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Trade Costs and Intra-OIC Trade: What are the Linkages?

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There is direct evidence that both trade costs between OIC and developed countries as well as among OIC countries are falling and their shares in total exports of OIC countries are expanding. In turn, there was an upward trend in trade costs between OIC and non-OIC developing countries and a fall in their share in total exports of OIC countries. This paper argues that much of the changes in the direction of exports of OIC countries can be attributed to the changes in trade costs. In this framework, this paper analyzes the role of trade costs (in aggregate as well as its various components) in determining the direction of exports from OIC countries. The estimation results show that 1% reduction in trade costs can increase world exports by 3.8%, but it can increase exports from OIC countries up to 4.3%. When trade partners of OIC countries are considered separately, 1% fall in trade costs increases exports from OIC countries to developed countries by 4.2% and increases intra-OIC exports by 3.9%. However, 1% rise in trade costs leads to 4.5% fall in exports to these countries. These findings support the view that the current trend in trade costs is one of the major factors shaping the direction of exports from OIC countries. These findings are robust to alternative estimators of the Heckman selection model and the Poisson Pseudo-Maximum likelihood that are used to deal with the concerns over sample selection bias and heterogeneity.

1. Introduction

Since the initiation of the General Agreement on Trade and Tariffs in 1947, a dramatic fall in tariffs, quotas and other non-tariff barriers has been observed in the world trading system. Particularly in manufacturing goods, significant reductions were observed in tariff rates. Substantial improvements in transport and logistics over the years have also contributed to the fall in trade costs around the world. However, international trade remained more costly than domestic trade. This is not only due to costs of transporting goods to far distances, but

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also at-the-border and behind-the-border costs that can be reduced by appropriate policies. This fact accordingly shifted the attention from reducing policy barriers to promoting trade facilitation.

Member countries of the Organization of Islamic Cooperation (OIC) have equally benefited from this transformation, albeit at varying levels depending on their transport infrastructure, composition of export goods and their distance to export markets. The current 57 OIC countries are dispersed over a large geographical region and at different levels of economic development. The mixed nature of the group of the OIC countries reflects high levels of heterogeneity and divergence in the economic structure and performance of these countries. This also reflects the great potential for trade between the member countries. This potential being partly utilized by the member countries, intra-OIC exports increased significantly from $132 billion in 2005 to $362 billion in 2012, whereby the share of intra-OIC exports in total OIC exports increased only 2.8 percentage points to reach 16% in 2012. However, during the same period the share of developed countries increased even further compared to intra-OIC trade while the share of non-OIC developing countries naturally decreased.

Enhancing the intra-OIC trade is one of the key targets of the OIC Ten Year Program of Action as well as several other strategic documents of the OIC. Despite the great importance given to the issue, there is no serious technical document evaluating the progress achieved and prospects for further development. In this respect, this paper provides a brief account of trade costs in OIC countries and analyzes the decomposition of trade costs in OIC countries as well as its impacts on direction of exports from OIC countries. Thereby, it aims to contribute to the efforts in understanding the significance of major barriers for the expansion of trade within the OIC region.

This paper utilizes a new global data set of bilateral trade costs prepared jointly by the World Bank and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) based on trade and production data, covering 202 countries for the time period 1995-2011. According to the World Bank and UNESCAP research, trade costs are influenced to varying degrees by distance and transport costs, tariff and non-tariff measures, and logistics. The data also stress the importance of

supply chains and connectivity constraints in explaining the higher costs and lower levels of trade integration observed in developing countries.

International trade literature widely utilizes standard gravity model to estimate the impacts of trade costs (and its components) on trade. The pioneering work of Jan Tinbergen (1962) initiated a vast theoretical and empirical literature on the gravity equation for trade. In its simplest form, the gravity equation for trade states that the trade flow between two countries is proportional to the product of the GDPs of these countries and inversely proportional to their distance, which broadly interpreted to include all factors that might create trade resistance. Gravity equation can be used to attribute changes in trade flows to changes in domestic economic activity and changes in bilateral trade costs. Jacks et al. (2008) show the role of trade costs in explaining trade booms and trade busts. As also explained in the Appendix, where the components of trade costs are described, there has been quite a number of attempts to quantify the impacts of specific components of trade costs on total trade flows, including, among others, Hummels (2007) on transport costs, Hoekman and Nicita (2008) on tariffs and non-tariff measures and other trade restrictions, Anderson and Marcouiller (2002) on contract enforcement, Glick and Rose (2002) on monetary unions, Freund and Weinhold (2004) on information costs, and many of these studies utilized gravity model in their estimations.

Similarly, attempts were made to understand the role of specific factors on the direction of trade. Gros and Gonciarz (1996) used gravity model to predict the direction of the trade of Central and Eastern Europe (CEE) and Hanink and Owusu (1998) examined the direction of trade within the Economic Community of West African States (ECOWAS) by using a Tobit regression. In a different context, Hallak (2006) estimates the impact of quality on the direction of trade and provides important insights on the linkages between quality of goods and where they flow.

In this framework, this paper attempts to understand the factors behind the changes in direction of trade and argues that much of the changes in the direction of exports of OIC countries can be explained by the changes in trade costs. After decomposing the trade costs within OIC countries, this paper also utilizes a gravity model estimation to find out the relative importance of trade costs in affecting the direction of trade from OIC countries. Accordingly, it is found that 1% fall in trade costs

increases exports from OIC countries to developed countries by 4.2% and increases intra-OIC exports by 3.9%. However, 1% rise in trade costs leads to 4.5% fall in exports to these countries. Given the fact that trade costs have been falling among OIC countries and between OIC and developed countries but rising between OIC and non-OIC countries, these findings support the view that the change in trade costs is one of the major factors shaping the direction of exports from OIC countries.

The rest of the paper is organized as follows. A short discussion on trade policy in OIC countries as well as on average trade costs is provided in the next section. Section 3 conducts an empirical analysis on the components of trade costs in OIC countries and finally section 4 analyzes the role of trade costs for direction of exports from OIC countries. Brief information on the main components of trade costs is provided in the appendix.

2. Trade Policy and Average Trade Costs

While countries try to increase their exports, they also use trade policy measures including tariffs and non-tariff barriers to discourage the importation of foreign products in order to spur industrial growth and economic diversification. Accordingly, a combination of support measures for particular sectors is generally designed to protect them from foreign competition in the domestic market and boost their export performance at the same time. Such trade policies affect economic activity and well-being not only in the country enacting these policies but in their trade partner countries as well.

The average level of protectionism applied in OIC countries with the averages of the world and other major economies on most-favoured nation (MFN) tariffs[2] in 2012 is provided in Figure A2 in appendix. On aggregate, by applying an average of 11.3% tariff rate, OIC countries reveal a more protectionist picture when compared to the world average of 8.9% and average of developed countries 5.2%. This ratio more than triples the tariff rates applied by the United States. Traditionally, agricultural products enjoy higher protectionism. In these products, OIC

[2] In current usage, MFN tariffs are what countries promise to impose on imports from other members of the World Trade Organization (WTO), unless the country is part of a preferential trade agreement (such as a free trade area or customs union). This means that, in practice, MFN rates are the highest (most restrictive) that WTO members charge one another.

countries remained the most protectionist group with 16.6% tariff rates, which is higher than the world average of 14.9% and average of non-OIC developing countries 13.9%.

Costs related to policy barriers are only part of total trade costs. Until recently, overall estimates of bilateral trade costs were not available and the applied international trade literature has commonly been using gravity model to identify the sources of trade costs. The seminal work of Anderson and van Wincoop on the determinants of trade costs estimated the overall trade costs based on the assumptions on the likely components of the total costs. For developed countries, the authors found 170% trade costs, consisting of 21% transportation costs, 44% border-related trade barriers, and 55% wholesale and retail distribution costs (2.70=1.21*1.44*1.55).

Recently, the World Bank and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) prepared jointly a new global data set of bilateral trade costs based on trade and production data, covering 202 countries for the time period 1995-2011. Based on this new dataset, it can be recognized that although tariffs in many countries are now at historical lows, overall trade costs remain high (Figure A3). [3] While developing countries tend to exhibit higher trade costs, OIC countries, on average, display even higher trade costs than non-OIC developing countries. On the other hand, trade costs in OIC countries (177% ad valorem) were on average two times higher than those in developed countries (89% ad valorem) in 2010.

Normalizing ad valorem equivalents equal to 100 in 1995 makes it possible to see the rate at which trade costs have evolved over time in different country groups. On average, trade costs have fallen most quickly in developed countries (around 20%). They have fallen considerably more slowly in OIC countries, which decreased only around 9% to 90.9 in 2010, which is still better than the performance of non-OIC developing countries. The fall in trade costs of non-OIC developing countries accelerated in 2010 and index value decreased to 91.7 (Figure A4). Moreover, agricultural products tend to exhibit significantly higher trade costs and it did not decreased over the period

[3] In order to avoid any potentially misleading aggregation, the averages are calculated by using the bilateral trade costs with 20 largest export partners for each country.

under consideration, which is consistent with the continued existence of major policy barriers. There was only a modest decrease in manufacturing from 183% ad valorem to 171% ad valorem (Figure A5). When the changes in bilateral trade costs between different country groups are compared, it is observed that average trade costs among the OIC countries remained around 260 during the period under consideration and this figure was very close to the average trade costs between OIC and developed countries (Figure A6). In 2010, average bilateral trade costs among OIC countries were 261 ad valorem, whereas it was 256 and 319 between OIC-developed countries and OIC-non-OIC developing countries, respectively. There is a clear upward trend in the trade costs between OIC and non-OIC developing countries, which increased from 292 in 1995 to 335 in 2009. On the other hand, average trade costs among developed countries followed a declining trend throughout the period under consideration and fell from 141 in 1995 to 113 in 201.

Table 1 summarizes the bilateral trade costs between different country groups for the year 2010. For all group pairs, agricultural products are the most costly item in trade. Even among the developed countries, 1 unit worth of agricultural product incurs additional 2.1 unit costs until it gets to final consumer. This is only 1.1 in manufactured items for the same country group. For the OIC countries, average trade cost in agricultural products is 3.2 more than the unit value of that product. This number is around 2.5 for manufacturing products. Trade among OIC countries are less costly compared to trade between OIC and non-OIC developing countries, but it is very close to trade between OIC and developed countries. Trade between non-OIC developing countries and developed countries is on the other hand less costly than trade between OIC and developed countries.

Table 1: Trade Costs Between OIC, Developed and Non-OIC Developing Countries (2010)

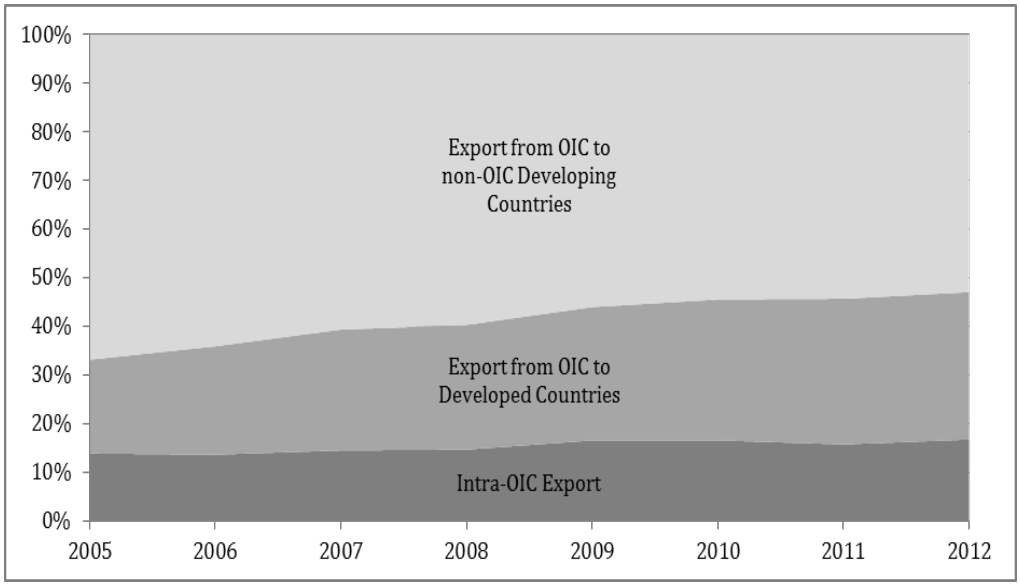
	OIC			**Developed**		
	Agriculture	Manufacturing	Total	Agriculture	Manufacturing	Total
OIC	317.4	248.3	261.1	327.1	243.6	256.3
Non-OIC Developing	332.6	297.6	318.6	289.0	219.9	229.6
Developed	327.1	243.6	256.3	210.0	111.1	112.6

Various trade policy measures and trade costs are likely to have some implications on the export market diversification of OIC countries. In this context, Figure 1 depicts the shares of different country groups for the period between 2005 and 2012. While intra-OIC export has increased around 3 percentage points, export of OIC countries to developed countries increased around 10 percentage points during this period. Congruently, the share of non-OIC developing countries in total exports of OIC countries decreased around 13 percentage points. Higher trade costs to non-OIC developing countries and relatively lower trade costs to developed countries may have played a major role in this transformation. In this framework, this paper aims to test this proposition in order to find out whether change in trade costs play any role in changing direction of exports in OIC countries.

3. Decomposition of Trade Costs

The analysis in the previous section provides only sketchy information on trade costs. An in-depth analysis is needed to understand the factors that contribute to the levels of trade costs observed among the OIC countries. In this section, an econometric estimation will be carried out in order to analyze the relative significance of each component of trade

Figure 1: Share of Country Groups in Exports from OIC Countries



costs. These components are related to both policy preferences as well as natural barriers.

The data provided by the World Bank and UNESCAP on trade costs are not balanced. Therefore, in order to maximize the number of observation, the data for the year in which the highest number of observation are available is chosen, and that year is 2005. With respect to control variables, various observable components of trade costs are considered based mainly on the information provided in the appendix. Transportation costs rely mainly on distance and technology. In order to capture this kind of costs, distance, common border as well as logistics performance index and air connectivity index have been included to the estimation. As policy barriers, tariffs and entry costs (starting a business) are added to the estimation to capture costs associated with tariff and non-tariff barriers. Information costs are also considered as an important component of trade costs. Accordingly, common language indicators, both official and ethnological, are included. Contract enforcement and other legal barriers are captured with a dummy variable on common legal origin. Different currencies are also linked with higher trade costs. Therefore, a dummy variable for countries sharing a common currency is included. Regulatory costs are captured with the number of documents to export, which shows the degree of red tape for exporters. Finally, dummy variables for countries having regional trade agreements and for landlocked countries are considered to have important impact on trade costs. More information on data and sources are provided in Table 2.

The following equation is then estimated by using OLS:

$$\ln(trade\ costs_{ij}) = b_1 + b_2 ln(distance_{ij}) + b_3 \ln(tariff_{ij}) + b_4 ln(entry_{ij}) + b_5 docs_{ij} + b_6 border_{ij} + b_7\ lang\_off_{ij} + b_8 lang\_ethno_{ij} + b_9 comleg_{ij} + b_{10} currency_{ij} + b_{11} RTA_{ij} + b_{12} ln(ACI_{ij}) + b_{13} ln(LPI_{ij}) + b_{14} landlocked_{ij} + e_{ij}$$

(Eq. 1)

Table 2: Data and sources

Variable	Definition	Year	Source
Trade Costs	Estimates of trade costs between countries I and j.	2005	World Bank and UNESCAP
Distance	Great circle distance between the two principal cities of countries i and j.	-	CEPII
Tariff	Geometric average of unity plus the trade-weighted average effectively applied tariff applied to i to j's exports and by j to i's exports.	2005	TRAINS
Entry Costs	Geometric average of the cost of starting a business in country i and country j.	2005	Doing Business
Documents to Export	Geometric average of number of document required for export in country i and country j.	2005	World Bank
Common Border	Dummy variable equal to unity if countries i and j share a common land border.	-	CEPII
Common Language (Official)	Dummy variable equal to unity if countries i and j share a common official language.	-	CEPII
Common Language (Ethno.)	Dummy variable equal to unity if countries i and j share a common language (ethnographic basis).	-	CEPII
Common Legal Origin	Dummy variable equal to unity if countries i and j were colonized by the same power.	-	CEPII
RTA	Dummy variable equal to unity if countries I and j are members of the same RTA.	2005	De Sousa (2012)
Common Currency	Dummy variable equal to unity if countries i and j have a common currency.	-	CEPII
ACI	Geometric average of country i's and j's scores on the Air Connectivity Index.	2007	World Bank
LPI	Geometric average of country i's and j's scores on the Logistics Performance Index.	2007	World Bank
Landlocked	Dummy variable equal to unity if one of the countries i and j is landlocked.	-	CEPII

Since trade costs data are a bilateral geometric average, following Arvis et al. (2012), independent variables that are uni-directional are

transformed also by taking the geometric average of the two directions. Consequently, only one direction for each bilateral pair is retained.
The regression is estimated for trade costs in all products as well as in manufacturing and agricultural products separately, together with a more parsimonious version the model. The findings for the complete (columns i, iii, v) and parsimonious (columns ii, iv, vi) versions are presented in Table 3. Robust standard errors are calculated to measure the level of significance due to suspect of heterogeneity. Column (i) of the table shows the results for all products. Accordingly, larger distance, higher tariff rates and entry costs as well as being landlocked tend to increase trade costs. On the other hand, sharing common border, common currency, regional trade agreements, better air connectivity and logistics performance are all factors leading to lower trade costs among the OIC countries. One would also expect negative impacts of common languages and common legal origin, but apparently their impacts are captured by other variables included into the regression.

With regard to manufacturing products (column iii), same indicators have significant impact in same direction as in the case of all products, except documents to export as a proxy for red tape. Tariff rates are again found to have significant effect. When it comes to agricultural products (column v), distance, tariff rates and red tape are all again found to be significant components of trade costs. On the other hand, common border and regional trade agreements are the factors that lead to lower trade costs in agricultural products. Estimating the model for these three product groups in a more parsimonious way after ignoring relatively weaker components of trade costs (common language and legal origin) does not alter the results significantly (columns ii, iv, vi) and yields similar results.

Among the thirteen independent variables, six of them are time-varying variables, therefore policy relevant indicators. Other factors like distance or being landlocked only explain the natural barriers to trade. However, among these variables, some of them can also be considered policy relevant indicators, such as common currency, common legal origin and even common official language. Since these indicators hardly change over time, they are not considered to be policy-relevant indicators within the context of this study.

Table 3: Estimation Results

	Total		**Manufacturing**		**Agriculture**	
	(i)	**(ii)**	**(iii)**	**(iv)**	**(v)**	**(vi)**
Distance	0.163+	0.164+	0.227+	0.226+	0.188+	0.185+
	(5.980)	(6.083)	(8.172)	(8.23)	(4.627)	(4.667)
Tariff Rates (Applied)	0.113**	0.112**	0.125**	0.126**	0.157***	0.160***
	(2.261)	(2.299)	(2.174)	(2.277)	(2.615)	(2.69)
Entry Costs	0.066***	0.066***	0.049**	0.050**	0.040	0.041
	(2.939)	(2.98)	(2.057)	(2.128)	(1.379)	(1.42)
Documents to Export (Number)	0.176*	0.165*	0.068	0.051	0.308**	0.302**
	(1.810)	(1.733)	(0.630)	(0.483)	(2.319)	(2.388)
Common Border	-0.357+	-0.354+	-0.340+	-0.344+	-0.158**	-0.162**
	(-5.129)	(-5.000)	(-4.384)	(-4.422)	(-2.004)	(-2.071)
Common Currency	-0.402+	-0.392+	-0.426+	-0.406+	0.018	0.031
	(-4.751)	(-5.019)	(-4.423)	(-4.482)	(0.175)	(0.3)
Regional Trade Agreement	-0.218+	-0.227+	-0.218+	-0.211+	-0.159**	-0.144**
	(-4.050)	(-4.780)	(-3.789)	(-4.212)	(-2.122)	(-2.353)
Air Connectivity	-0.160*	-0.162**	-0.155*	-0.147*	0.032	0.041
	(-1.864)	(-1.976)	(-1.706)	(-1.717)	(0.301)	(0.379)
Logistics Performance	-0.883+	-0.883+	-0.899***	-0.940+	-0.180	-0.232
	(-3.516)	(-3.632)	(-3.097)	(-3.380)	(-0.532)	(-0.706)
Landlocked	0.206+	0.214+	0.237+	0.236+	0.036	0.024
	(4.766)	(5.231)	(4.936)	(5.02)	(0.542)	(0.373)
Common Language (Official)	0.044		0.055		0.009	
	(0.716)		(0.849)		(0.105)	
Common Language (Ethno.)	-0.059		-0.039		0.018	
	(-1.027)		(-0.632)		(0.232)	
Common Legal Origin	-0.002		0.008		0.020	
	(-0.047)		(0.193)		(0.425)	
Constant	4.416+	4.427+	4.070+	4.141+	3.364+	3.447+
	(7.845)	(7.966)	(6.569)	(6.858)	(4.311)	(4.607)
R-squared	0.487	0.486	0.514	0.513	0.360	0.360

No. of Obs.	571	571	510	510	293	293

Note: Numbers in parenthesis are t values.
Significance levels are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01, + p<0.001

In order to compare relative contributions of different factors to overall trade costs, and to come up with some policy recommendations, standardized regression coefficients (betas) are calculated. These coefficients show the change in standard deviations of the dependent variable due to a standard deviation change in each control variables. In this way, the relative strength of a control variable in affecting the total trade costs will be possible to measure. The results are presented in Table 4. Figure 2 also shows the relative impact of different factors on trade costs in figure.

Table 4: Estimation Results - Standardized Regression Coefficients

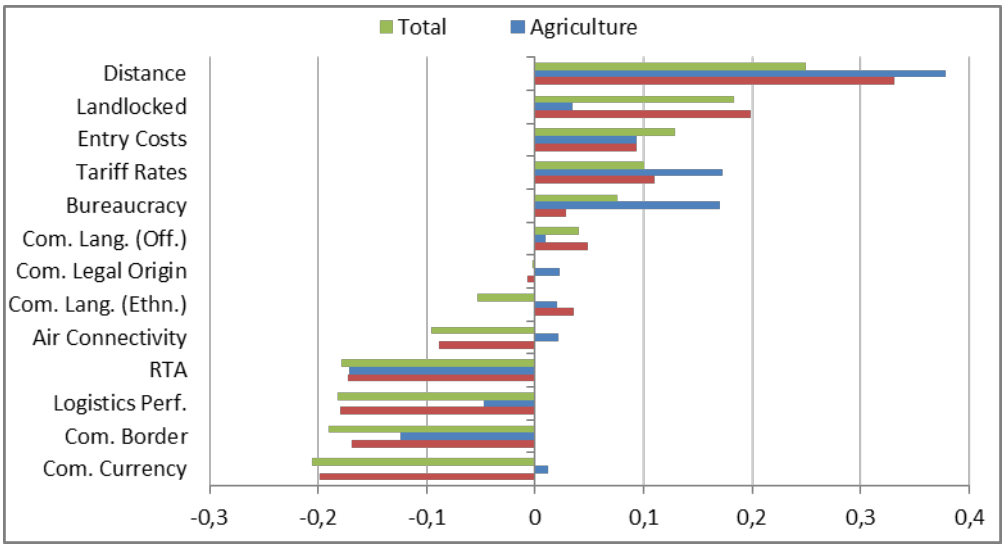
	Total	**Manufacturing**	**Agriculture**
Distance	0.250+	0.331+	0.378+
Tariff Rates (Applied)	0.101**	0.110**	0.173***
Entry Costs	0.129***	0.094**	0.094
Documents to Export (Number)	0.076*	0.028	0.170**
Common Border	-0.190+	-0.169+	-0.124**
Common Language (Official)	0.040	0.049	0.010
Common Language (Ethno.)	-0.053	0.035	0.020
Common Legal Origin	-0.002	-0.007	0.022
Common Currency	-0.205+	-0.199+	0.012
Regional Trade Agreement	-0.178+	-0.173+	-0.171**
Air Connectivity	-0.096*	-0.089*	0.021
Logistics Performance	-0.182+	-0.180***	-0.047
Landlocked	0.183+	0.199+	0.034

When trade costs in all industries are considered, policy related indicators are all significant. Distance remains one of the most significant factors in explaining trade costs among OIC member countries. One standard deviation increase in distance is associated with 0.25 standard deviation increase in trade costs. Similarly trade with landlocked countries increases trade costs by 0.18 standard deviation. Higher cost of starting a business and tariff rates are the other factors that increase trade costs among OIC countries by more than 0.1 standard deviation. Common border, common currency, regional trade agreement

and logistics performance including air connectivity are the factors that reduce the trade costs among OIC countries.

Except bureaucracy indicator, the same variables have statistically significant impact on trade costs in manufacturing products. Distance, tariff rates and trading with landlocked countries are even bigger contributors of trade costs in manufacturing products. Sharing a common border and common currency, on the other hand, reduce trade costs within OIC countries. Better logistics performance and connectivity with partner countries again help to shrink trade costs.

Figure 2: Relative impact of different sources of trade costs; standardized regression coefficients against the indicator measuring the cost component



Note: Distance, tariff rates, common border and regional trade agreement are statistically significant in all groups; entry costs, air connectivity, logistics performance, landlocked and common currency are significant in total and manufacturing; bureaucracy is significant in total and agriculture.

The beta coefficients for agriculture show that trade costs are particularly sensitive in relative terms to geographical proximity, tariff rates, bureaucracy, common border as well as regional trade agreements. Non-tariff barriers play a significantly more role in agricultural industries, but such barriers are not easy to capture. An indication of the importance of non-tariff measures is the noticeably lower R-squared values for agricultural products as compared with manufactured goods,

which indicates that a significant part of the variation in trade costs is being driven by factors outside the model, surely including various types of non-tariff measures.

4. Role of Trade Costs in Direction of Exports from OIC Countries

This paper argues that trade costs are one of the critical determinants of changes in the direction of exports from OIC countries. As depicted in Figure 1, the share of developed countries in total OIC exports increased around 3 percentage points and the share of intra-OIC export increased 10 percentage points. However, it decreased 13 percentage points for non-OIC developing countries. During the same period, trade costs between OIC and developed countries declined the most, while it increased between OIC and non-OIC developing countries. There was a declining trend in trade costs between OIC countries only during the recent years.

In order to test the role of trade costs in changes at direction of exports from OIC countries, the standard gravity estimation is used, which already became a key instrument for researchers interested in the effects of trade-related policies.[4] In its most basic form, the gravity model can be written as follows:

$$lnX_{ij} = \alpha + \beta_1 lnGDP_i + \beta_2 lnGDP_j + \beta_3 lnTC_{ij} + e_{ij} \qquad \text{(Eq. 2)}$$

Where X_{ij} indicates exports from country i to country j, GDP is gross domestic products of country i and j, TC_{ij} represents trade costs between the two countries, which is commonly represented by the geographical distance as an observable proxy and e_{ij} is a random error term. The α term is a regression constant, and the β terms are coefficients to be estimated. The literature typically specifies this function in terms of observable variables that are believed to influence trade costs, using a simple log-linear specification. In addition to the geographical distance between countries, dummy variables are included for countries that share a common land border, for country pairs that share a common

[4] More information on the theoretical foundation and estimation techniques of gravity models can be found at De Benedictis and Taglioni (2011).

official language, for country pairs that share a common currency, if countries i and j were once in a colonial relationship, if one or both countries are landlocked, and for country pairs that were colonized by the same power. This formulation is typical of the gravity model literature, in which each of these factors has been found to be among the determinants of bilateral trade. However, this specification is by no means exhaustive and it is also common to observe various indicators of trade-related policies that are included in the gravity model estimation to find out the relative impacts of these policies.

In baseline estimation, this paper uses (Eq.2) as the standard gravity model. However, in order to evaluate the various components of trade costs on exports of OIC countries, the following extended model will be estimated:

$$lnX_{ij} = \alpha + \beta_1 lnGDP_i + \beta_2 lnGDP_j + \beta_3 lnDIST_{ij} + \beta_3 LANG_{ij} + \beta_3 BRD_{ij} + \beta_3 lnTAR_{ij} + \beta_3 CUR_{ij} + \beta_3 LEG_{ij} + \beta_3 lnLPI_i + \beta_3 lnLPI_j + \beta_3 LOCK_i + \beta_3 LOCK_j + \beta_3 RTA_{ij} + e_{ij}$$

(Eq. 3)

Where $DIST_{ij}$ is the geographic distance between country pairs, $LANG_{ij}$ is a dummy variable for country pairs that share a common official language, BRD_{ij} is a dummy variable for countries that share a common land border, TAR_{ij} is the weighted average of tariff rate effectively applied by county j for exports from country i, CUR_{ij} is a dummy variable for country pairs that share a common currency, LEG_{ij} is a dummy variable for country pairs that have a common legal origin, LPI is logistics performance index, $LOCK$ is is a dummy variable for landlocked countries and RTA_{ij} is a dummy variable if country pairs are together part of a regional trade agreement. These variables are selected mainly based on the findings in the literature and in the previous section on the determinants of trade costs in OIC countries.

Cross-sectional data is used for the year 2005. Sources of data are provided in Table 2. Ordinary least squares (OLS) estimates are employed to test the hypothesis. Standard errors are robust to arbitrary

patterns of heteroskedasticity in the data. Table 5 provides the estimation results for baseline model for the whole sample (column a), exports from OIC countries to all other countries (column b), exports from OIC to developed countries (column c), intra-OIC exports (column d) and exports from OIC to non-OIC developing countries (column e).

In general, the findings for different country groups are similar. Economic size of exporting countries play more significant role than that of the importing countries. For the exports from OIC to developed countries (column c), 1% growth in GDP of developed countries leads to an increase in their imports from OIC countries at a rate of 0.65%, which is significantly higher compared to other comparison groups.

Table 5: Gravity Estimation Results – Baseline Estimation

	(a) WS	**(b) OIC2W**	**(c) OIC2DVD**	**(d) OIC2OIC**	**(e) OIC2DVG**
GDP (Exp.)	0.724+	0.763+	0.722+	0.870+	0.746+
	(96.775)	(35.318)	(16.085)	(23.020)	(22.403)
GDP (Imp.)	0.393+	0.356+	0.649+	0.261+	0.272+
	(51.323)	(21.212)	(15.665)	(6.943)	(9.792)
Trade Costs	**-3.782+**	**-4.277+**	**-4.195+**	**-3.929+**	**-4.524+**
	(-110.364)	(-56.077)	(-23.825)	(-29.586)	(-40.472)
Constant	24.061+	26.809+	22.939+	24.953+	29.143+
	(86.858)	(43.926)	(14.897)	(22.921)	(34.732)
R-squared	0.773	0.671	0.678	0.666	0.666
No. of Obs.	13486	3524	1159	1054	1311

Note: OLS estimation results. T-values are reported in parenthesis.
Significance levels are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01, + p<0.001

In general, the findings for different country groups are similar. Economic size of exporting countries play more significant role than that of the importing countries. For the exports from OIC to developed countries (column c), 1% growth in GDP of developed countries leads to an increase in their imports from OIC countries at a rate of 0.65%, which is significantly higher compared to other comparison groups.

Trade costs carry higher importance for OIC countries (column b) compared to other countries (column a). When the relative importance

of trade costs for OIC countries are estimated for their different trade partners, trade costs matter most in their trade with non-OIC developing countries (column e). 1% reduction in trade costs between OIC and non-OIC developing countries increases their trade by 4.5% (column e), which is 4.2% in the case of developed countries (column c) and 3.9% in the case of OIC countries (column d). This finding in effect supports the hypothesis postulated earlier. Declining trade costs with developed countries is linked with the increase in the share of export with developed countries and increasing trade costs with non-OIC developing countries is associated with declining share of trade with non-OIC developing countries. Falling trade costs among OIC countries has also contributed to the increase in the share of intra-OIC export.

In addition to the aggregated impacts of trade costs, impacts of different components of trade costs can also be calculated. As shown in previous section, there are various components of trade costs, albeit not exhaustive, that can be separately included into the gravity estimation model in order to estimate the impact of these components on trade. Table 6 presents the findings of the extended model as depicted in (Eq. 3). As in Table 5, Table 6 also provides the estimation results for the whole sample (column a), exports from OIC countries to all other countries (column b), exports from OIC to developed countries (column c), intra-OIC exports (column d) and exports from OIC to non-OIC developing countries (column e).

In the whole sample, all standard variables of gravity equation are statistically significant. Economic sizes of trading partners, common border, common language, common currency, common legal origin, regional trade agreement, and better logistics performance of trading partners positively affect the trade between the countries. On the other hand, distance, tariff rates, and being landlocked negatively affect the trade flows.

In the case of exports from OIC countries to the world, same variables have similar impact on the exports of OIC countries. Tariff rates appears to have more impact on trade of OIC countries, a 1% decrease in tariff rates increases exports of OIC countries 0.2%, which is only 0.08% in the whole sample. Therefore, tariff reductions should be more often on the agenda of OIC countries to increase their trade with other countries. However, this is particularly important for the intra-OIC trade. As provided in column d, 1% reduction in tariff rates will increase intra-

OIC trade 0.3%, compared to 0.27% with non-OIC developing countries (column e). Peculiarly, though the impact is negative, tariff rates applied by developed countries appear to have no impact on exports from OIC to these countries.

Table 6: Gravity Estimation Results – Extended Model Estimation

	(a) WS	**(b) OIC2W**	**(c) OIC2DVD**	**(d) OIC2OIC**	**(e) OIC2DVG**
GDP (Exp.)	1.023+	1.017+	1.161+	1.077+	1.019+
	(62.964)	(35.026)	(20.184)	(16.635)	(14.860)
GDP (Imp.)	0.839+	0.687+	1.087+	0.677+	0.791+
	(49.464)	(22.195)	(16.884)	(9.839)	(11.185)
Distance	-1.126+	-1.097+	-0.623+	-0.864+	-1.114+
	(-36.518)	(-17.896)	(-3.754)	(-7.777)	(-9.046)
Tariff	-0.076***	-0.198+	-0.127	-0.316+	-0.269***
	(-2.777)	(-3.883)	(-1.063)	(-3.375)	(-2.884)
Border	1.598+	1.170+	1.002	0.801***	1.688+
	(12.472)	(5.131)	(1.069)	(2.586)	(3.613)
Language	0.694+	0.432+	0.253	0.327	1.264+
	(11.029)	(3.778)	(0.917)	(1.484)	(4.167)
Currency	0.785***	0.746**	2.920***	0.792**	(omitted)
	(2.766)	(2.484)	(3.163)	(2.394)	(omitted)
Legal	0.456+	0.262***	1.096+	0.353**	0.325*
	(9.128)	(3.061)	(6.307)	(2.089)	(1.877)
RTA	0.247+	0.783+	-0.509**	1.956+	0.453
	(3.682)	(6.296)	(-2.114)	(6.011)	(1.272)
Landlocked (Exp.)	-0.315+	-0.694+	-0.396*	-1.049+	0.385
	(-4.899)	(-5.600)	(-1.660)	(-3.433)	(1.402)
Landlocked (Imp.)	-0.678+	-0.438+	-0.662**	-0.250	-0.685***
	(-10.991)	(-4.156)	(-2.479)	(-1.150)	(-2.694)
LPI (Exp.)	0.998+	0.752+	1.158+	1.605+	1.618+
	(21.022)	(8.906)	(5.215)	(7.293)	(7.577)
LPI (Imp.)	0.381+	0.768+	-0.205	0.427*	0.537*
	(6.258)	(6.709)	(-0.677)	(1.773)	(1.808)
Constant	0.913***	2.477+	-6.609+	-0.971	-0.650

	(2.948)	(3.895)	(-3.776)	(-0.633)	(-0.526)
R-squared	0.652	0.625	0.530	0.514	0.447
No. of Obs.	10312	2874	1048	860	1056

Note: OLS estimation results. T-values are reported in parenthesis.
Significance levels are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01, + p<0.001

Common border and common language are relatively less important for OIC countries compared to the whole sample, but they appear to be particularly strong for exports to non-OIC developing countries. Common currency increases exports from OIC countries around the same magnitude in the whole sample, but it seems to be particularly important in their export to developed countries. Sharing common currency with developed countries leads to an increase in exports to these countries at almost 3%. This can be potentially explained by the fact that sharing a common currency with a developed country implies higher financial stability and lesser uncertainty, which then boosts trade between these countries. Common legal origin also seems to be less important for OIC countries in general, but in their export to developed countries, this indicator again carries relatively more significant importance. This fact again can be explained by the fact that sharing a common legal origin with an already developed country is considered to be a higher standard of legal status, and that facilitates trade through better handling of legal and contractual matters.

Regional trade agreements, however, are particularly important for the development of exports from OIC countries and it is particularly important for exports among OIC countries. Regional trade agreements lead to an increase in intra-OIC exports around 2%. This impact appears to be even stronger for exports to non-OIC developing countries, but the coefficient is not statistically significant. Another hard-to-explain result pops up on the importance of RTAs for export from OIC to developed countries, as it indicates a negative relationship. Export from and to landlocked countries have also negative impact on trade. Finally, countries with better logistics can export and import more compared to other countries.

The results clearly reemphasize that trade costs are among the most important factors that affect the exports from OIC countries. When intra-OIC export is considered, tariff rates and regional trade agreements appear to have a particularly strong impact. Therefore, efforts should be

increased to reduce tariff rates and enhance economic integration through trade agreements.

5. Robustness Check

OLS estimation methodology is the most common estimation technique for a variety of gravity models. However, in order to verify the findings, two alternative estimators are used. These are the Heckman selection model estimator and the Poisson Pseudo-Maximum Likelihood (PPML) estimator. The sample selection correction introduced by Heckman (1979) deals with the problem of zero trade flows which are common in bilateral trade flows. Since OLS estimator drops such observations, this may lead to sample selection bias and inconsistent parameter estimation.[5] There are a number of gravity model studies of bilateral trade using the selection model to deal with zero flows, such as Rose (2000) and Hillberry (2002). Moreover, Silva and Tenreyno (2006) suggest that, at least when there is evidence of heteroskedasticity, the Poisson pseudo-maximum-likelihood estimator should be used as a substitute for the standard log linear model. Simple Breusch-Pagan / Cook-Weisberg test for heteroskedasticity rejects the hypothesis of constant variance and OLS estimation already reports estimates that are robust to arbitrary patterns of heteroskedasticity in the data. PPML estimator can also take into account the zero trade flows and used in the literature, such as Anderson and Yotov (2012) and Arvis and Shepherd (2013).

In this framework, these two alternative estimators are used in the baseline estimation model due to potential issue of selection bias due to zero trade flows and suspect of heteroskedasticity in the data. The coefficient estimates from the Heckman and PPML estimators are provided in Table 7. The findings of Heckman selection model estimator are quite similar to that estimated by OLS in Table 5. Trade costs are more critical for exports from OIC countries compared to whole sample

[5] Helpman et al. (2008) also developed a model of international trade that yields a gravity equation with a Heckman correction combined with an additional correction for firm heterogeneity.

and among the export partner groups of OIC, the highest impact is observed for non-OIC developing countries and the estimated impacts are almost equivalent to those presented in Table 5.

Table 7: Gravity Estimation Results – Baseline Estimation with the Heckman Selection Model Estimator

(i) Baseline Estimation with the Heckman Selection Model Estimator					
	(a) WS	**(b) OIC2W**	**(c) OIC2DVD**	**(d) OIC2OIC**	**(e) OIC2DVG**
GDP (Exp.)	0.717+	0.763+	0.723+	0.867+	0.749+
	(91.773)	(35.192)	(16.701)	(23.023)	(22.081)
GDP (Imp.)	0.390+	0.356+	0.650+	0.261+	0.274+
	(51.517)	(20.959)	(15.547)	(7.165)	(9.527)
Trade Costs	-3.748+	-4.282+	-4.200+	-3.912+	-4.549+
	(-122.765)	(-54.860)	(-26.507)	(-31.700)	(-34.175)
Constant	24.018+	26.822+	22.943+	24.906+	29.218+
	(94.681)	(45.834)	(16.393)	(26.501)	(32.178)
No. of Obs.	15192	4033	1267	1176	1590
(ii) Baseline Estimation with the Poisson Pseudo-Maximum Likelihood Estimator					
	(a) WS	**(b) OIC2W**	**(c) OIC2DVD**	**(d) OIC2OIC**	**(e) OIC2DVG**
GDP (Exp.)	0.549+	0.694+	0.719+	0.688+	0.643+
	(36.760)	(16.080)	(12.050)	(15.336)	(10.066)
GDP (Imp.)	0.600+	0.579+	0.602+	0.444+	0.536+
	(28.754)	(13.149)	(7.865)	(8.511)	(10.709)
Trade Costs	-1.808+	-2.206+	-2.031+	-2.355+	-2.781+
	(-22.950)	(-13.413)	(-9.985)	(-12.578)	(-23.662)
Constant	14.740+	15.491+	14.046+	17.925+	19.314+
	(22.655)	(10.244)	(6.398)	(14.111)	(14.961)
R-squared	0.779	0.557	0.552	0.510	0.716
No. of Obs.	14637	3977	1266	1165	1546

Note: OLS estimation results. T-values are reported in parenthesis.
Significance levels are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01, + p<0.001

However, the coefficient estimates are significantly different under Poisson compared with OLS. In particular, the trade costs coefficient is smaller in absolute value. This result is typical of Poisson gravity regressions, and largely reflects the impact of heteroskedasticity on the original OLS estimates, according to Silva and Tenreyro (2006). Their explanation is that the expected value of the logarithm of a random variable depends on higher-order moments of its distribution and, therefore, if the errors are heteroskedastic, the transformed errors will be generally correlated with the covariates.

Even with lower coefficients, the main message is retained. Trade costs constitute a larger hindrance in exports from OIC countries compared to other countries. %1 fall in trade costs increases exports from OIC countries by 2.2%, which is only 1.8% in the world. Exports of OIC countries increases to developed countries by 2%, compared to 2.4% to other OIC countries and 2.8% to non-OIC developing countries. Therefore, as estimated earlier by using OLS estimator, trade costs carry larger significance for OIC countries in their trade with non-OIC developing countries. The upward trend in trade costs with non-OIC developing countries, therefore, can explain the fall in the share of non-OIC developing countries in total exports of OIC countries.

Concluding Remarks and Policy Recommendations

It is generally observed an upward trend in intra-OIC export since 2005, but there is even a stronger trend in exports from OIC to developed countries. Trade costs between OIC and developed countries were constantly lower than trade costs among OIC countries, which in turn were lower than the costs between OIC and non-OIC developing countries. There is also direct evidence that trade costs between OIC and developed countries as well as among OIC countries are falling and at the same time their share in total exports of OIC countries are rising. There was a rather upward trend in trade costs between OIC and non-OIC developing countries and a decline in their share is observed. This paper argues that much of the changes in the direction of exports from OIC countries can be attributed to the changes in trade costs. In this framework, this paper conducts first an empirical analysis on the determinants of trade costs in OIC countries and then estimates the relative impacts of trade costs for trade between various trade partners of OIC countries.

The findings on the decomposition of trade costs reveal that as also put by Anderson and van Wincoop (2004), the "death of distance is exaggerated". Distance remains the largest contributor of trade costs. Aside from constantly falling trade-policy barriers and transport costs, trade costs continue to remain large. The findings also indicate that direct policy instruments (tariffs and the tariff equivalents of quotas) are less important than other policies (transport infrastructure investment, regional trade agreements and common currency). The findings suggest several policy recommendations for OIC countries to reduce trade costs and promote intra-OIC trade. Important ones can be summarized as follows.

- First and foremost, tariff and non-tariff barriers should be reduced. They significantly increase the trade costs among OIC countries. Regional trade agreements are also found to positively contribute to the reduction of trade costs. In this context, already initiated Trade Preferential System for OIC countries (TPS-OIC) should become operational to reduce trade barriers and improve regional integration.
- Another factor in increasing trade costs in OIC countries is higher costs of starting a new business. If exporting companies are not able to cost-effectively establish offices in partner countries, their ability to compete in these markets will be negatively affected and they will be discouraged to enter these markets. Therefore, special efforts should be made to reduce costs of starting a new business and all related entry costs to facilitate trade among the OIC countries.
- Being a critical factor in trade, logistical infrastructure in OIC countries is not sufficiently developed. This in turn significantly increase trade costs and makes the firms that wish to export relatively uncompetitive compared to the firms that export from countries with relatively well developed logistical facilities. Air connectivity also facilitates the movement of people and goods in a relatively shorter period of time. If countries are connected with many destinations, their communication, delivery and other formalities in terms of export will be much easier and a facilitating factor in trade. Therefore, logistics infrastructure in OIC countries should be developed to facilitate trade among OIC countries as well as with other partners.

- Significant barriers are also observed in official formalities. Such formalities typically include customs declarations, applications for import/export permits, and other supporting documents such as certificates of origin and trading invoices. Higher number of documents required for export, being used as a proxy for such formalities, not only discourage exporters, but also open the door for bribery and corruption. Therefore, all the formalities related to export should be transparent and easy to submit. In this context, the implementation of a single window system should be promoted to facilitate trade which enables international traders to submit regulatory documents at a single location and/or single entity.
- There are also natural barriers to trade, which are not easy to address. For example, landlocked countries constantly face challenges with regard to accessibility to international markets. Advanced transportation modalities can help to improve this accessibility, but such modalities require large amount of investments. Particularly small landlocked developing countries lack such resources. However, through other trade facilitating activities, cost of trade from such countries can be reduced and their integration to international markets can be supported.
- Common currency can naturally reduce trade costs through elimination of transaction costs and exchange rate uncertainty as well as increase in price transparency. However, establishing common currency areas is a challenging task requiring a highly developed level of economic integration. While it appears to be a hard-to-achieve target for OIC countries, any progress towards this direction will definitely improve socio-economic integration among OIC countries.
- Trade costs can be reduced unilaterally, regionally or multilaterally, either by further reducing traditional trade barriers or by taking effective trade facilitation measures. Achieving global agreement has been difficult, despite the inclusion of trade facilitation in multilateral trade negotiations. However, much progress has been achieved by national measures. On the other hand, there has been substantial progress in regional agreements, most obviously in Europe. By introducing Trade Preferential System (TPS-OIC) OIC countries are also targeting to reduce trade barriers among the OIC countries. However, they require

stronger commitment and willingness to promote trade among them.

After analyzing the determinants of trade costs in OIC countries, relative impacts of trade costs for trade between various trade partners of OIC countries are estimated. The estimation results shows that trade costs are relatively more important for trade of OIC countries compared to world average. 1% reduction in trade costs can increase world exports by 3.8%, but it can increase exports from OIC countries up to 4.3%. When trade partners of OIC countries are considered separately, trade costs have the largest impact on exports from OIC to non-OIC developing countries. As provided in Table 5, 1% fall in trade costs increases exports from OIC countries to developed countries by 4.2% and increases intra-OIC exports by 3.9%. However, 1% rise in trade costs leads to 4.5% fall in exports to these countries and given the fact that trade costs shows an increasing trend with these countries, the fall in the share of non-OIC developing countries in total exports of OIC countries can be explained by higher trade costs with these countries. Still, if necessary measures taken, the increase in exports to these countries will be much higher than the increase in other export partners.

It should be noted that world trade takes place increasingly in parts and components, with each country specializing in particular stages of a good's production sequence. A key feature of this vertical specialization is that imported inputs are used to produce a country’s export goods, which also reflects an international division of labour. An important driving force for growing vertical specialization has been trade barrier reduction. Despite several re-export and border crossings, reductions in trade barriers yield a multiplied reduction in the cost of producing a good sequentially in several countries. In order to be able to take larger share in this form of production and trade, it is required to have efficient and fast transport and trade mechanisms in place in addition to appropriate factors of production.

Assuming the process of vertical specialization will continue, understanding the source and nature of trade costs remain crucial. However, the analysis and policy implications for trade costs are more complex than for traditional trade barriers such as tariffs or quotas. Moreover, some behind-the-border trade costs may involve intangible factors such as concerns about security or they may be constant

instruments of national political debates. Such concerns and debates should be underpinned with firm understanding of the nature and consequences of trade costs. Various measures of trade facilitation can naturally be recommended, but this requires strong political willingness and commitment, and effective involvement of private sector.

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APPENDIX

Components of Trade Costs

Trade costs broadly include all costs incurred in getting a good to a final user other than the marginal cost of producing the good itself: transportation costs, policy barriers, information costs, contract enforcement costs, costs associated with the use of different currencies, legal and regulatory costs, and local distribution costs (Anderson and van Wincoop, 2004). Therefore, in an increasingly globalized and networked world, trade costs matter as a determinant of the pattern of bilateral trade and investment, as well as of the geographical distribution of production and they are an important determinant of a country's ability to take part in regional and global production networks (Arvis et al., 2013).

Transport costs are mainly determined by infrastructure, distance and commodity characteristics. Higher distance and poor infrastructure are associated with an increase in transport costs. Infrastructure is an important determinant of transport costs, especially for landlocked countries. Improved transportation with greater speed and reliability played a major role not only in trade growth over the past decades, but also in reorganizations of global networks of production. Studies examining customs data consistently find that transportation costs pose a barrier to trade at least as large as, and frequently larger than, tariffs (Hummels, 2007).

Policy barriers are restraints imposed by governments on the free movement of goods and services that seek to distort the pattern of trade between countries. The most common barriers to trade are tariffs and quotas. Tariffs as a tax on imports raise the price of imported goods relative to domestic goods. Quotas, on the other hand, are applied to

reduce the quantity of a product that is imported. Another common barrier to trade is an export subsidy, which is designed to support domestic producers with more competitive prices in international markets. In addition to import quotas and export subsidies, there are many other forms of non-tariff barriers to trade, including rules of origin, special licenses, unreasonable standards for the quality of goods, bureaucratic delays at customs, export restrictions, countervailing duties, sanitary and phyto-sanitary measures, etc. Direct evidence on border costs shows that tariff barriers are now low in most countries, on average less than 5% for rich countries, and with a few exceptions are on average between 8% and 12% for developing countries.

Producers need to conduct market research in order to locate opportunities in other markets. In this context, **information costs** are another aspect of trade costs where costs incur while traders search for suitable trading partners and communicate with them to negotiate the terms of the transaction. Moreover, they need to ensure their goods conform to quality standards and other regulations in foreign markets as well as locate suitable trading partners and organize transportation and distribution. A wide range of empirical studies have used proxies, such as internet mass, communication costs, common language, to try and capture the importance of information costs, communication costs and links between countries and found significant results in explaining bilateral trade and trade costs.

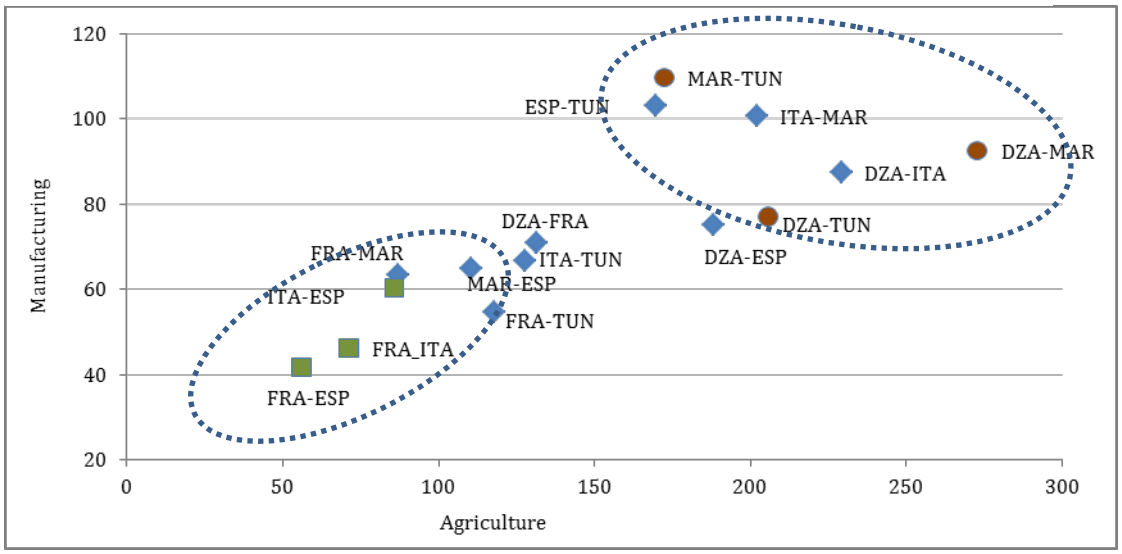
Firms also seek security in making and **enforcing contracts** and resolving disputes in their commercial relationships. Good enforcement procedures enhance predictability in commercial relationships and reduce uncertainty by assuring investors that their contractual rights will be upheld promptly by local courts. When procedures for enforcing commercial transactions require too much time and effort or when contractual disputes cannot be resolved in a timely and cost effective manner, such forms of insecurity will limit trade. For example, Anderson and Marcouiller (2002) show that imperfect enforcement and other forms of insecurity reduce the international trade of Latin American countries by as much as their tariffs. Improvements in contract enforcement would stimulate the gains from trade.

Costs associated with the use of different currencies may also be substantial. Exchange rate risk increases transaction costs and reduces

the gains to international trade. Exchange rate uncertainty discourages firms from selling in foreign markets due to a lack of price transparency. Firms will need to incur additional cost by hedging the risks associated with exchange rate fluctuations. On the other hand, monetary unions improve the economic environment in which firms operate, mainly through elimination of transaction costs and exchange rate uncertainty and increase in price transparency. Greater nominal exchange rate stability, lower transaction costs, and price transparency reduce information costs and thereby enhance competition and increase international competitiveness of enterprises (Bagci, 2013).

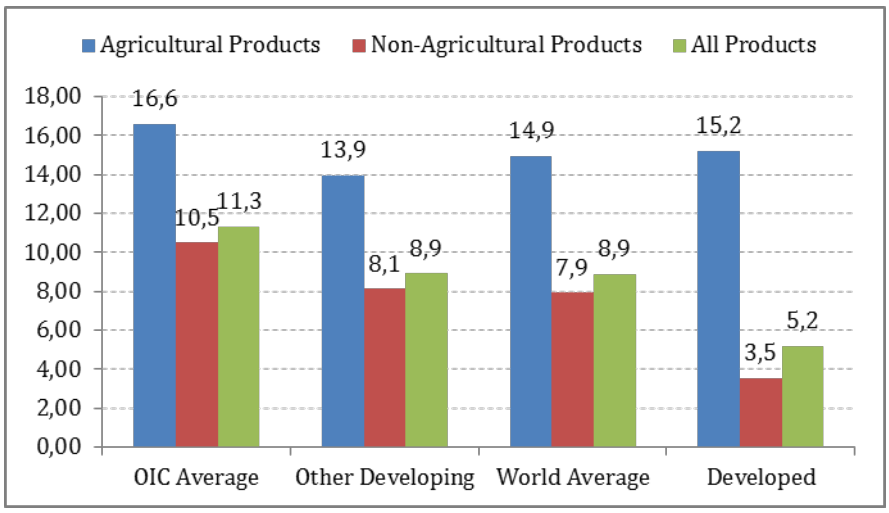
Legal and regulatory costs and local distribution costs are other components of total trade costs. Therefore, in contrary to common perception on the relevance of tariffs for trade costs, special efforts should be made to facilitate trade through reducing various barriers to trade that limit the flow of goods across borders. For example, as shown in Figure A1, three OIC countries in North Africa have significantly higher costs among themselves compared to the countries at the European side of the Mediterranean. Despite geographical proximity, common language, cultural similarities and other favorable factors, bilateral trade costs for Maghreb countries tend to be higher than the bilateral trade costs for EU countries as well as the bilateral trade costs between Maghreb and EU countries. Here comes the importance of trade facilitation. If policies are not designed in a way to facilitate trade between countries, despite other supportive conditions, bilateral trade will not increase due to relatively high trade costs. This is clearly proven at the European side of the Mediterranean.

Figure A1: Comparison of Bilateral Trade Costs for Maghreb Countries (2009)



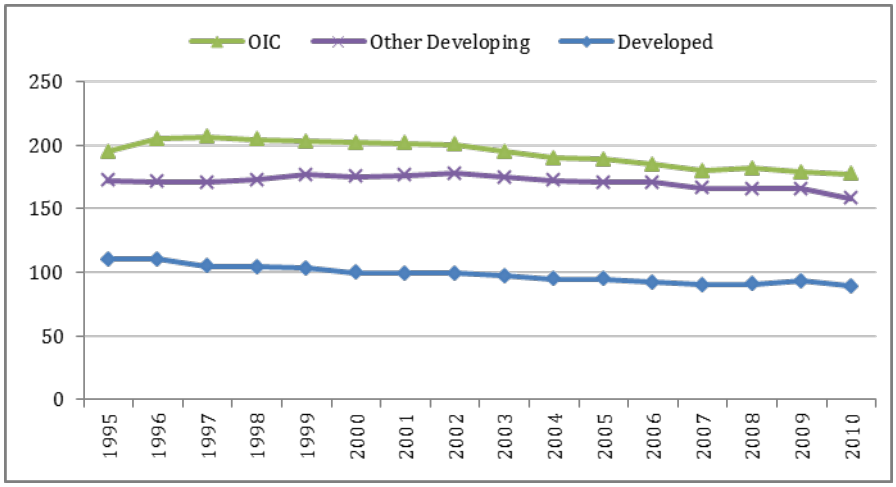
Note: Country codes are: DZA-Algeria, ESP-Spain, FRA-France, ITA-Italy, MAR-Morocco, TUN-Tunisia

Figure A2: Average Tariff Rates



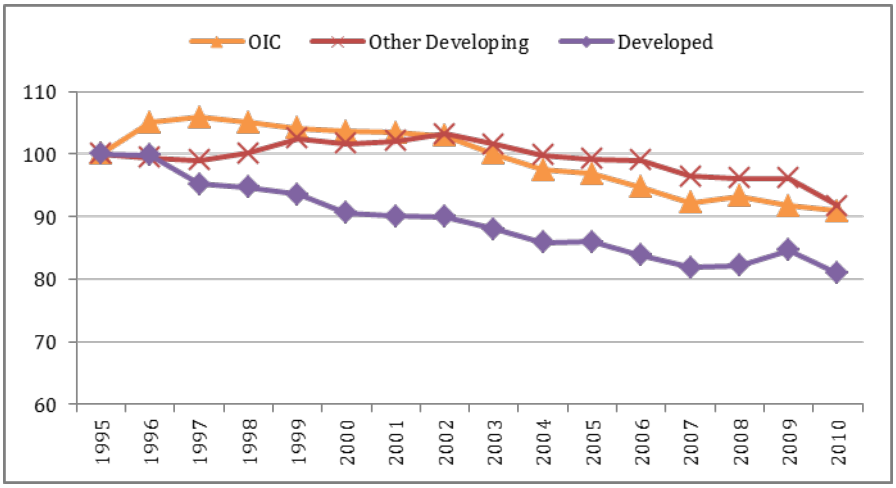
Source: World Tariff Profiles, WTO/ITC/UNCTAD.

Figure A3: Average Trade Costs, 1995-2010



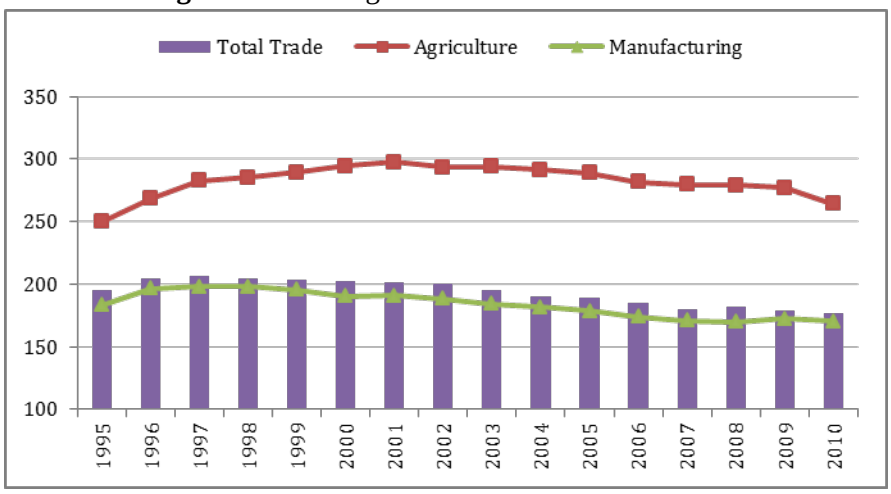
Source: WB-UNESCAP Trade Costs Database.

Figure A4: Average Trade Costs, 1995=100



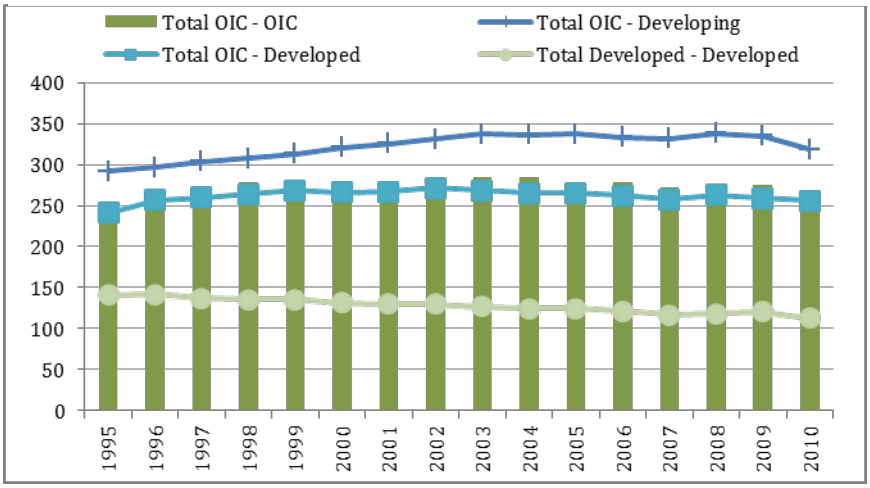
Source: WB-UNESCAP Trade Costs Database.

Figure A5: Average Trade Costs in OIC Countries



Source: WB-UNESCAP Trade Costs Database.

Figure A6: Average Bilateral Trade Costs



Source: WB-UNESCAP Trade Costs Database.