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LIBERALIZATION FOR MORE COMPETITIVE EXPORTS

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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 and exports 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 extensive and intensive trade 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. The results are robust to different measures of service trade restrictiveness, namely the tariff equivalent of services and the service trade restrictiveness index.

Keywords: Service trade liberalization, Trade margins, MENA.

JEL Classifications: F12, F13, F14.

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 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 international best practices to the country (new financial instruments, multi-modal transport services, etc.), and thus exerting pressure on domestic manufacturers to introduce productivity enhancing changes to their operations. Second, services liberalization may lead to an easier access to services that were restricted for certain firms, that in turn may lead to enhanced performance of those firms. Third, the reliability of existing services may improve as a result of privatization, competition and the entry of international providers, reducing 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.

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 period 1994-2004.

This paper investigates the effect of service liberalization on the 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 intensive and extensive margins of firms in the MENA region. 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).

We 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. Our control variables include a vector of plant-characteristics that may impact exports, such as the age of the firm, government ownership, foreign ownership and the presence of a foreign certification, as well as dummies to control for country characteristics. The explanatory variable of our interest is service trade restrictiveness weighted by the input-output technical coefficient of service sectors. For robustness checks, service trade restrictiveness is calculated using two different measures: the tariff equivalent of services and the service trade restrictiveness index.

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. The results are robust to different measures of service trade restrictiveness, namely the tariff equivalent of services and the service trade restrictiveness index. When the regressions are run for each sector, perishable products (food), seasonal products (textiles and garments), high value-added products (motor vehicles), as well as retail and wholesale are mostly negatively affected by service restrictions.

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. 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).

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 1 shows that the overall value for the STRI in the MENA region is the largest among regions excluding South Asia, and that the sectoral value of the STRI for the MENA region is the highest for professional, transport and telecommunication services, highlighting the fact that the region is mostly "closed" to foreign competition in those 3 sectors.

The regional average of the STRI hides significant heterogeneity among countries. Figure 2 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).

Although STRIs have been an important advance to quantify the level of service restrictiveness, they are usually criticized for not having an obvious economic meaning, and that they would require some empirical analysis to associate them with trade costs. In that direction, Fontagné et al. (2016) quantify the estimated ad valorem equivalents of restrictions on service trade (AVE) in 9 service sectors for 118 countries. Figure 3 shows the estimated AVEs for selected MENA countries. First, Bahrain, Morocco, Oman and Tunisia have the highest AVE among the selected countries, that exceeds the region's average (61.6% as calculated by the authors from Fontagne et al. (2016)), while Jordan, Egypt and Israel stand slightly below that average (Figure 3 (a)). Second, sectors like "Other Financial Intermediation", "Communications", "Water and Transport", "Construction" and "Insurance" show an AVE exceeding the regional average (Figure 3 (b)). Interestingly, the AVE for "Other Financial Intermediation" in countries like Morocco, Oman, Bahrain, Israel, Egypt and Jordan is equal to or exceeds 100 (Figure 3 (c)). The AVE exceeds 100 as well for "Communications" in Jordan, "Water and Transport" in Oman and Bahrain, and for "Construction" in Morocco, Bahrain, Oman and Israel. The AVE for "Insurance" is slightly below 100 in Morocco and above 100 for "Other Government Services" in Oman (Figure 3 (d) to (h)).

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.

 In their World Bank report on how to promote exports in the MENA region, Jaud and Freund (2015) discuss the findings of a selection of papers investigating the characteristics of MENA exporting firms and comparing them with exporters in other developing countries. The following facts are noteworthy: first, 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. Second, 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 (Table 1).

Panel (a) of Figure 4 shows 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.

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.

3. Methodology and Data

The impact of service trade liberalization on trade margins in the MENA region is assessed as follows:

$$Prob(X)_{ijk} = \alpha_1 X_{ijk} + \alpha_2 Services_{ijk} + dct + \varepsilon_{ijk} \tag{1}$$

$$Ln(X)_{ijk} = \lambda_1 X_{ijk} + \lambda_2 Services_{ijk} + dct + \varepsilon_{ijk} \tag{2}$$

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 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 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. Since we merge firm-level data with services data, errors are clustered by country and 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 5725 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).

Tariff equivalents of services come from Fontagné et al. (2016). The authors use trade data for 2011 from the GTAP database to derive AVEs of restrictions on trade in services for 118 countries and 9 sectors: Communications, Constructions, Other Business Services, Transport, Trade, Insurance, Other Financial Intermediation, Water and Transport, and Other Government Services. The AVEs are derived from a quantity method using a gravity model of trade. The econometric estimation is performed sector by sector and the reported AVEs are based on an assumption of common elasticity of substitution across sectors.

STRI values come from Borchert et al. (2014). The authors construct an index on restrictions in service trade based information on services trade policy assembled in a comparable manner for 103 countries and five sectors: financial services (banking and insurance), telecommunications, retail distribution, transportation and professional services (accounting and legal). The index captures the restrictive effect of the entire set of policies applied by a country in a given service

sector and mode of supply. The authors also propose a method to derive a consistent ordinal ranking of countries in terms of their restrictiveness.

After matching the sectors covered in the World Bank Enterprise Surveys with those covered by the STRI database and the AVE database of Fontagne et al. (2016), we end up with 10 manufacturing sectors (food; textile and garments; leather, wood and furniture; publishing and printing; chemicals; plastic and rubber; non-metallic mineral products; fabricated metal products; motor vehicles; other manufacturing) and 4 services sectors (construction; wholesale and retail; tourism; other services).

As mentioned earlier in this section, our measure of service trade restrictiveness is calculated by multiplying the average ad valorem tariff of service sectors in country j – and alternatively the STRI in services in country j - by the share of services in each sector i coming from Input-Output tables. Since Input-Output tables are not available for the MENA countries considered in this paper, the services intensity of each sector is extracted from the "Rest of the World" Input-Output table of the World Input-Output table database. This is of particular importance since the effect of service protection depends on its intensity in each sector. Figures 5 and 6 illustrate the average level of service trade restrictiveness faced by firms operating in each manufacturing and services sector in our sample, according to our measure based on the weighted AVE and weighted STRI respectively. It is noteworthy that the magnitude of our measure of service trade restrictiveness and the rank of sectors according to this measure are quite similar in Figures 5 and 6. Service trade restrictiveness affects both manufacturing and service sectors. The top ranked sector is the service sector "Wholesale and retail", followed by the manufacturing sector "Motor vehicles", and then by two service sectors "Other services" and "Tourism". All service sectors appear in the upper part of both figures, revealing that service trade restrictiveness mainly affects service sectors. The lower part of both figures includes manufacturing sectors, with "Chemicals", "Non-metallic mineral products" and "Fabricated metal products" being the least affected by service trade restrictiveness.

Table 2 provide the summary statistics for our variables. The average firm exports 2.65% of its total sales volume ($e^{0.975297}$), and faces an average ad valorem equivalent of service restrictions of 24.57% ($e^{3.201698}$) and an average STRI of 23.77% ($e^{3.168386}$).

4. Results

Tables 3 presents the effects of service trade restrictiveness constructed using the AVE of service restrictions weighted by technical coefficients on the extensive margin of trade, i.e. the probability of exports (columns 2 to 5) and on the intensive margin of trade, i.e. export intensity (columns 6 to 9). It is obvious that service trade restrictiveness exerts a significantly negative effect on both the probability of exports and export volume. This effect remains robust to the alternative measure of trade restrictiveness constructed using STRI weighted by technical coefficients. The results of the weighted STRI measure are displayed in Table 4 (columns 2 to 5 for the extensive margin, and 6 to 9 for the intensive margin). 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 extensive and intensive margins 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). Moreover, protected upstream services reduce the probability of exporting firms producing in downstream manufacturing industries (Bas, 2013). 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.

We now look to the sectors that are mostly affected by service restrictions. Table 5 and 6 display the results on trade margins for each sector using the weighted AVE and the weighted STRI respectively. The results of both tables are quite similar. Perishable products (food), seasonal products (textiles and garments) and high value-added products (motor vehicles) are negatively affected by service restrictions and this effect is significant. Indeed, 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 participate in international trade and to be competitive on world markets. "Wholesale and Retail" is expectedly highly affected by service trade restrictiveness measures as well.

As per the other control variables, while age does not affect the decision to export, foreign ownership and the existence of a foreign certification exert a significant positive impact on trade margins. By contrast, government ownership is insignificant. 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. This also sheds the light on the importance of service liberalization in increasing the competitiveness of local services, therefore attracting foreign firms in the MENA region and their technological spillovers.

5. Conclusion and 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 intensive and extensive margins of firms in the MENA region. 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 investigate the relationship between services trade liberalization and trade margins, controlling for a vector of firm-characteristics that impact exports, as well as country 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.

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. 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, service trade liberalization increases the competitiveness of local service sectors, and therefore help attract foreign firms in the MENA region and increase technological spillovers.

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Table 1: Characteristics of Exporting Firms in the MENA Region

	MENA countries	Other developing countries
Firm-level		
Exports (millions USD)		
Mean	1.02	2.18
Median	0.06	0.04
Standard Deviation	15.71	52.13

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.

Table 2: Sample Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Prob(Exp)	6319	0.335	0.472	0	1
Ln(Exp)	5725	0.975	1.657	0	4.615
Ln(AVE)	6319	3.201	0.513	1.258	4.231
Ln(STRI)	6000	3.168	0.504	1.258	4.230
Ln(Age)	6244	2.928	1.206	0	7.612
Foreign	6319	0.095	0.294	0	1
Gov. firm	6319	0.037	0.189	0	1
Certification	6319	0.214	0.410	0	1

Note: Constructed by the authors.

Table 3: Effect on the Extensive and Intensive Margins of Trade using AVE

	Prob(Exp)	Prob(Exp)	Prob(Exp)	Prob(Exp)	Ln(Exp)	Ln(Exp)	Ln(Exp)	Ln(Exp)
Ln(AVE Ser.)	-0.352***	-0.288**	-0.286**	-0.219**	-0.307*	-0.303*	-0.295*	-0.222*
	(0.135)	(0.131)	(0.123)	(0.106)	(0.166)	(0.166)	(0.152)	(0.126)
Ln(Age)		0.0647***	0.0705***	0.0415**		0.0574**	0.0613***	0.0253
		(0.0184)	(0.0178)	(0.0192)		(0.0233)	(0.0221)	(0.0215)
Foreign			0.760***	0.587***			1.130***	0.883***
			(0.0766)	(0.0770)			(0.149)	(0.150)
Gov.			0.111	-0.0279			0.330	0.113
			(0.148)	(0.162)			(0.214)	(0.214)
Certif.				0.883***				1.050***
				(0.0825)				(0.117)
Constant	0.161	-0.231	-0.336	-0.658*	1.564***	1.387**	1.246**	0.956**
	(0.447)	(0.426)	(0.400)	(0.345)	(0.542)	(0.540)	(0.488)	(0.399)
Country dum.	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,880	5,810	5,810	5,810	5,725	5,724	5,724	5,724
R-squared	0.072	0.074	0.097	0.155	0.083	0.084	0.123	0.186

Robust standard errors in parentheses.

Errors are clustered by country and sector.

*** p<0.01, ** p<0.05, * p<0.1.

Table 4: Effect on the Extensive and Intensive Margins of Trade using STRI

	Prob(Exp)	Prob(Exp)	Prob(Exp)	Prob(Exp)	Ln(Exp)	Ln(Exp)	Ln(Exp)	Ln(Exp)
Ln(STRI)	-0.402***	-0.330**	-0.334**	-0.256**	-0.375**	-0.370**	-0.367**	-0.273*
	-0.149	(0.147)	(0.136)	(0.119)	(0.186)	(0.186)	(0.169)	(0.143)
Ln(Age)		0.0587***	0.0634***	0.0328*		0.0493**	0.0518**	0.0154
		(0.0180)	(0.0167)	(0.0177)		(0.0226)	(0.0201)	(0.0189)
Foreign			0.767***	0.596***			1.143***	0.891***
			(0.0765)	(0.0775)			(0.151)	(0.153)
Gov.			0.145	0.00935			0.392*	0.178
			(0.147)	(0.164)			(0.218)	(0.220)
Certif.				0.934***				1.112***
				(0.0729)				(0.110)
Constant	0.290	-0.103	-0.196	-0.554	1.740***	1.584***	1.458***	1.100**
	(0.481)	(0.461)	(0.427)	(0.372)	(0.593)	(0.589)	(0.527)	(0.439)
Country dum.	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,561	5,492	5,492	5,492	5,413	5,412	5,412	5,412
R-squared				0.163	0.087	0.088	0.128	0.198

Robust standard errors in parentheses.

Errors are clustered by country and sector.

*** p<0.01, ** p<0.05, * p<0.1.

Table 5a: Effect on the Extensive and Intensive Margins of Trade by Sector using AVE

	Food		Tex. Garments		Leather, Wood and Furniture		Pub. Print.	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(AVE Ser.)	-0.397***	-0.478***	-0.469*	-0.312	0.415	0.276	-1.218*	-0.499**
	(0.119)	(0.133)	(0.270)	(0.380)	(0.352)	(0.250)	(0.626)	(0.202)
Ln(Age)	0.0268	-1.47e-05	-0.00682	-0.0164	-0.0961	-0.0767*	0.00352	-0.0212
	(0.0342)	(0.0361)	(0.0442)	(0.0560)	(0.117)	(0.0411)	(0.0226)	(0.0346)
Foreign	0.357***	0.468***	0.683***	0.947***	0.473*	0.560	0.0491	0.395
	(0.127)	(0.165)	(0.219)	(0.298)	(0.268)	(0.356)	(0.379)	(0.357)
Gov.	-0.904**	-0.783***	0.0547	0.303	0.553	-0.358		
	(0.352)	(0.254)	(0.212)	(0.204)	(0.999)	(0.611)		
Certif.	0.790***	0.877***	1.260***	1.739***	1.407***	1.414***	0.929***	1.162***
	(0.135)	(0.137)	(0.153)	(0.286)	(0.168)	(0.225)	(0.0764)	(0.131)
Constant	-0.0378	1.858***	0.516	1.590	-2.302**	-0.280	2.423	1.905**
	(0.387)	(0.448)	(0.802)	(1.172)	(1.091)	(0.737)	(1.766)	(0.671)
Country dum.	YES	YES	YES	YES	YES	YES	YES	YES
Observations	771	758	703	692	338	336	108	108
R-squared		0.203		0.378		0.176		0.165

Robust standard errors in parentheses.

Errors are clustered by country.

*** p<0.01, ** p<0.05, * p<0.1.

Table 5b: Effect on the Extensive and Intensive Margins of Trade by Sector using AVE (cnt'd)

	Chemicals		Plastic Rubber		Non-metal.		Fab. Met.	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(AVE Ser.)	0.105	0.176	0.241	0.228	0.118	0.165	0.271	0.106
	(0.192)	(0.207)	(0.459)	(0.335)	(0.231)	(0.175)	(0.226)	(0.113)
Ln(Age)	0.0190	0.00320	-0.00801	-0.0143	0.0725	0.0368	-0.0232	-0.0113
	(0.0793)	(0.0931)	(0.0491)	(0.0434)	(0.139)	(0.122)	(0.0797)	(0.0477)
Foreign	1.193***	1.087**	0.211	0.0202	0.577	0.461	0.764***	0.965***
	(0.395)	(0.384)	(0.186)	(0.249)	(0.565)	(0.790)	(0.235)	(0.283)
Gov.	0.552	0.867	0.683	1.095		-1.242*	0.336	0.472
	(0.828)	(0.616)	(0.725)	(1.112)		(0.681)	(0.509)	(0.558)
Certif.	1.236***	1.305***	1.133***	1.255***	1.540***	1.675***	1.278***	1.138***
	(0.102)	(0.0844)	(0.159)	(0.190)	(0.309)	(0.528)	(0.243)	(0.182)
Constant	-1.323***	0.0689	-1.748	-0.181	-1.943***	-0.225	-2.231***	-0.101
	(0.418)	(0.423)	(1.300)	(0.932)	(0.634)	(0.510)	(0.441)	(0.246)
Country dum.	YES	YES	YES	YES	YES	YES	YES	YES
Observations	145	144	156	154	185	187	228	228
R-squared		0.220		0.148		0.193		0.245

Robust standard errors in parentheses.
Errors are clustered by country.
*** p<0.01, ** p<0.05, * p<0.1.

Table 5c: Effect on the Extensive and Intensive Margins of Trade by Sector using AVE (cnt'd)

	Mot. Vehic.		Other Manuf.		Construction	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(AVE Ser.)	-3.128**	-1.461	-0.0661	-0.0885	0.614	-0.0471
	(1.259)	(0.893)	(0.0862)	(0.109)	(1.390)	(1.016)
Ln(Age)	1.224**	0.489**	0.0614	0.0553	0.178	0.112
	(0.498)	(0.161)	(0.0408)	(0.0445)	(0.281)	(0.0987)
Foreign	-1.564	-0.157	0.662***	1.081***	0.248	0.142
	(1.092)	(0.526)	(0.167)	(0.238)	(0.873)	(0.450)
Gov.			0.490**	1.081***		-0.205*
			(0.231)	(0.292)		(0.106)
Certif.	0.545	0.206	1.019***	1.215***	0.816**	0.393
	(0.633)	(0.401)	(0.106)	(0.156)	(0.355)	(0.291)
Constant	5.047	3.955	-1.211***	0.393	-4.361	-0.106
	(3.952)	(3.210)	(0.332)	(0.365)	(4.250)	(3.174)
Country dum.	YES	YES	YES	YES	YES	YES
Observations	42	42	946	933	121	125
R-squared		0.500		0.271		0.075

Robust standard errors in parentheses.
Errors are clustered by country.
*** p<0.01, ** p<0.05, * p<0.1

Table 5d: Effect on the Extensive and Intensive Margins of Trade by Sector using AVE (cnt'd)

	Wholesale Retail		Tourism		Other Services	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(AVE Ser.)	-0.324**	-0.350**	0.286	0.114	0.0363	0.0104
	(0.137)	(0.161)	(0.272)	(0.132)	(0.180)	(0.189)
Ln(Age)	0.0114	0.00885	0.354***	0.240*	0.0809**	0.0680*
	(0.0495)	(0.0501)	(0.0997)	(0.0937)	(0.0321)	(0.0403)
Foreign	0.283	0.263	0.140	0.0307	0.643***	1.022***
	(0.210)	(0.266)	(0.342)	(0.171)	(0.204)	(0.326)
Gov.	0.201	0.336		-0.765*	-0.0416	-0.0823
	(0.278)	(0.327)		(0.307)	(0.282)	(0.335)
Certif.	0.587***	0.614***	0.234	0.159	0.285	0.312
	(0.119)	(0.157)	(0.209)	(0.127)	(0.176)	(0.232)
Constant	-0.0715	1.693***	-3.690***	-0.842	-1.272*	0.481
	(0.505)	(0.608)	(1.090)	(0.518)	(0.694)	(0.723)
Country dum.	YES	YES	YES	YES	YES	YES
Observations	903	892	268	268	855	834
R-squared		0.089		0.099		0.074

Robust standard errors in parentheses   .
Errors are clustered by country.
*** p<0.01, ** p<0.05, * p<0.1.

Table 6a: Effect on the Extensive and Intensive Margins of Trade by Sector using STRI (cnt'd)

	Food		Tex. Garments		Leather Wood and Furniture		Pub. Print.	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(STRI)	-0.366***	-0.465***	-0.483*	-0.331	0.510	0.352	-1.193*	-0.503*
	(0.122)	(0.141)	(0.281)	(0.404)	(0.408)	(0.292)	(0.657)	(0.224)
Ln(Age)	0.0274	0.000596	-0.00675	-0.0160	-0.0987	-0.0781*	0.00290	-0.0211
	(0.0341)	(0.0365)	(0.0442)	(0.0561)	(0.116)	(0.0406)	(0.0229)	(0.0345)
Foreign	0.366***	0.482***	0.675***	0.944***	0.461*	0.551	0.0489	0.396
	(0.126)	(0.167)	(0.218)	(0.299)	(0.269)	(0.359)	(0.382)	(0.360)
Gov.	-0.907***	-0.786***	0.0598	0.309	0.542	-0.370		
	(0.352)	(0.253)	(0.210)	(0.204)	(0.999)	(0.612)		
Certif.	0.785***	0.875***	1.247***	1.726***	1.401***	1.409***	0.929***	1.162***
	(0.134)	(0.138)	(0.157)	(0.292)	(0.168)	(0.224)	(0.0772)	(0.133)
Constant	-0.120	1.818***	0.563	1.652	-2.554**	-0.481	2.356	1.917**
	(0.397)	(0.472)	(0.832)	(1.236)	(1.218)	(0.836)	(1.850)	(0.726)
Country dum.	YES	YES	YES	YES	YES	YES	YES	YES
Observations	763	750	699	688	335	333	107	107
R-squared		0.199		0.375		0.177		0.163

Robust standard errors in parentheses.
Errors are clustered by country.
*** p<0.01, ** p<0.05, * p<0.1.

Table 6b: Effect on the Extensive and Intensive Margins of Trade by Sector using (cnt'd)

	Chemicals		Plastic Rubber		Non-metal.		Fab. Met.	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(STRI)	0.178	0.252	0.241	0.228	0.118	0.165	0.271	0.106
	(0.218)	(0.248)	(0.459)	(0.335)	(0.231)	(0.175)	(0.226)	(0.113)
Ln(Age)	0.0226	0.00715	-0.00801	-0.0143	0.0725	0.0368	-0.0232	-0.0113
	(0.0792)	(0.0952)	(0.0491)	(0.0434)	(0.139)	(0.122)	(0.0797)	(0.0477)
Foreign	1.178***	1.072**	0.211	0.0202	0.577	0.461	0.764***	0.965***
	(0.403)	(0.390)	(0.186)	(0.249)	(0.565)	(0.790)	(0.235)	(0.283)
Gov.	0.530	0.847	0.683	1.095		-1.242*	0.336	0.472
	(0.810)	(0.598)	(0.725)	(1.112)		(0.681)	(0.509)	(0.558)
Certif.	1.230***	1.298***	1.133***	1.255***	1.540***	1.675***	1.278***	1.138***
	(0.103)	(0.0854)	(0.159)	(0.190)	(0.309)	(0.528)	(0.243)	(0.182)
Constant	-1.515***	-0.132	-1.748	-0.181	-1.943***	-0.225	-2.231***	-0.101
	(0.476)	(0.519)	(1.300)	(0.932)	(0.634)	(0.510)	(0.441)	(0.246)
Country dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	143	142	156	154	185	187	228	228
R-squared		0.218		0.148		0.193		0.245

Robust standard errors in parentheses.
Errors are clustered by country.
*** p<0.01, ** p<0.05, * p<0.1

**Table 6c: Effect on the Extensive and Intensive Margins of Trade by Sector using STRI (cnt'd)**

	Mot. Vehic.		Other manuf.		Construction	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(STRI)	-3.128**	-1.461	-0.0664	-0.123	0.669	-0.0289
	(1.259)	(0.893)	(0.0858)	(0.111)	(1.464)	(1.147)
Ln(Age)	1.224**	0.489**	0.0556	0.0485	0.179	0.113
	(0.498)	(0.161)	(0.0416)	(0.0450)	(0.284)	(0.101)
Foreign	-1.564	-0.157	0.650***	1.050***	0.245	0.141
	(1.092)	(0.526)	(0.171)	(0.245)	(0.886)	(0.457)
Gov.			0.495**	1.101***		-0.206
			(0.233)	(0.293)		(0.109)
Certif.	0.545	0.206	1.017***	1.202***	0.815**	0.393
	(0.633)	(0.401)	(0.106)	(0.157)	(0.356)	(0.295)
Constant	5.047	3.955	-1.199***	0.507	-4.525	-0.163
	(3.952)	(3.210)	(0.328)	(0.366)	(4.480)	(3.583)
Country dum.	YES	YES	YES	YES	YES	YES
Observations	42	42	929	916	120	124
R-squared		0.500		0.269		0.074

Robust standard errors in parentheses.
Errors are clustered by country.
*** p<0.01, ** p<0.05, * p<0.1.

Table 6d: Effect on the Extensive and Intensive Margins of Trade by Sector using STRI (cnt'd)

	Wholesale Retail		Tourism		Other services	
	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)	Prob(Exp)	Ln(Exp)
Ln(STRI)	-0.356**	-0.375**	-0.302	-0.0912	-0.0453	-0.0913
	(0.144)	(0.169)	(1.388)	(0.983)	(0.177)	(0.179)
Ln(Age)	-0.00170	-0.00674	0.257***	0.151***	0.0949***	0.0849*
	(0.0505)	(0.0507)	(0.0520)	(0.0230)	(0.0367)	(0.0444)
Foreign	0.301	0.265	0.251	0.0806	0.629***	1.037***
	(0.213)	(0.268)	(0.265)	(0.162)	(0.214)	(0.351)
Gov.	0.317	0.561*		-0.609**	0.0711	0.0585
	(0.277)	(0.332)		(0.194)	(0.320)	(0.399)
Certif.	0.574***	0.630***	0.458***	0.309***	0.532***	0.628***
	(0.116)	(0.164)	(0.0919)	(0.0552)	(0.101)	(0.142)
Constant	0.0251	1.768***	-1.559	0.0472	-1.411*	0.278
	(0.516)	(0.625)	(4.547)	(3.187)	(0.759)	(0.709)
Country dum.	YES	YES	YES	YES	YES	YES
Observations	885	874	176	176	684	668
R-squared		0.093		0.075		0.108

Robust standard errors in parentheses.

Errors are clustered by country.
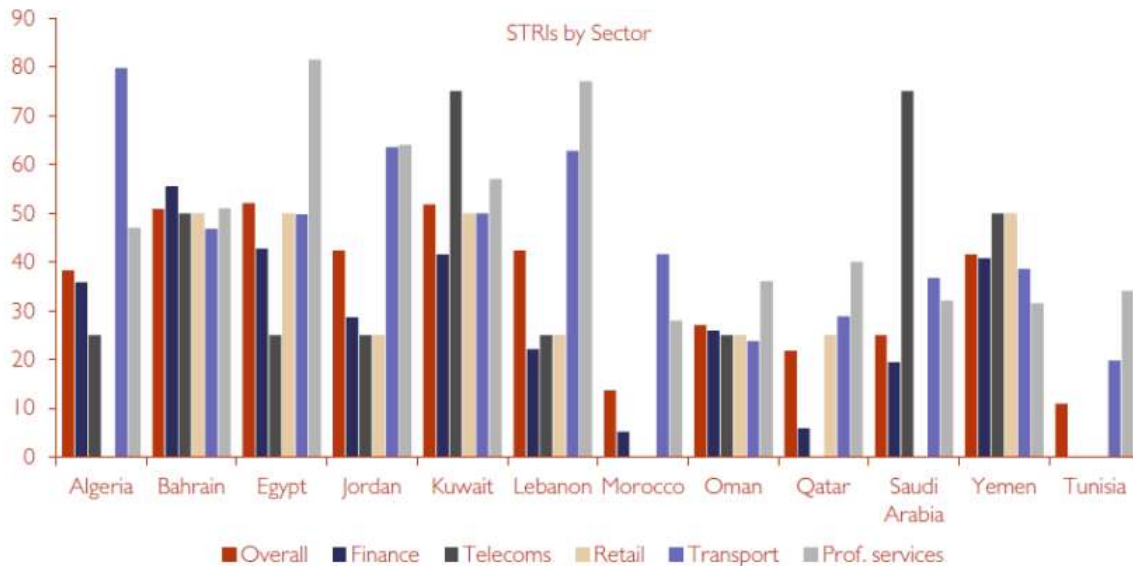
*** p<0.01, ** p<0.05, * p<0.1

Figure 1: Regional Average STRI by Sector, 2010
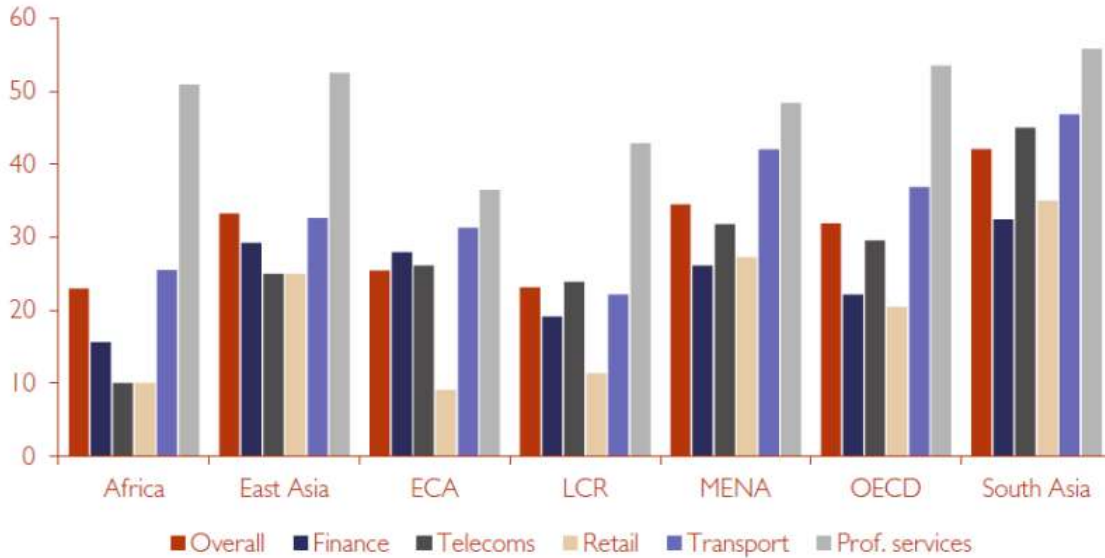
Note: Indices range from 0 to 100, with 100 being completely closed to foreign competition. Data is only available for 2010.
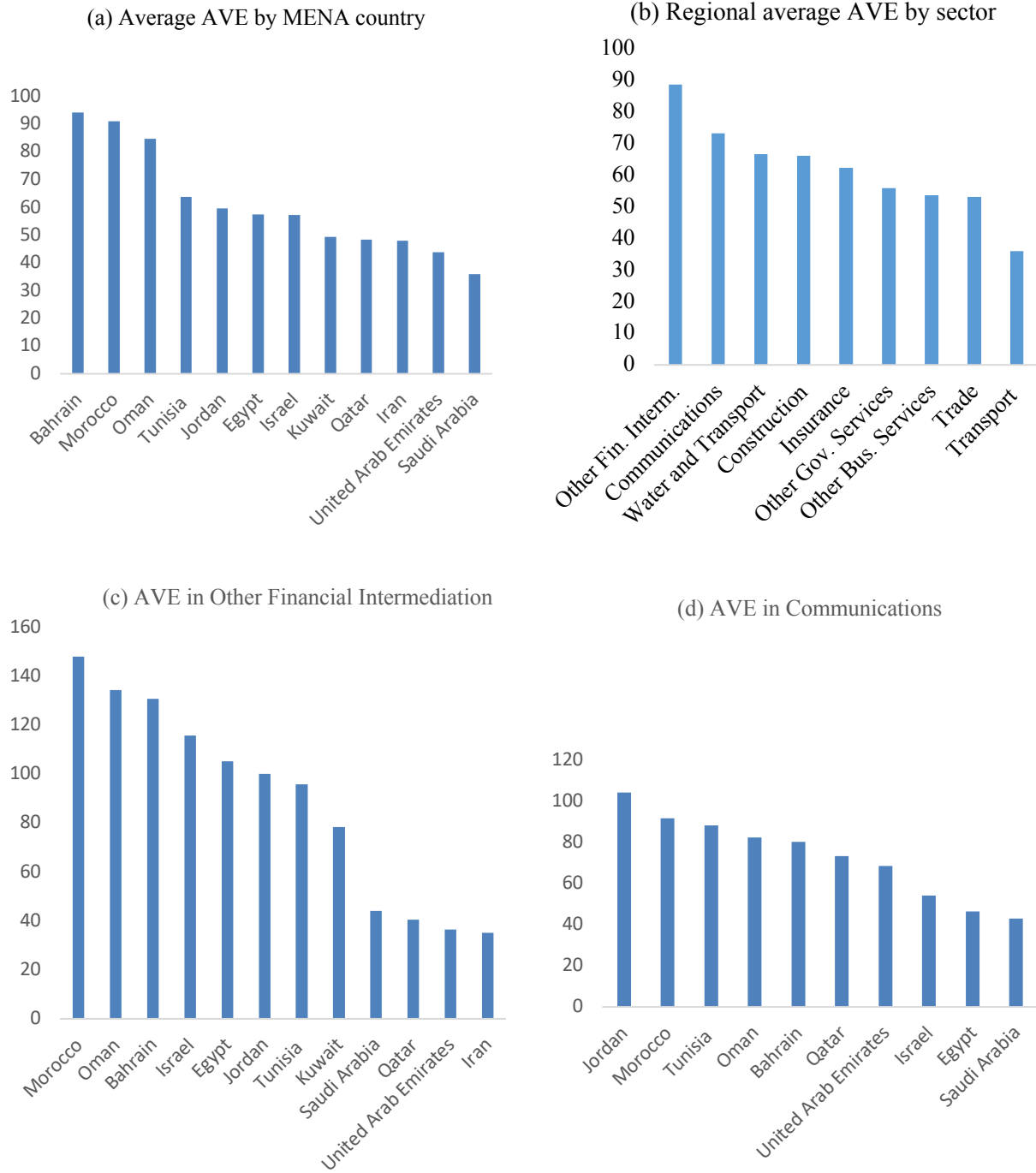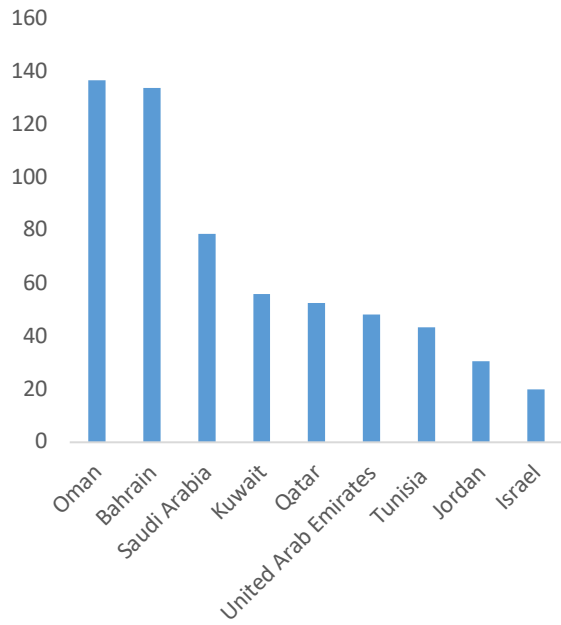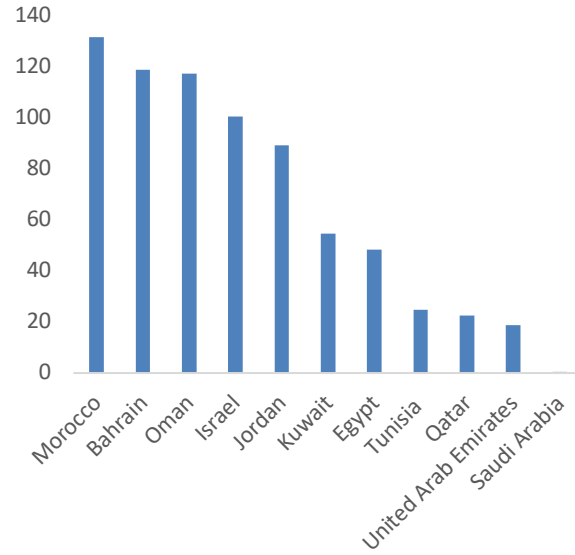Source: Hoekman (2016).

Figure 2: 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).

Figure 3: Ad Valorem Tariff Equivalents (AVE) of Restrictions on Service Trade by Sector for Selected MENA countries, 2011
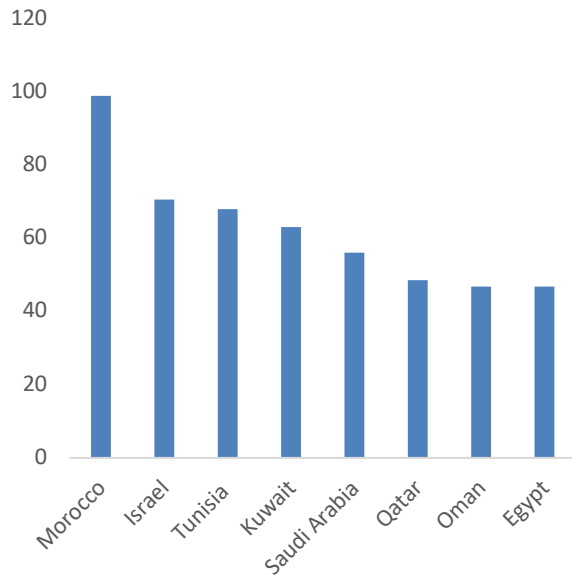

(a) Average AVE by MENA country

(b) Regional average AVE by sector

(c) AVE in Other Financial Intermediation

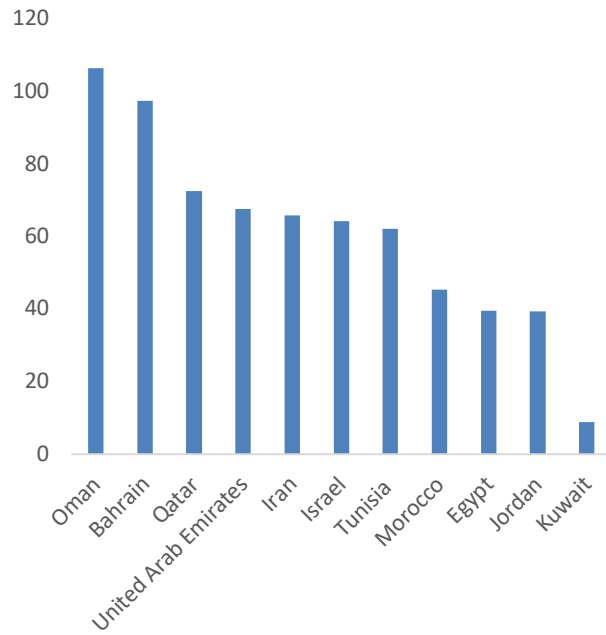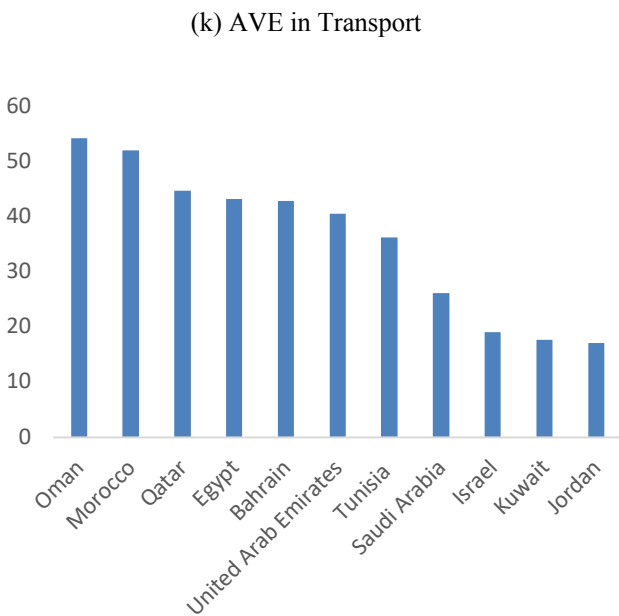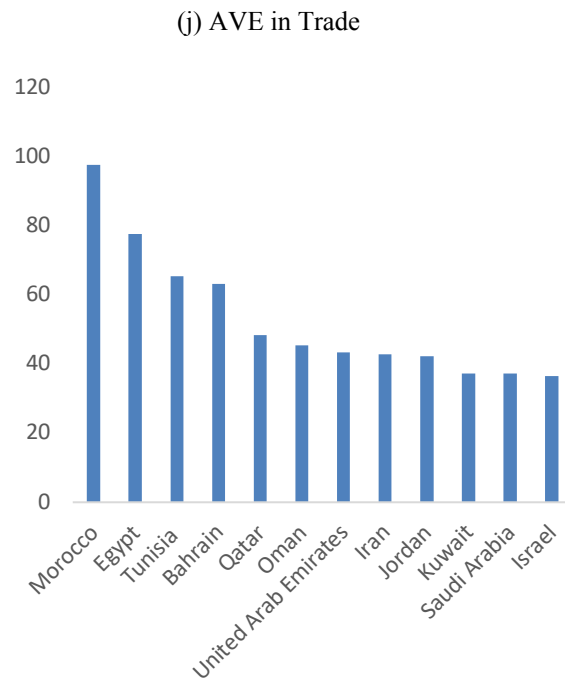(d) AVE in Communications

(e) AVE in Water and Transport

(f) AVE in Construction

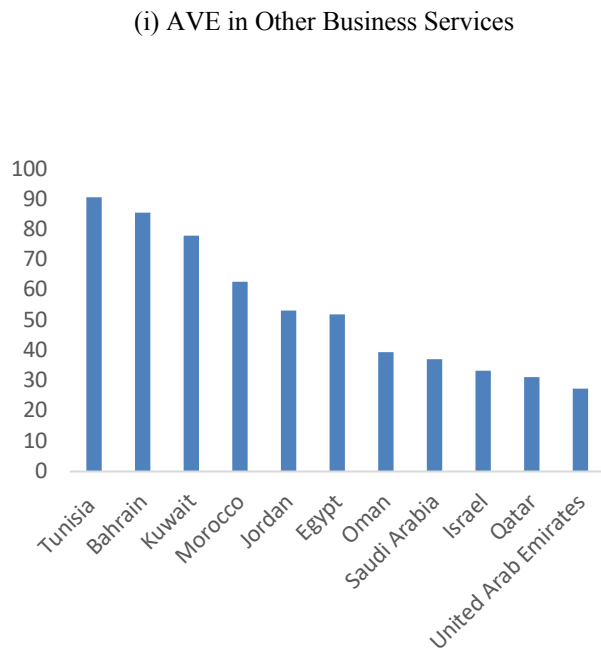(g) AVE in Insurance

(h) AVE in Other Government Services

(i) AVE in Other Business Services

(j) AVE in Trade


(k) AVE in Transport

Source: Constructed by the authors from Fontagné et al. (2016).

Note: - Fontagné et al. (2016) derive a set of AVEs of restrictions on cross-border trade in services for 118 countries and 9 sectors, using the GTAP database. The trade data refers to 2011. These equivalents are derived from a quantity method using a gravity model of trade. The econometric estimation is performed sector by sector and the reported AVEs in this note and in the accompanying dataset are based on an assumption of common elasticity of substitution across sectors. "Transport" includes all transport sectors (air transport, water and transport, other transport).
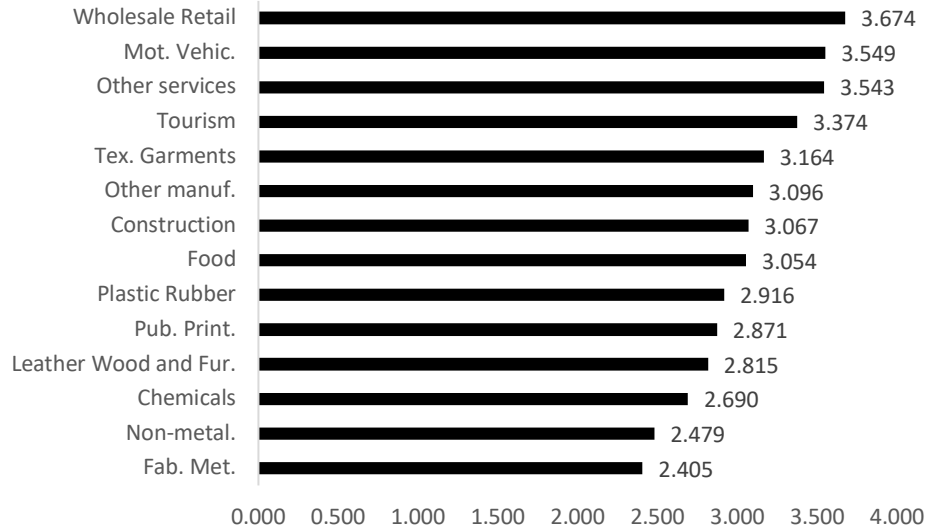
Figure 4: Characteristics of Exporting Firms in Selected MENA countries
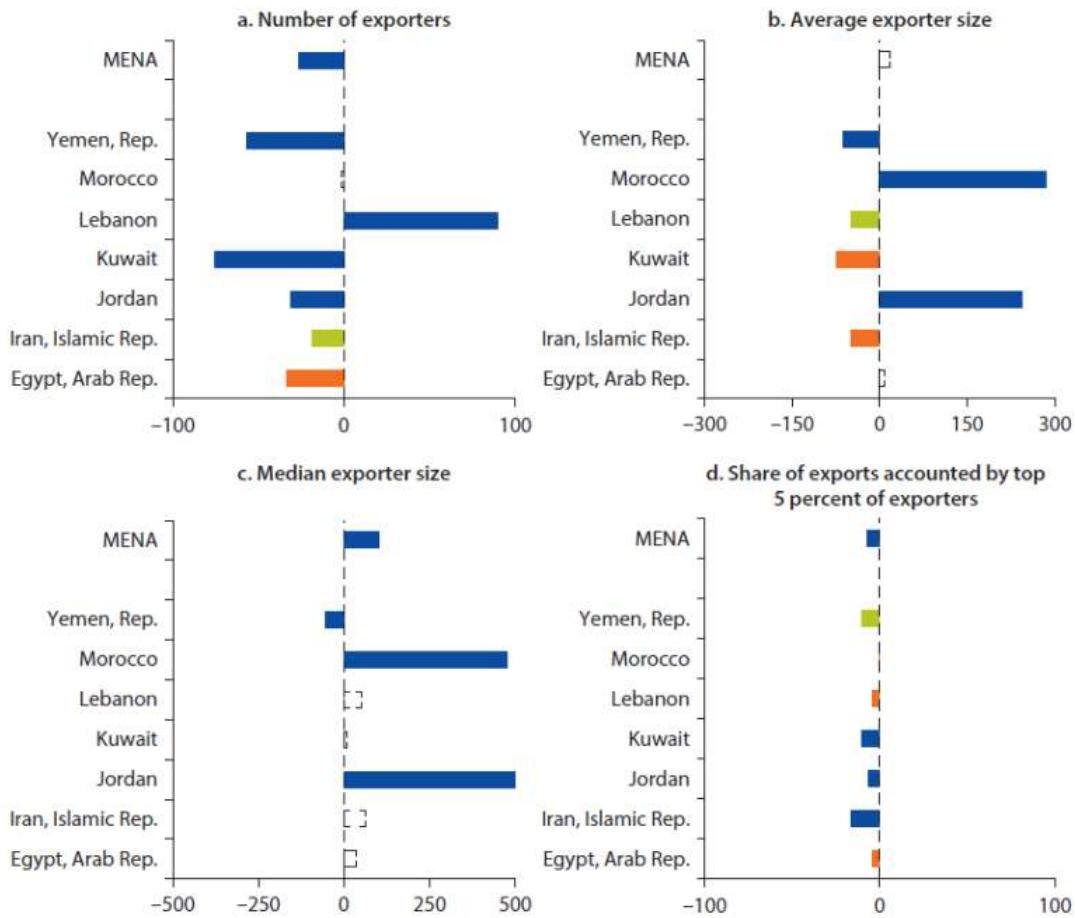
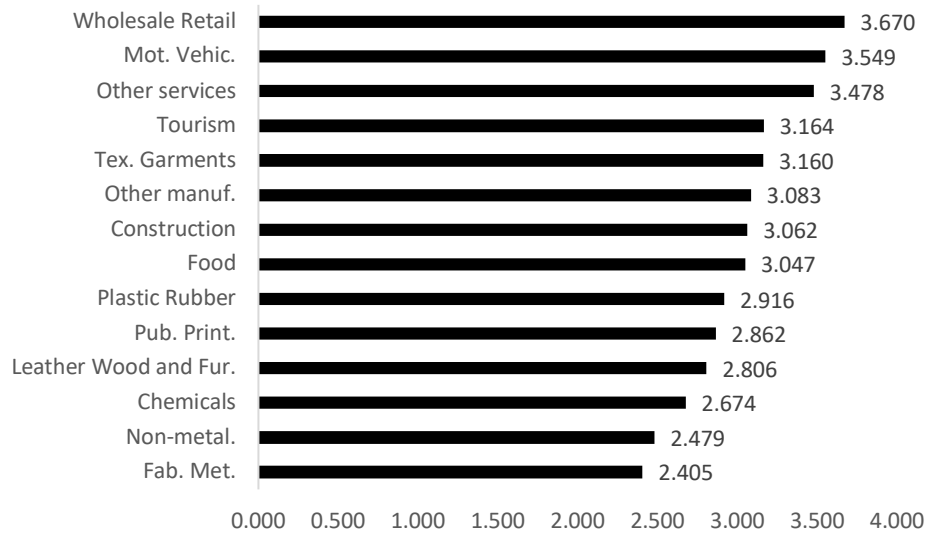Source: Jaud and Freund (2015).

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.

Figure 5: Weighted AVE of Restrictions on Service Trade by Sector

Sector	Value
Wholesale Retail	3.674
Mot. Vehic.	3.549
Other services	3.543
Tourism	3.374
Tex. Garments	3.164
Other manuf.	3.096
Construction	3.067
Food	3.054
Plastic Rubber	2.916
Pub. Print.	2.871
Leather Wood and Fur.	2.815
Chemicals	2.690
Non-metal.	2.479
Fab. Met.	2.405

Note: Constructed by the authors.

Figure 6: Weighted STRI by Sector

Sector	Value
Wholesale Retail	3.670
Mot. Vehic.	3.549
Other services	3.478
Tourism	3.164
Tex. Garments	3.160
Other manuf.	3.083
Construction	3.062
Food	3.047
Plastic Rubber	2.916
Pub. Print.	2.862
Leather Wood and Fur.	2.806
Chemicals	2.674
Non-metal.	2.479
Fab. Met.	2.405

Note: Constructed by the authors.