literature on the effect of service liberalization on intensive and extensive margins. The focus on the MENA region is both timely and critical, as the region is afflicted by conflicts, and profound political and social transformation that highlight the urgency of creating jobs, and distributing the benefits of growth more widely. To this is added the torture of low oil prices for oil-exporting countries and the resulting challenge of managing their finances and diversifying their economies. As illustrated by examples from other parts of the world, growth and employment opportunities cannot be generated without a more effective exploitation of world markets, reflected in increasing exports of higher value-added goods and services. According to Jaud and Freund (2015), the MENA region "lacks teams of world class exporters to surround and emulate the number ones". Firms' competitiveness is a function of the cost and quality of the inputs (including services inputs) they have access to. While many MENA countries made significant progress in lowering import tariffs and other trade restrictions, barriers to service trade in general, and foreign direct investments (FDI) in particular, are still significant in the region. The average STRI across MENA countries is twice as high as in Europe and Central Asia (Hoekman, 2016).

The estimation of the effect of services trade liberalization on firm's productivity involves two steps. We first use the World Bank's Enterprise Surveys Database that gathers information about private firms operating in almost 30 manufacturing and services sectors for 8 MENA countries (Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia, West Bank and Gaza, Yemen) in 2013, to estimate the logarithmic form of a production function. Second, after retrieving the logarithm of TFP as the residual of the first estimation, we investigate the relationship between TFP and services trade liberalization, controlling for a vector of firm-characteristics that may impact TFP, as well as country and sectoral characteristics. The service liberalization variable is calculated by multiplying the ad-valorem tariff in services at the sectoral level by the share of services in each sector coming from Input-Output tables. For robustness checks, the STRI is used as an alternative measure of service liberalization to construct this variable. Finally, we examine the effect of services trade liberalization on extensive and intensive trade margins.

The results show that service trade restrictiveness weighted by the input-output technical coefficient of service sectors, has a significantly negative effect on both the intensive and the extensive margins of trade, without any effect on firms' total factor productivity. The results are robust to different measures of service trade restrictiveness, namely the tariff equivalent of services and the service trade restrictiveness index.

The paper is organized as follows. Section 2 describes some stylized facts on service trade barriers in MENA countries, and explores the characteristics of MENA firms. Section 3 is devoted to the methodology and data. Section 4 analyzes our results and section 5 concludes.

## 2. Stylized Facts

The on-going turmoil in the MENA region coupled with the drop in oil prices highlight the urgency for the region to pursue its efforts to liberalize its trade and reap the benefits of economic growth. Although many countries have made significant progress in lowering import tariffs and other explicit trade restrictions, the MENA region as a whole still lags significantly in trade with the rest of the world. Authors' calculations from the World Development Indicators show that the share of MENA's trade in gross domestic product (GDP) is around 95%, well above the world average (60%) as well as the share of trade in GDP for high and middle-income countries. This should however not be surprising, as the high level of exports, and therefore trade, is mainly explained by oil and petroleum exports, that account for more than 50% of total exports, and that MENA exports excluding oil is not only below the world average but also about half that average (Karam and Zaki, 2017).

Candidate explanations for the weak – non-oil - export performance in the MENA region include poor governance and macroeconomic fundamentals, political instability, and high trade costs (Jaud and Freund, 2015). “Yet, countries do not trade; firms do” (Jaud and Freund, 2015), and only few of them are engaged in international trade. Empirical evidence highlights the importance of firms' characteristics in mediating countries' exports and imports, and those characteristics vary substantially between trading firms and firms that solely serve the domestic market: exporters tend to be larger, more productive, more skill- and capital-intensive, and to pay higher wages than non-trading firms (Bernard et al, 2007). What are the characteristics of MENA exporters?

Table 1 summarizes the characteristics of MENA exporting firms and compares them with exporters in other developing countries. The following facts are noteworthy:

- The annual export value per firm in the MENA region was US\$1.02 million on average over the period 2006-2008, less than half that of firms in other developing countries.
- There are large differences within MENA countries between the median and the mean values per exporter, indicating that exports are concentrated in the hands of a few large firms, a fact that is not a specificity of the MENA region but a striking feature of trade data (Bernard et al., 2007). However, the mean export/median export ratio is 17 for MENA countries, compared with 54 for non-MENA developing countries, suggesting that the distribution of non-oil exports is relatively less skewed in the MENA region.
- Firms in the MENA region export on average about 4 products (defined at the HS 4-digit level) to 2 destinations per year, slightly less than a typical firm in non-MENA developing countries.

**Table 1: Characteristics of Exporting Firms in the MENA Region**

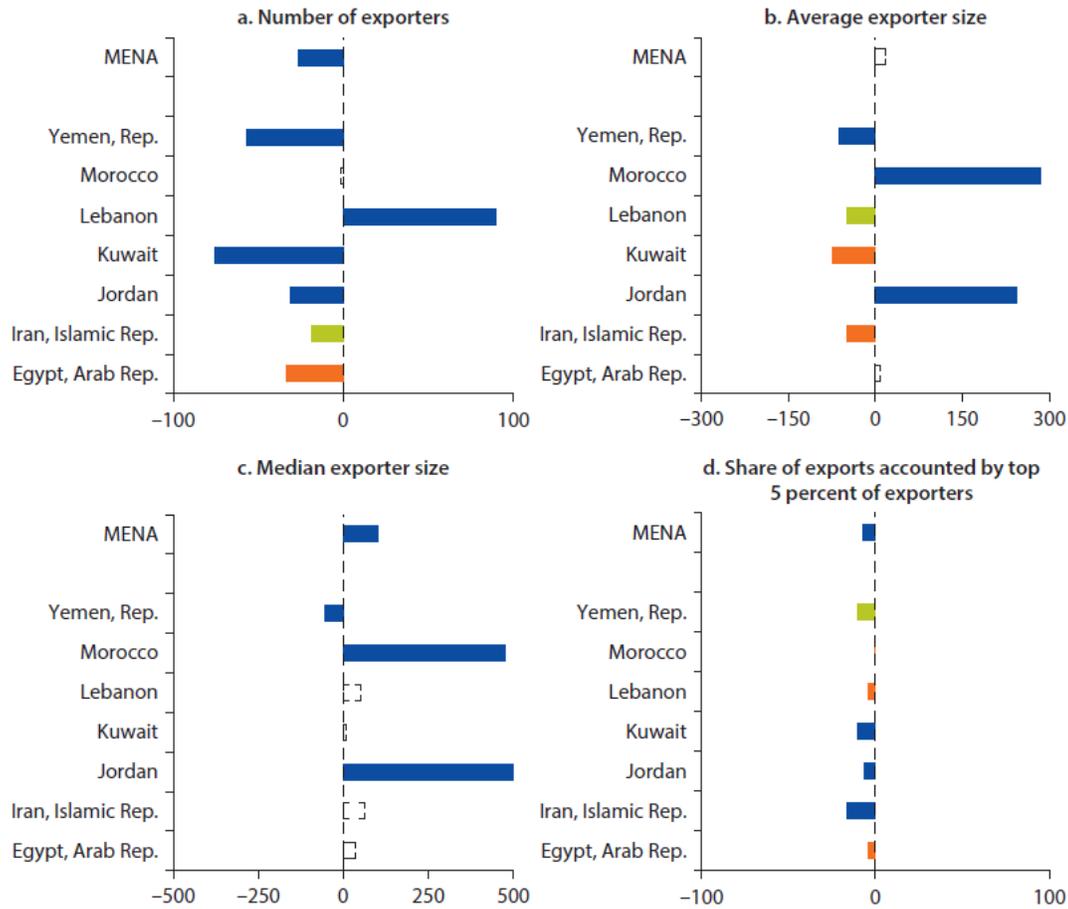
	<b>MENA countries</b>	<b>Other developing countries</b>
<b>Firm-level</b>		
<i>Exports (millions USD)</i>		
Mean	1.02	2.18
Median	0.06	0.04
Standard Deviation	15.71	52.13
<i>Number of HS4 products</i>		
Mean	4.41	4.76
Median	2.00	2.00
Standard Deviation	8.96	11.61
<i>Number of destinations</i>		
Mean	2.15	2.34
Median	1.00	1.00
Standard Deviation	2.96	3.44
<b>Aggregate level</b>		
Number of firms	54783	260106
Number of HS4 products	1201	1223
Number of destinations	195	218
Exports (millions USD)	137888	1528503

Source: Jaud and Freund (2015) based on Brunel et al. (2015).

Note: The figures are computed as averages for the 2006–08 period, based on firm-level customs data for 34 countries.

The above-mentioned characteristics of the region’s exporters are supported by Figure 1, that looks at the same characteristics of exporting firms at the country level: Panel (a) of Figure 1 illustrates that, when size, income level, and sectoral differences across countries are accounted for, the MENA region has 26% fewer exporters, than the rest of the world. At the country level, all but Lebanon are below the benchmark. Panels (b) and (c) show respectively that the MENA region exhibits smaller average exporters (except for Jordan and Morocco) and larger median exporters than the rest of the world (except for Yemen), supporting the evidence that the distribution of non-oil exports is relatively less skewed in MENA than elsewhere. While in non-MENA countries, over 80% of non-oil exports are concentrated in the hands of the top 5% of exporters, this percentage drops to 76% for a typical MENA country (Jaud and Freund, 2015). Indeed, Panel (d) shows that all MENA countries display less depth than the rest of the world in the top 5 percent largest exporters.

**Figure 1: Characteristics of Exporting Firms in Selected MENA countries**



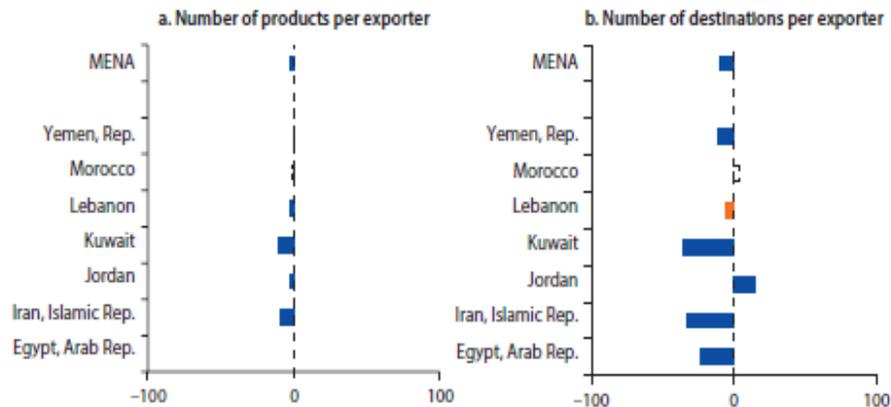
Source: Jaud and Freund (2015).

Note: Figure 1 summarizes the results of Fernandes (2014) using the Exporter Dynamics Database. Each graph reports the coefficients on regional and country dummies in cross-country panel regressions of key characteristics of the exporter competitiveness indicators on exporting-country GDP, GDP per capita, sector, and year fixed effects. For each indicator the length of the bar gives the deviation (in percentage) of the MENA region and each MENA country individually from the rest of the world. Blue, orange, and green denote significance at 1, 5, and 10%, respectively. Insignificant estimates are shown as blank bars with dotted lines. The sample covers the 34 countries in the dataset with data at the country-HS 4-digit-year level in any or all years from 2006 until 2011. Tunisia and West Bank are not included in the dataset and thus regression results do not report dummies for those two economies.

Fernandes (2014) shows that the average export size in MENA countries and in other comparative countries differs dramatically across sectors. The average export size appears to be smaller for firms exporting in low-tech manufacturing, followed by those in medium/high-tech manufacturing, then in natural resources-based manufacturing, and finally in primary products and commodities. Morocco's exporters are among the largest top three across all countries in all sectors while Yemen's exporters are the smallest in all sectors. Egypt's exporters are also among the largest in low-tech and medium/high-tech manufacturing sectors but not in the other two sectors while Lebanon's exporters tend to be among the smallest in all sectors.

Figure 2 (Panel a) illustrates that MENA exporters are only slightly less diversified in terms of their products ( $-3\%$ ) than the average exporter elsewhere. At the country level, all countries in the sample exhibit a level of diversification close to the regional benchmark, except for Iran and Kuwait, that are expectedly less diversified given their high-dependence on oil. Panel b shows that the region as a whole is slightly less diversified than the rest of the world ( $-10\%$ ) in terms of destinations, although the regional average hides substantial heterogeneity among countries. Oil exporting countries such as Iran, Kuwait, are the least diversified in terms of destinations, while Jordan is more diversified. Geographic concentration is expected, given the region's proximity and close historical ties with European Union countries. However, this high concentration exposes firms to destination-specific shocks, decreasing the probability of survival (Jaud and Freund, 2015).

**Figure 2: How Diversified are MENA Exporters?**



Source: Jaud and Freund (2015).

Note: Figure 2 summarizes the results of Fernandes (2014) using the Exporter Dynamics Database. Each graph reports the coefficients on regional and country dummies in cross-country panel regressions of key characteristics of the exporter competitiveness indicators on exporting-country GDP, GDP per capita, sector, and year fixed effects. For each indicator the length of the bar gives the deviation (in percent) of the MENA region and each MENA country individually from the rest of the world. Blue, orange, and green denote significance at 1, 5, and 10 %, respectively. Insignificant estimates are shown as blank bars with dotted lines. The sample covers the 34 countries in the dataset with data at the country-HS 4-digit-year level in any or all years from 2006 until 2011. Tunisia and West Bank are not included in the dataset and thus regression results do not report dummies for those two economies.

Fernandes (2014) argues that entry and exit rates of exporters in the MENA region, and one-year survival rates, do not differ significantly from the rest of the world, but that there is substantial heterogeneity across MENA countries: oil exporting countries such as Iran, Kuwait, and Yemen witness a significantly higher exit rate (70%) of firms into non-oil exports and a substantive entry rate of new exporters (80%) in all sectors<sup>3</sup>. New exporters have a smaller

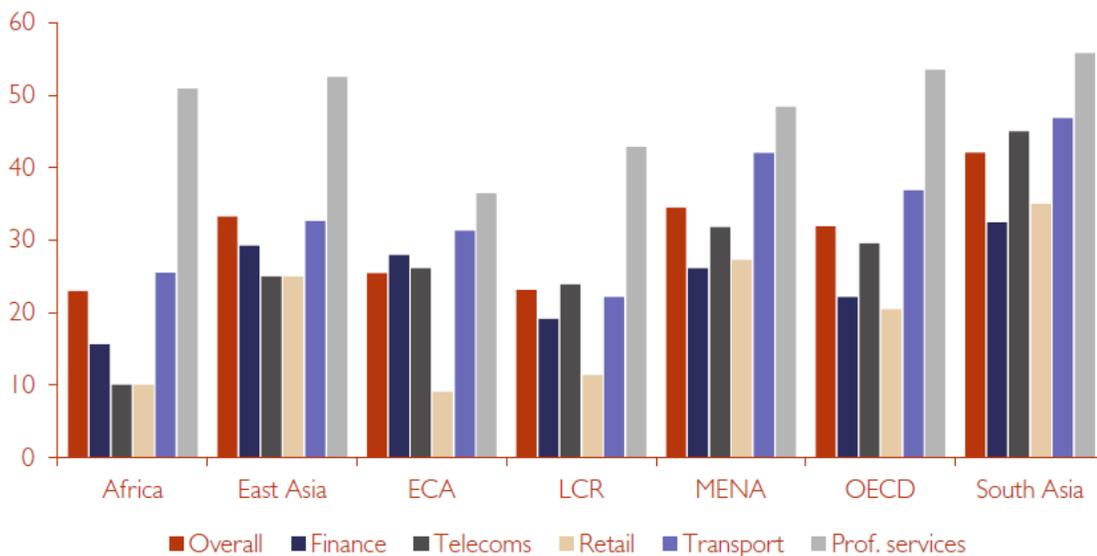
<sup>3</sup> Sectors include the following: commodities and primary products, natural resource based manufacturing, low-tech manufacturing, and medium-tech or high-tech manufacturing (Fernandes, 2014).

contribution in the other MENA countries, although still higher than in comparator countries. Exit rates of Jordan’s exporters are lowest among all MENA countries in all sectors. In addition, only Egypt and Jordan exhibit significantly higher survival rates than the rest of the world.

The relatively weak performance of MENA exporters reflects the region’s failure to push for trade in an already competition-deficient environment, by lowering higher-than-average tariffs and other non-tariff restrictions. Empirical evidence suggests that a country is unlikely to become a major exporter if firms do not have access to a wide variety of competitively priced inputs (Jaud and Freund, 2015), including services inputs. With the fragmentation of the production process, trade costs can have a magnified effect on trade flows of intermediary products, because they are incurred each time the good is traded back and forth between countries.

While MENA countries made significant progress in lowering import tariffs, barriers to trade and investment in services are still often significant (Marouani et al, 2011; Borchert et al., 2014). Averaging across countries, Figure 3 shows that the overall value for the STRI in the MENA region is the largest among regions excluding South Asia, and is in particular twice as high as in Europe and Central Asia. The MENA region is the most “closed” to foreign competition in professional, transport and telecommunication services, the regional STRI being the highest in those 3 sectors.

**Figure 3: Regional Average STRI by Sector, 2010**



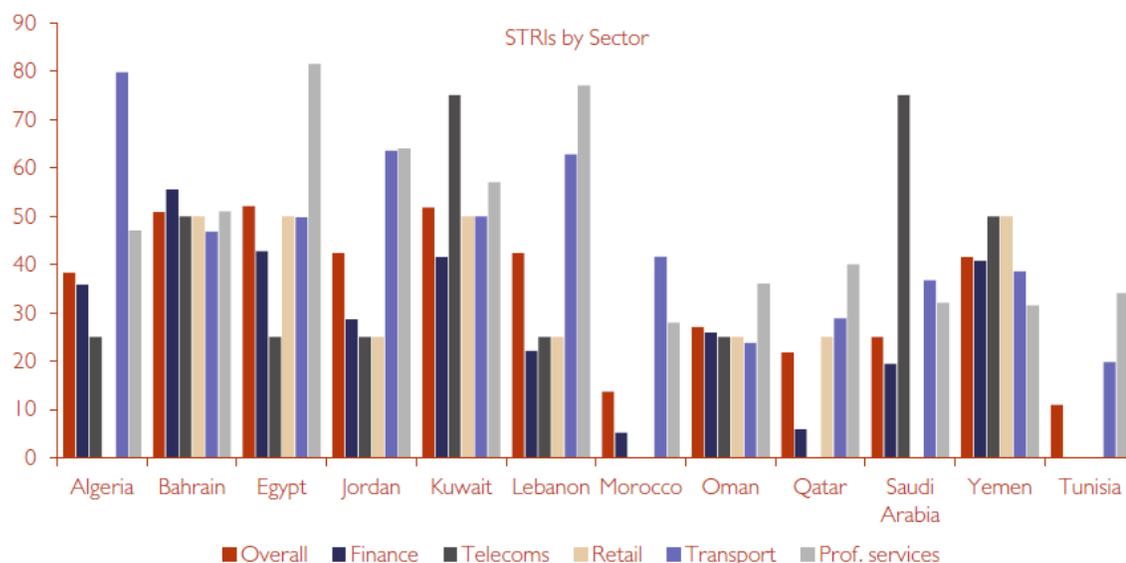
Note: Indices range from 0 to 100, with 100 being completely closed to foreign competition. Data is only available for 2010.

Source: Hoekman (2016).

The regional average of the STRI hides significant heterogeneity among countries. Figure 4 shows that the overall value for the STRI is the largest for Bahrain, Egypt and Kuwait (around

50) and the smallest for Morocco and Tunisia (around 10 – 15). This heterogeneity among countries is also dominant at the sectoral level: professional services are the most restricted in Egypt and Lebanon (STRI above 70). Transport services are the most restricted in Algeria (STRI around 80), Jordan and Lebanon (STRI above 60). Telecommunication services are the most restricted in Kuwait and Saudi Arabia (STRI above 75), and financial services are the most restricted in Bahrain (STRI above 50).

**Figure 4: STRI by Sector for Selected MENA countries, 2010**



Note: Indices range from 0 to 100, with 100 being completely closed to foreign competition. Data is only available for 2010.

Source: Hoekman (2016).

All this matters for firms' productivity and economic performance (Hoekman, 2016). Countries that maintains high barriers to trade in services, and restrictive investment policies, prevent their firms from being competitive on world markets.

### 3. Methodology and Data

Our objective is to assess the impact of service trade liberalization on the TFP of firms in the MENA region, as well as on the intensive margin (export volume of firms) and the extensive margin (the probability for a firm to become an exporter).

We first estimate the logarithmic form of a Cobb-Douglas production function and retrieve the logarithm of TFP as the residual both at the country and sectoral levels. Indeed, the production function takes the following form:

$$Y_{ijk} = A_{ijk} L_{ijk}^{\alpha} K_{ijk}^{\beta} I_{ijk}^{\sigma} \quad (1)$$

where  $Y$  is total output of firm  $i$  in country  $j$  in sector  $k$ ;  $L$ ,  $K$  and  $I$  represent respectively labor, capital, intermediate inputs;  $A$  is a technology efficiency parameter. By log-linearizing equation (1), we obtain the following estimable equation:

$$\log Y_{ijk} = \log A_{ijk} + \alpha \log L_{ijk} + \beta \log K_{ijk} + \sigma \log I_{ijk} + \varepsilon_{ijk} \quad (2)$$

We estimate the TFP at the sectoral level as follows:

$$TFP_{ijk} = \log A_{ijk} = \log Y_{ijk} - \log \hat{Y}_{ijk} \quad (3)$$

Second, we investigate the relationship between TFP and services trade liberalization through the specification:

$$TFP_{ijk} = \beta_1 X_{ijk} + \beta_2 Services_{ijk} + dct + v_i + \varepsilon_{ijk} \quad (4)$$

Third, we examine the effect of services trade liberalization on trade margins (both extensive and intensive) as follows:

$$Prob(X)_{ijk} = \alpha_1 X_{ijk} + \alpha_2 Services_{ijk} + dct + v_i + \varepsilon_{ijk} \quad (5)$$

$$Ln(X)_{ijk} = \lambda_1 X_{ijk} + \lambda_2 Services_{ijk} + dct + v_i + \varepsilon_{ijk} \quad (6)$$

Where  $Prob(X)_{ijk}$  measures the extensive margin (the probability of becoming an exporter) and  $Ln(X)_{ijk}$  measures the intensive margin (firm's export volume) of firm  $i$  in country  $j$  in sector  $k$ .

We include the vector  $X$  which is a vector of plant-characteristics that may impact TFP and exports, such as the age of the firm, government ownership, foreign ownership and the presence of a foreign certification. We add dummies to control for country characteristics ( $dct$ ). The explanatory variable of our interest is the variable  $Services$  that captures service trade

liberalization. The latter is calculated by multiplying the average ad valorem tariff of service sectors in country  $j$  by the share of services in each sector  $i$  coming from Input-Output tables. For robustness checks, other measures of services trade liberalization will also be used to construct this variable, namely the STRI by sector.

We use the World Bank Enterprise Surveys that offers an expansive array of economic data on 131,000 private firms in 139 countries. Formal (registered) companies with 5 or more employees are targeted for interview. Firms with 100% government/state ownership are not eligible to participate in an Enterprise Survey. The surveys cover a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures. The Enterprise Surveys Unit uses two instruments: the Manufacturing Questionnaire and the Services Questionnaire. The standard survey topics include firm characteristics, gender participation, access to finance, annual sales, costs of inputs/labor, workforce composition, bribery, licensing, infrastructure, trade, crime, competition, capacity utilization, land and permits, taxation, informality, business-government relations, innovation and technology, and performance measures. The manufacturing and services sectors are the primary business sectors of interest. This corresponds to firms classified with ISIC codes 15-37, 45, 50-52, 55, 60-64, and 72 (ISIC Rev.3.1). Services firms include construction, retail, wholesale, hotels, restaurants, transport, storage, communications, and IT.

Enterprise Surveys are available for 9 MENA countries: Djibouti, Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia, West Bank and Gaza, Yemen for the year 2013. Therefore, our sample contains 6246 manufacturing and services firms located in eight MENA countries, Djibouti being dropped due to the small number of observations. Given that the World Bank Enterprise Surveys includes both exporting and non-exporting firms, this dataset will be used to examine the effect of service trade liberalization on the probability of becoming an exporter (firm-extensive margin).

STRI values come from Borchert et al. (2014). Tariff equivalents of services come from Fontagné et al. (2014). As Input-Output tables are not available for the MENA countries considered in this paper, the services intensity of each sector are extracted from the “Rest of the World” Input-Output table of the World Input-Output table database.

## 4. Results

### 4.1. Total Factor Productivity

Tables 2 and 3 show the association between TFP and services liberalization. It is clear that TFP is not affected by service liberalization whether the latter is measured by services tariff equivalent (Table 2) or by STRI (Table 3). This result remains robust to different specification with and without different controls (such as age, foreign or government ownership).

**Table 2: Results of TFP using Services AVE**

	TFP	TFP	TFP	TFP
Ser. AVE	-0.590 (0.434)	-0.583 (0.435)	-0.578 (0.437)	-0.576 (0.441)
Age		-0.000154 (0.000102)	-0.000151 (0.000105)	-0.000158 (0.000107)
Foreign			-0.152 (0.197)	-0.0764 (0.190)
Gov. Firm			-0.285 (0.312)	-0.153 (0.301)
Certif.				-0.361** (0.141)
Constant	1.851 (1.185)	1.851 (1.187)	1.853 (1.188)	1.910 (1.199)
Country dummies	YES	YES	YES	YES
Observations	2,459	2,459	2,459	2,459
R-squared	0.185	0.186	0.186	0.189

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3: Results of TFP using STRI**

	TFP	TFP	TFP	TFP
STRI	-0.585 (0.437)	-0.577 (0.437)	-0.573 (0.439)	-0.571 (0.444)
Age		-0.000155 (0.000102)	-0.000151 (0.000105)	-0.000159 (0.000107)
Foreign			-0.154 (0.198)	-0.0790 (0.191)
Gov. Firm			-0.286 (0.312)	-0.154 (0.302)
Certif.				-0.362** (0.142)
Constant	1.835 (1.192)	1.835 (1.194)	1.838 (1.195)	1.897 (1.206)
Country dummies	YES	YES	YES	YES
Observations	2,453	2,453	2,453	2,453
R-squared	0.185	0.186	0.186	0.189

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 4.2. Trade Margins

Tables 4 and 5 present the results of the intensive margin of trade. It is obvious that service trade liberalization exerts a significantly negative effect on the quantity of exports. This effect remains robust to different econometric specifications and to different measures of service liberalization. Indeed, both the services tariff equivalent and the service trade restrictiveness index weighted by technical coefficients yields negative and significant coefficient. Even when other controls are introduced, the order of magnitude of the coefficient decreases but remains significant showing how service trade restrictiveness may represent a buffer for the intensive margin of trade. Indeed, firms in downstream industries rely on intermediate service inputs, which are generally protected and characterized by strict regulation which affects their competitiveness and hence the competitiveness of exported products (Bas, 2013). Other controls turn to be significant such as foreign ownership and the existence of a foreign certification that exert a positive impact on the intensive margin. By contrast, government ownership is insignificant.

**Table 4: Results of the Intensive Margin using Services AVE**

	Ln(Exp)	Ln(Exp)	Ln(Exp)	Ln(Exp)
Ser. AVE	-0.307*	-0.307*	-0.298*	-0.223*
	(0.166)	(0.166)	(0.152)	(0.126)
Age		2.86e-05	1.07e-05	-4.91e-07
		(6.85e-05)	(6.47e-05)	(6.10e-05)
Foreign			1.121***	0.878***
			(0.150)	(0.151)
Gov. Firm			0.379*	0.133
			(0.210)	(0.212)
Certif.				1.057***
				(0.115)
Constant	1.564***	1.561***	1.434***	1.031**
	(0.542)	(0.542)	(0.491)	(0.402)
Country dummies	YES	YES	YES	YES
Observations	5,725	5,725	5,725	5,725
R-squared	0.083	0.083	0.121	0.185

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5: Results of the Intensive Margin using STRI**

	Ln(Exp)	Ln(Exp)	Ln(Exp)	Ln(Exp)
STRI	-0.375** (0.186)	-0.375** (0.186)	-0.372** (0.169)	-0.274* (0.144)
Age		1.28e-05 (7.06e-05)	-5.18e-06 (6.51e-05)	-1.08e-05 (6.13e-05)
Foreign			1.136*** (0.151)	0.889*** (0.154)
Gov. Firm			0.438** (0.215)	0.192 (0.220)
Certif.				1.116*** (0.110)
Constant	1.740*** (0.593)	1.739*** (0.593)	1.622*** (0.534)	1.148** (0.446)
Country dummies	YES	YES	YES	YES
Observations	5,413	5,413	5,413	5,413
R-squared	0.087	0.087	0.127	0.198

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Turning to the extensive margin, Tables 6 and 7 show also that protected upstream services reduce the probability of exporting firms producing in downstream manufacturing industries (Bas, 2013). Indeed, as services are intensively used in the production process, the more they are liberalized, the less costly they are and the more likely a firm decides to export. Hence, this conclusion is of particular interest for firms in the MENA region as service trade liberalization might be used a tool to increase both the quantity of exports and to increase the participation of firms in international trade.

As per the other controls, while age does not affect the decision to export, foreign ownership and the existence of a foreign certification increase the likelihood of becoming an exporter. This also sheds the light on the importance of making services more liberalized and hence more competitive to attract foreign firms in the MENA region and hence to increase technological spillovers.

**Table 6: Results of the Extensive Margin using Services AVE**

	Prob(exp)	Prob(exp)	Prob(exp)	Prob(exp)
Ser. AVE	-0.101** (0.0394)	-0.0830** (0.0375)	-0.0810** (0.0343)	-0.0597** (0.0276)
Age		4.11e-06 (1.64e-05)	4.32e-07 (1.55e-05)	-3.53e-07 (1.46e-05)
Foreign			0.258*** (0.0279)	0.193*** (0.0267)
Gov. Firm			0.0499 (0.0457)	-0.00619 (0.0480)
Certif.				0.284*** (0.0285)
Constant	0.492*** (0.133)	0.433*** (0.125)	0.404*** (0.114)	0.292*** (0.0910)
Country dummies	YES	YES	YES	YES
Observations	6,319	6,246	6,246	6,246
R-squared	0.222	0.225	0.249	0.305

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 7: Results of the Extensive Margin using STRI**

	Prob(exp)	Prob(exp)	Prob(exp)	Prob(exp)
Ser. AVE	-0.116*** (0.0432)	-0.0952** (0.0415)	-0.0941** (0.0377)	-0.0668** (0.0311)
Age		6.78e-07 (1.69e-05)	-3.16e-06 (1.57e-05)	-2.78e-06 (1.48e-05)
Foreign			0.261*** (0.0274)	0.196*** (0.0268)
Gov. Firm			0.0591 (0.0464)	0.00297 (0.0492)
Certif.				0.299*** (0.0264)
Constant	0.528*** (0.142)	0.465*** (0.134)	0.437*** (0.122)	0.307*** (0.0987)
Country dummies	YES	YES	YES	YES
Observations	5,992	5,920	5,920	5,920
R-squared	0.225	0.228	0.252	0.314

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 5. Policy Recommendations

With the ongoing debates on the Doha Agenda, recent micro-level studies have emerged to highlight the positive effect of services deregulation on the productivity of manufacturing firms in several countries. The MENA region was surprisingly neglected in this literature although it performs poorly on most competitiveness indicators and faces difficulties competing in global export markets. At the same time, it is known as one of the most restrictive regions when it comes to trade in services. The average STRI across MENA countries is twice as high as in Europe and Central Asia (Hoekman, 2016).

The current paper is the first, to our knowledge, to address the effect of service trade liberalization on the productivity and intensive and extensive margins of firms in the MENA region. Therefore, it combines both the literature on service liberalization and firms' productivity with the scarce literature on the effect of service liberalization on intensive and extensive margins. We first use the World Bank's Enterprise Surveys Database that gathers information about private firms operating in almost 30 manufacturing and services sectors for 8 MENA countries (Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia, West Bank and Gaza, Yemen) in 2013, to estimate the logarithmic form of a production function. Second, after retrieving the logarithm of TFP as the residual of the first estimation, we investigate the relationship between TFP and services trade liberalization, controlling for a vector of firm-characteristics that may impact TFP, as well as country and sectoral characteristics. The service liberalization variable is calculated by multiplying the ad-valorem tariff in services at the sectoral level by the share of services in each sector coming from Input-Output tables. For robustness checks, the STRI is used as an alternative measure of service liberalization to construct this variable. Finally, we examine the effect of services trade liberalization on extensive and intensive trade margins.

The results show that service trade restrictiveness weighted by the input-output technical coefficient of service sectors, has a significantly negative effect on both the intensive and the extensive margins of trade, without any effect on firms' total factor productivity. The results are robust to different measures of service trade restrictiveness, namely the tariff equivalent of services and the service trade restrictiveness index.

The policy implications of the paper are very important. The MENA region is in turmoil. Conflicts, profound political and social transformation all highlight the urgency of creating jobs, and distributing the benefits of growth more widely. In addition, low oil prices offer oil-exporting countries the challenge of managing their finances and diversifying their economies. As illustrated by examples from other parts of the world, growth and employment opportunities cannot be generated without a more effective exploitation of world markets, reflected in increasing exports of higher value-added goods and services. And exploitation of world markets requires competitive firms' competitiveness that in turn, is a function of the cost and quality of the inputs (including

services inputs) they have access to. Therefore, it is seriously believed that further efforts towards liberalization, mainly service trade liberalization, are crucial for MENA firms to compete with world class exporters. Moreover, this paper also sheds the light on the importance of making services more liberalized and hence more competitive to attract foreign firms in the MENA region and hence to increase technological spillovers.

In a revised version of the current paper, we plan to develop our robustness checks using service trade volume weighted by the input-output technical coefficient for service sectors. Service trade data come from Trade Map (2017) which is a web-based application with statistics, trends and indicators on global trade flows and developed by the International Trade Center (ITC, Geneva).

## References

- [1] Aboushady, N. and Zaki, C. (2016), "Investment climate and firms' exports in Egypt: When politics matter", *ERF Working Paper No. 1071*, Economic Research Forum, Cairo.
- [2] Arnold, J.M., Javorcik, B. and Mattoo, A. (2011), "Does services liberalization benefit manufacturing firms? Evidence from the Czech Republic", *The Journal of International Economics*, **85(1)**:136–146.
- [3] Arnold, J.M., Javorcik, B., Lipscomb, M. and Mattoo, A. (2016), "Services Reform and Manufacturing Performance Evidence from India", *The Economic Journal*, **126(590)**:1–39.
- [4] Arnold, J.M., Mattoo, A. and Narciso, G. (2006), "Services Inputs and Firm Productivity in Sub-Saharan Africa: Evidence from Firm-Level Data", *Policy Research Working Paper 4048*, The World Bank, Washington D.C.
- [5] Bas, M. (2013), "Does services liberalization affect manufacturing firms' export performance? Evidence from India", *CEPII Working Paper No. 2013-17*, CEPII.
- [6] Bas, M. and Causa, O. (2013), "Trade and product market policies in upstream sectors and productivity in downstream sectors: firm-level evidence from China", *Journal of Comparative Economics*, **41(3)**: 843-862.
- [7] Bernard, A.B., Eaton, J., Jensen, J.B. and Kortum, S.S. (2003), "Plants and Productivity in International Trade", *American Economic Review*, **93(4)**, 1268-1290.
- [8] Bernard, A.B., Jensen, J.B., Redding, S.J. and Schott, P.K. (2007), "Firms in International Trade", *The Journal of Economic Perspectives*, **21(3)**, 105-130.
- [9] Borchert, I., Gootiiz, B. and Mattoo, A. (2014), "Policy Barriers to International Trade in Services: Evidence from a New Database", *World Bank Economic Review*, **28(1)**: 162-88.
- [10] Bottini, N., Marouani, M.A and Munro, L. (2011), "Service Sector Restrictiveness and Economic Performance: An Estimation for the MENA Region," *The World Economy*, **34(9)**: 1652-78.
- [11] Brunel, C., Fernandes, A. and Jaud, M. (2015), "Export Diversification in MENA: A Firm-Level Perspective", *mimeo*.

- [12] Fasih, A. and Ghazalian, P. (2013), “Why Some Firms Export? An Empirical Analysis for Manufacturing Firms in the MENA Region”, *IZA Discussion Papers Series No. 7172*, Institute for the Study of Labor, Germany.
- [13] Fernandes, A. (2014), “Exporters in MENA: Characterization and Benchmarking”, *mimeo*.
- [14] Fernandes, A. M. and Paunov, C. (2012), “Foreign direct investment in services and manufacturing productivity: Evidence for Chile”, *Journal of Development Economics*, **97**: 305-321.
- [15] Francois, J. and Hoekman, B. (2010), “Services Trade and Policy”, *Journal of Economic Literature*, **48**: 642-692.
- [16] Grossman, G. M., and Rossi-Hansberg, E. (2008), “Trading Tasks: A Simple Theory of Offshoring”, *American Economic Review*, 98(5): 1978-97.
- [17] Hoekman, B. (2016), “Intra-Regional Trade: Potential Catalyst for Growth in the Middle East”, *MEI Policy Paper 2016-1*, Middle East Institute.
- [18] Hoekman, B., Martin, W., and Mattoo, A. (2010), “Conclude Doha: It Matters!”, *World Trade Review*, **9(03)**: 505–530.
- [19] Jaud, M. and Freund, C. (2015), “Champions Wanted: Promoting Exports in the Middle East and North Africa”, *Directions in Development*, the World Bank, Washington, DC.
- [20] Melitz, M. (2003), “The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity”, *Econometrica*, **71(6)**: 1695-1725.
- [21] Melitz, M. and Ottaviano, G. (2008), “Market size, trade and productivity”, *Review of Economic Studies*, **75**:295–316.
- [22] Karam, F. and Zaki, C. (2017), “Why don’t MENA countries trade more: The curse of bad institutions”, *ERF Working Paper No. 1148*, Economic Research Forum, Cairo.
- [23] Robert-Nicoud, F. (2008), “Offshoring of Routine Tasks and (De)industrialisation: Threat or Opportunity? and for Whom?”, *Journal of Urban Economics*, **63(2)**: 517-35.

[24] Shepotylo, O., and Vakhitov, V. (2012), “Services Liberalization and Productivity of Manufacturing Firms Evidence from Ukraine”, *Policy Research Working Paper 5944*, The World Bank, Washington D.C.

[25] Zhang, Y., Tang, Y. and Findlay, C. (2011), “Productivity Effects of Services Trade Liberalization: Evidence from Chinese Firm-level Data”, *mimeo*.

### **Appendix 1: List of Sectors**

Basic metals  
Chemicals  
Construction  
Electronics  
Fabricated metal products  
Food  
Furniture  
Garments  
Hotels and restaurants  
Leather  
Machinery and equipment  
Motor vehicles  
Non-metallic mineral products  
Other manufacturing  
Other services  
Other transport equipment  
Paper  
Plastics & rubber  
Precision instruments  
Publishing printing and recorded media  
Recycling  
Telecommunications, computer, and IT  
Textiles  
Tobacco  
Transport  
Wood