Does OIC Membership Reduce Trade?

Gairuzazmi M. Ghani¹,

The OIC member countries' shares of world exports and imports are small. Given the positive relation among trade, economic growth, and development, this paper analyzes the effects of being a member of the OIC on trade with OIC and non-OIC member countries. The "traditional" and "theoretical" augmented gravity models of international trade are used, and the effects of OIC membership are measured as a residual after taking into account large differences in culture, history, geography, participation in international and regional organizations, incidences of conflict, and institutional and governance quality of the countries. We show that by using the traditional gravity model, the effects of OIC membership are found to be negative, but the theoretical model suggests a positive or non-significant OIC effects.

1. Introduction

The Organization of Islamic Conference (OIC) member countries share of world exports and imports are relatively small. During the period of 1997 to 2002, the OIC members—which accounted for 21 per cent of world population—accounted for a mere 6.2 per cent of world export and 5.8 per cent of world import share. Their aggregate share of world GDP is smaller still, at a mere 4.3 per cent.² The small share of exports and imports may explain the low level of economic growth and development of many OIC members, as a large portion of the literature

¹ Dept. of Economics, KENMS, International Islamic University Malaysia, Jalan Gombak, 53100 Kuala Lumpur, Malaysia. email: gairuzazm@iiu.edu.my

² Source: The Center for Advanced Research and Studies on Islamic Common Market (CARSICM) database: www.carsicm.ir.

on the relationship between international trade and economic performances has shown a correlation, if not a causation, between international trade (especially exports) and economic performance (see Giles and Williams, 2000a: 2000b). In an influential paper, Frankel and Romer (1999) show that a one percentage point increase in the trade-to-GDP ratio increases GDP per capita by at least 0.5 per cent. A survey by Alston, Kearl and Vaughan (1992)³ in 1990 found that more than 90 per cent of economists in the United States generally agreed with the proposition that the use of tariffs and import quotas that reduce trade also reduce overall standard of living. Furthermore, leaders of many OIC members are also pushing for increases in intra and extra-OIC trade.⁴

Given the importance of international trade to economic growth and development, the OIC members' relatively small share of exports and imports as a subset of worldwide trade, and the special attention given to international trade by OIC leaders, the objectives of this paper are to analyze the effects of being a member of the OIC on that member's international trade, whether or not and to what extent the membership in the OIC have reduced trade with OIC and non-OIC member countries. To estimate said effects of OIC membership, the "traditional" and "theoretical" gravity models of international trade will be used. The two gravity equations are augmented with extra conditioning variables, to take into account the large differences in culture, geography, history, participation in international and regional organizations, incidences of conflict, and institutional and governance quality of the countries. Ultimately, the effects of being an OIC member are the effect of residual, after taking into account the effects of the extra conditioning variables.

³ Furthermore, Whaples (2006) shows that 87.5 per cent of U.S. economists agree that the United States should eliminate the remaining tariffs and other barriers to trade. Mayda and Rodrik (2005) state that "[t]he consensus among mainstream economists on the desirability of free trade remains almost universal."

⁴ The objective set by the OIC Ten Year Action Plan to Meet the Challenges Facing the Islamic Ummah in the 21st Century, adopted by the 3rd Extraordinary Summit of the OIC held in Mecca Al Moukarramah in the Kingdom of Saudi Arabia on December 7–8 2005, was to enhance overall trade by 20 per cent by the year 2015.

Moreover, the Prime Minister of Malaysia, Abdullah Ahmad Badawi, said: "We should promote and integrate markets and reduce tariffs as well as non-tariff barriers...this can be done by promoting free trade agreements among [OIC] member countries." (Reported by David Ong, *International Herald Tribune*.)

Dr. Abdul Aziz Sheikh, Pakistan's minister for privatization and investment, said that "Muslims can benefit considerably from trade and investment between member countries of the Organization of Islamic Conference..." (Staff report, *Daily Times.*)

2. Background

2.1 Muslim Countries Economic Histories

The OIC, set up in 1969 with an initial membership of 26 countries, comprises 57 countries in 2007. It covers the Middle East; North, West, and Southern Africa; Central Asia; Southeast Asia; the Indian subcontinent; and South America. It represents a total population of about 1.4 billion, or about 21 per cent of the global population. There is one common denominator among OIC member countries, Islam, but they are a diverse group of countries encompassing remarkable differences in geography, history, language political systems, and culture, among others. However, out of the 50 least developed countries (LDC) classified by the World Bank, 22 are OIC members⁵. The OIC members' small share of world GDP also point to the economically regressive state of many OIC members.

Unlike conditions of the current time, prior to the mid-18th century, Muslim countries were economically and technologically advanced, and they held a large share of world trade. However, their economic and technological superiority has declined precipitously since the 18th century.⁶ Two broad classes of explanations have been forwarded to explain this regression. Firstly, it is believed that Islam is not compatible with economic efficiency, innovation and progress, at least not in the way that Western thought defines those terms. Secondly, there are others who believe that underdevelopment in OIC members has been due to Western belligerence and exploitation (Kuran, 2004). Nonetheless, these explanations do not clarify why the Muslim, especially the Middle East, had been economically stronger than (or at least at par with) the West prior to the 18th century, and why Muslim countries' economic importance ebbed after the 18th century.

Kuran (2004) suggests instead that this decline was due to Muslim countries lack of demand for a modern commercial legal system. The Islamic inheritance law discourages the formation of large and lasting commercial organizations and the accumulation of capital across

⁵ SESRTCIC (2006).

⁶ The regression started before the 19th century but it is only in the 19th century that it became prominent.

generations;⁷ hence, there has been little demand for a modern commercial legal system. The lack of a modern commercial legal system, led to inferior commercial and non-commercial organizations compared to the West, leading eventually to a divergence in economic development compared to non-Muslim countries. However, Muslims did have the guilds—large-scale organizations that controlled manufacturing practices—and even though they are not centrally controlled, hierarchical organizations like modern firms, these guilds did exercise considerable control over contracts and practices in manufacturing. Overall, to explain the decline in Muslim countries' economic development, we need to examine the political systems of absolute central authority, tribalism and guilds, and the disinclination to seek innovation during the period.

Muslim countries have not been able to return to their previous level of prosperity, which they enjoyed prior to the 18th century. Adding to the economic obstacles mentioned, some OIC members have also been prone to conflict, and their institutional and governance quality are low relative to non-OIC countries. Table 1 and 2 provide selected statistics for incidence of conflict, and institutions and governance quality for the OIC member and non OIC countries. These two tables show that the OIC members' share of worldwide conflict is larger than its worldwide population share, and their institutional and governance quality are worse than those of non-OIC countries, developed and otherwise. Because studies have shown a negative relationship between trade and conflict-for example, Blomberg and Hess (2006) show that the presence of terrorism or external or internal conflict can have an economic impact equivalent to a 30-per cent tariff on trade-conflict may be a key inhibitor of trade in OIC members. In discussing the economic rise of the Western world, North and Thomas (1973) argue that the key to growth is efficient economic organization. Growth is a matter of establishing the right rules for the economic game. Furthermore, Kaufmann, Kraay and Zoido-Lobaton (1999, 2002) show that good quality institutions and governance improve economic growth; unfortunately even though OIC members are improving, their

⁷ In particular, the Islamic *wakf*, a charitable endowment, locked up large amounts of capital in relatively stagnant forms, while Islamic law failed to recognize other corporate entities. Personal responsibility and divisible inheritance further fostered a parceling out of economic activity into small units. Thus, while Western countries were developing legal corporations and large privatized firms, banks and capital markets, and deploying their capital productively, Islamic countries remained bound by archaic legal and institutional systems that diverted capital into far less productive paths.

institutional and governance quality indices are below those of non-OIC countries; OIC members' poor governance may therefore prove also to be a key impediment to trade in those countries. The addition of these two variables may dampen or even nullify the OIC effects, if added to the gravity equations.

Year	World	OIC	% OIC	Average Conflict			
	Total		countries	Non-OIC	One-		
				OIC			
1970-	135	23	0.17	-0.236	-0.119		
1974							
1975-	165	47	0.28	-0.074	0.074		
1979							
1980-	209	68	0.33	0.069	0.272		
1984							
1985-	217	69	0.32	0.182	0.361		
1989							
1990-	241	77	0.32	0.090	0.318		
1994							
1995-	236	77	0.33	-0.083	0.230		
2000							

Table 1: Incidence of Conflict (1970-2000)

Source: Total incidence of conflict from UCDP/PRIOR Armed Conflict Dataset

Average Conflict is the simple average of the variable CONFLICT (see section 3.1)

	Po	lity	Corru	ption	Accountability		Governance	
Year	Non-	OIC	Non-	OIC	Non-	OIC	Non-	Both-
	OIC		OIC		OIC		OIC	OIC
1970-	-1.34	-6.38						
74								
1975-	-0.96	-6.08						
79								
1980-	-0.24	-6.07						
84								
1985-	0.72	-5.94	3.57	2.59	3.76	2.38	-0.49	-2.59
89								
1990-	3.82	-4.11	3.78	2.73	3.89	2.63	0.16	-1.67
94								
1995-	4.89	-2.95	3.63	2.56	4.41	2.52	0.95	-1.18
00								

Table 2: The Average of Institutional and Governance Quality
Index for OIC and non-OIC members for different time period

Source: Polity- Polity IV Project: Political Regimes Characteristics and Transitions: 1800-2004Corruption-ICRGS Accountability-ICRGS Governance is the average for variable *GOV* (see Section 3.1)

2.2 OIC Members' Trade

Figure 1 shows the evolution of OIC members' share of exports, imports and population as a percentage of worldwide figures. Except for a period in the 1970s and 1980s that saw high oil prices, OIC members' share of world exports and imports have hovered around 6 per cent. However, disproportionate to their share of worldwide exports and imports, the OIC members' share of world population has been increasing,⁸ putting more pressure on their economies. In term of intra-OIC trade, it only accounts for less than 12 per cent of OIC members' global trade—far less than intra-Association of Southeast Asian Nations (ASEAN) and intra-European Union (EU) trade, which has accounted for 23 and 70 per cent of their global trade, respectively. On the positive side, the small share of OIC exports and imports and small volume of intra-OIC trade

⁸ Population share for the non-OIC developing countries has also increased, but at a much slower rate; it has settled at around 64 per cent.

point to huge potentials for OIC members to strengthen their trade relations among fellow OIC members and non-OIC countries alike.





Source: WDI (2003)

As with studies of OIC international trade volumes, empirical studies on OIC members' international trade as a group are also scant. However, Ekholm, Torstensson and Torstensson (1996), Al Atrash and Yousef (2000), Makdisi, Fattah and Limam (2005), Mohd. Amin, Hamid and Md. Saad (2005), and Nugent and Miniesy (2006) have focused on the Middle East and North African (MENA) region, which comprises the bulk of OIC's members. These studies show that trade volumes for countries in these regions are small, and identify the low level of trade-related services, a lack of trade information, the existence of tariff and non-tariff barriers, and existing trade structures (among others) as impediments to regional cooperation and trade. These countries' unstable and narrow export bases also offer little encouragement to potential regional partners in terms of establishing long-term economic relations. Furthermore, these OIC members' dependence on non-OIC

countries for exports and imports also tends to marginalize their relationships with other OIC members.

Using cross-sectional data for 13 industrial and 11 developing countries in 1989, Ekholm, Torstensson and Torstensson (1996) argue that the potential for trade growth within the MENA region, even with the more peaceful countries, and the EU is small. Al Atrash and Yousef (2000), who employ the Tobit procedure instead of ordinary least squares (OLS), given that some countries are not trading with each other, provide a more comprehensive study (i.e., involving 18 Arab and 43 non-Arab countries, for the years 1995–97). They show that the effects of membership in the Arab Maghreb Union (AMU) and the Gulf Cooperation Council (GCC) on trade are negative, which is markedly different from estimates for other free trade agreements (FTA). Using cross-country regressions, Makdisi, Fattah and Limam (2005) show that trade openness⁹ has a significant and positive impact on growth for many countries, yet for MENA countries, the effect has been smaller. Mohd. Amin, Hamid and Md. Saad (2005) analyze the extent of economic integration among five members of the League of Arab States (LAS) and include five of their major trading partners; they show that the LAS economic grouping has not been effective in generating trade growth, indicating a failure of its members to institute integrative measures. Finally, Nugent and Miniesy (2006) show that regardless of specification and estimation procedures, MENA countries are found to trade less than predicted by way of the gravity model.

2.3 Trade and International Organizations

Recently, the roles of international organizations—especially the World Trade Organization (WTO)—in promoting international trade have received the attention of a number of authors. Using the traditional augmented gravity model, Rose (2004) provides evidence that the WTO does not improve international trade volume.¹⁰ Using a similar model and the same dataset (i.e., IMF Direction of Trade Statistics),

⁹ Some authors argue that the effect of trade openness on growth has been grossly exaggerated, even outside of MENA (see Rigobon and Rodrik, 2004). Others have argued that the failure to attract foreign direct investment is in part attributable to the slow pace of trade growth (especially outside of mineral-based trade), and that both failures are related to a lack of openness (World Bank, 2004).

¹⁰ The study shows that the coefficients for the WTO dummies range from negative to positive. The coefficients are mostly positive, but the positive coefficient is small. Even though it is statistically significant, it is not economically significant.

Subramaniam and Wei (2003) and Tomz, Goldstein and Rivers (Forthcoming) show that the WTO does improve trade if some modifications are made to the sample and the specifications of the gravity models, and if the definition of WTO membership is altered. Meanwhile, Kim (2006) and Denzau and Kim (2006) use the UN COMTRADE dataset to re-estimate the model used by Rose; those two studies show that the WTO does improve trade if the oil, agriculture, and textile sectors are exempted. Meanwhile, Hess and Blomberg (2006) add the dummies for conflict to Rose's model-and show that conflict is a key hindrance to trade-but the addition of the conflict dummies does not significantly change the coefficient for the other variables. Lissovolik and Lissovolik (2006) look into the issue of "outsider" status in the WTO; they show that exports from Russia, a non-member of the WTO, fell short of those predicted via their model. Hence, it might be said that Russia's lack WTO membership may negatively affect that country's trade volume. Only Leeson (2005) agrees with Rose, that the impact of international organization on trade is minimal; he shows that the convention that creates state enforcement for private commercial agreements in the international arena-the United Nations New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards—does not significantly affect international trade.

These studies show that international organizations are important and can positively affect trade among nations, but their effects can also be negligible; the OIC, given the right conditions, can actively work with the market to improve trade among and with its members.

3. Empirical Model

3.1 Gravity Model of Trade

We use the "traditional" and "theoretical" gravity models of international trade to estimate the effects of OIC membership on trade volume. The hypotheses concerning the importance of trade, especially exports, to economic growth have been popular, but the relationship therein remains very controversial, because the construction of tests *vis-à-vis* the impact of trade on income growth has been subject to simultaneity and causality problems. For example, a survey of 150 articles on the effect of trade on economic growth by Giles and Williams

(2000a, 2000b) concludes that results based on standard causality techniques are not robust in terms of specifications and methods. The gravity model received considerable attention in international trade, because it permits a measure of openness to trade that is not dependent on potentially endogenous variables. Endogeneity arises because exports and/or imports depend heavily on tariff rates and quotas, which are also variables that could depend on levels of trade flow. The gravity model is also attractive because it is consistent with the underlying theoretical micro-foundations (Bergstrand, 1985). It has demonstrated its applicability to many different countries and regions, its robustness over time, and its applicability to various specifications (Leamer and Levinshon, 1995).

3.2 Specification, Data and Results

Two specifications of the gravity model are used: the augmented "traditional" and the augmented "theoretical"¹¹ gravity model. The specification for the traditional model is:

(1)

$$\ln\left(Trade_{ij}\right)_{t} = \alpha + \gamma_{1}BothOIC + \gamma_{2}OneOIC + \beta Z_{ijt} + \chi X_{ij} + \phi T + \varepsilon_{ijt}$$

The dependent variable, *Trade*, is the average value of bilateral trade between a pair of countries. *i* and *j* denote country *i* and country *j*, respectively. The nominal value of bilateral trade is deflated using U.S. CPI for all urban consumers. *BothOIC* is a dummy that is equal to one if both countries are OIC members, and zero otherwise. *OneOIC* is a dummy that is equal to one if at least one of the trading countries is an OIC country, and zero otherwise. *Z* is a vector of variables (e.g., the product of GDP) that vary over time and across trading partners. *X* is a vector of variables that do not vary over time, such as the distance between the two trading partners. *T* is a comprehensive set of time-fixed effects, and ε_{ijt} is the error term. The variables are further outlined in Table 3.

¹¹ The original intention in using the theoretical equation was to measure how much does the participation in OIC tax trade. However, OIC membership had a surprisingly positive effect when the theoretical equation is used; hence we only compare the coefficients from the two slightly different equations.

1. Trade	Log Average real bilateral trade between country <i>i</i> and country <i>j</i> .
2. OneOIC	1 if only one of the trading partners is an OIC country and 0 otherwise.
3. BothOIC	1 if both countries are OIC member countries and 0 otherwise.
4. Product Real GDP	Log Product of the real value of Gross Domestic Product for country <i>i</i> and <i>j</i> .
5. Log Product Real	Log Product of the real value of Gross Domestic Product per
GDP/Capita	capita for country <i>i</i> and <i>j</i> .
6. One in GATT/WTO	1 if one of the countries is in the GATT/WTO and 0 otherwise.
7. Both in GATT/WTO	1 if both of the countries are in the GATT/WTO and 0 otherwise.
8. GSP	1 if both countries are a part of a General System of Preferences (GSP) and 0 otherwise.
9. Distance	Log Great circle distance between country <i>i</i> and country <i>j</i> .
10. Product Land Area	Log Product of the area of the two countries.
11. Number Landlocked	Number of landlocked countries in the pair (0, 1, or 2)
12. Land Border	1 if country <i>i</i> and <i>j</i> share a border and 0 otherwise.
13. Common Language	1 if country <i>i</i> and <i>j</i> share an official language and 0 otherwise
14. Regional FTA	1 if <i>i</i> and <i>j</i> belong to a Regional Trading Agreement 0 otherwise.
15. Colonizer _{ij}	1 if <i>i</i> and <i>j</i> shared the same colonizer in or after 1945 and 0 otherwise.
16. Colonial _{ij}	1 if country <i>i</i> colonized country <i>j</i> or vice versa and 0 otherwise.
17. Common Country	1 if <i>i</i> and <i>j</i> remained part of the same nation during the sample (e.g., France and Guadeloupe) and 0 otherwise.
18. Number Islands	Number of island nations in the pair $(0, 1, \text{ or } 2)$,
19. Governance	Linear combination of institutional and governance quality variables.
20. Conflict	Linear combination of incidence of conflicts variables.
21. ε_{ii}	Error term assumed to be well behaved

Table 3: Explanations of Variables Used in (1) and (2)

Except that for the incidence of conflicts (*CONFLICT*) and institutional and governance quality (*GOV*) variables, the data in Table 3 are from Rose (2004). That data provide 234,597 dyadic observations (zero trade volume is not included) from 1948 to 1999. The data for conflict¹² are from the Uppsala Conflict Data Program/International Peace Research Institute (UCDP/PRIOR) Armed Conflict Database and the Political Instability Task Force (PITF). The data for institutional and governance¹³ quality are from the CIDCM Polity IV Project, and the

¹² Uppsala Conflict Data Program (UCDP): www.ucdp.uu.se

International Peace Research Institute, Oslo (PRIO): www.prio.no

Political Instability Task Force (PITF): globalpolicy.gmu.edu/pitf/

¹³ Center for International Development and Conflict Management (CIDCM): www.cidcm.umd.edu/polity International Country Risk Guide (ICGR):www.prs.com

International Country Risk Guide (ICGR) researcher dataset produced by The Political Risk Services (PRS) Group Inc. However, the coverage for the ICGR data is from 1984, which limits a number of regressions to start from 1984.

Since the data are derived from different sources, the definitions for "conflict" and "governance" used also differ; the different measures are therefore combined to create one "conflict" and one "governance" variable. The measures for *CONFLICT* and *GOV* are created by using the principle components model. The variable *CONFLICT* is obtained from the largest principle components, which is a linear combination of "revolutionary" and "ethnic" conflict as defined by the PITF, and "conflict" as defined by the UCDP/PRIOR.

The PITF defines "revolutionary conflict" as conflict between the government and politically organized groups that seek to overthrow those in power; the groups may include political parties, labor organizations or parts of the regime itself. For these internal conflicts to be considered, more than 1,000 individuals had to have been mobilized and 100 fatalities must have occurred. "Ethnic conflict" is defined as including the execution (and/or consent) of sustained policies by governing elites or their agents that result in the deaths of a substantial portion of a communal group (i.e., genocide) or a politicized non-communal group (i.e., politicide). Meanwhile, UCDP/PRIOR defines conflict as:

"a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths." (Harbom et al., 2006: 4)

Similarly, *GOV* is a linear combination of different measures of institutional and governance quality. The measures used are the polity index from the CIDCM Polity IV Project and the ICRGS components of political risk. The political risk components used are democratic accountability, corruption, bureaucracy, rule of law, regulatory quality, and government effectiveness following Kaufmann, Kraay and Zoido-Laboton (2002) suggestion.

The coefficients of main interest (i.e., the effects of OIC membership) are γ_1 and γ_2 . The first coefficient, γ_1 measures the effect of OIC membership on trade when both countries are in the OIC; the second coefficient, γ_2 measures the effect of OIC membership on trade when only one of the two countries is in the OIC. If membership in the OIC is associated with enhanced trade volumes, then γ_1 should be positive and larger than γ_2 , since membership would be associated with increased trade and would result in a higher coefficient than the coefficient of trade with non-OIC countries.

3.3 Traditional Model

As a benchmark, the model is estimated using the simple OLS on the pooled data set, and we compute standard errors that are robust to clustering. The regressions also include year-specific effect. Subramanian and Wei (2003) criticize this estimation technique, as it does not take into account country-specific fixed effects; instead of using country-specific effects in the benchmark regressions, we use dyadic (country-pair-specific) fixed effects, which account for all time-invariant factors that affect trade between two countries. The country-specific effects estimates account only for time-invariant national factors.

Table 4 provides the benchmark results. Column 1 shows the default result from Rose: both of the dummies for WTO membership are negative but not statistically significant, and the sign for the other variables are as predicted by the gravity model. Column 2 provides the result when the two OIC membership dummies are added to the default regression; it shows that the coefficients for both of the OIC membership dummies are negative and statistically significant; furthermore, the addition of the dummies changes neither the sign nor the statistical significance of the other variables. The negative coefficients suggest that OIC membership reduces trade: the coefficient of -0.257 for γ_1 means that two countries with OIC membership each reduce trade by (e^{-0.257}-1) 22.6 per cent, and if only one country is a member of the OIC, trade is reduced by (e^{-0.220}-1) 19.75 per cent.

Since Figure 1 shows that OIC members' share of exports and imports were larger in the 1970s and early 1980s, I divide the sample into two time periods, post-1985 and the period between 1970 and 1985. Columns 3 and 4 show that even after dividing for the two periods, the effects of OIC membership on trade volume are still found to be negative. Columns 5 and 6 report the results when the random and the fixed effects are used. The panel data approaches changed the sign for the WTO membership coefficients but not the coefficients for OIC membership. The changes in sign point to the importance of the dyadspecific effect and sensitivity of the results to different specifications, as suggested by the literature on the effects of international organizations on trade. The coefficient of 0.116 for both in the WTO dummy means that for a pair of countries that are members of the GATT/WTO, trade is (e^{0.116}-1) 12.3 per cent greater than for a pair of countries that are not members of GATT/WTO. Given the significant change for the WTO dummies when the fixed and random effects are used, Table 5 reports the results when the data is divided into two periods and the random and fixed effects are used. However, the coefficients for OIC membership remain negative and statistically significant, even after these divisions are made. These results strengthen previous results, which suggest that OIC membership reduces trade, notwithstanding the time period involved.

	1	2	3	4	5	6
	Default	Default	1970-	Post	Dyadic	Dyadic
	Rose	with	1985	1985	Random	Fixed-Effect
	(2004)	OIC		-,	-Effect	
Both in OIC	()	-0.257*	-0.557*	-0.188*	-0.207*	-0.120*
		(0.072)	(0.091)	(0.085)	(0.030)	(0.031)
One in OIC		-0.220*	-0.132*	-0.331*	-0.249*	-0.177*
		(0.034)	(0.042)	(0.039)	(0.014)	(0.014)
Both in GATT/WTO	-0.042	-0.086	-0.206*	-0.080	0.098*	0.116*
	(0.053)	(0.053)	(0.074)	(0.070)	(0.018)	(0.019)
One in GATT/WTO	-0.058	-0.078	-0.106	-0.133	0.030 *	0.059 *
	(0.050)	(0.048)	(0.072)	(0.095)	(0.016)	(0.016)
GSP	0.858*	0.835*	0.832*	0.771*́	0.286*	0.170*
	(0.032)	(0.032)	(0.039)	(0.036)	(0.012)	(0.013)
Log Distance	-1.120 [*]	-1.141 [*]	-1.184 [*]	-1.301*	-1.345*	
8	(0.022)	(0.022)	(0.028)	(0.026)	(0.025)	
Log Product Real GDP	0.916*	0.913*	0.905*	0.982*	0.892*	0.491*
8	(0.010)	(0.010)	(0.012)	0.011	(0.009)	(0.019)
Log Product Real	0.321*	0.316*	0.362*	0.271*	-0.020*	0.188*
GDP/Capita	(0.014)	(0.014)	(0.018)	(0.016)	(0.010)	(0.018)
Regional FTA	1.120*	1.082*	1.074*́	0.858*	0.857*	0.746*́
5	(0.106)	(0.106)	(0.143)	(0.121)	(0.039)	(0.040)
Currency Union	1.118*	1.130 [*]	ì.115*	1.422*	0.556*	0.607*
5	(0.122)	(0.123)	(0.166)	(0.177)	(0.048)	(0.050)
Common Language	0.312*	0.305*	0.318*́	0.366*	0.262*	
0 0	(0.040)	(0.040)	(0.050)	(0.050)	(0.051)	
Land Border	0.526*	0.492*	0.582*	0.720*	0.603*	
	(0.111)	(0.111)	(0.130)	(0.128)	(0.129)	
Number Landlocked	-0.271*	-0.303*	-0.260*	-0.410*	-0.555*	
	(0.031)	(0.031)	(0.041)	(0.037)	(0.034)	
Number Islands	0.042	0.007	0.029	-0.052	0.145*	
	(0.036)	(0.036)	(0.044)	(0.041)	(0.042)	
Log Product Land Area	-0.097*	-0.090*	-0.092*	-0.100*	-0.067*	
-	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	
Common Colonizer	0.585*	0.644*	0.640*	0.560*	0.222	
	(0.067)	(0.068)	(0.082)	(0.082)	(0.065)	
Currently Colonized	1.075*	1.092*	1.178*	0.267*	0.290*	0.305*
-	(0.235)	(0.234)	(0.416)	(0.130)	(0.087)	(0.087)
Ever Colony	1.164*	1.160*	1.398*	1.176*	2.100*	
	(0.117)	(0.118)	(0.118)	(0.122)	(0.169)	
Common Country	-0.016	-0.014	-0.265	0.309	1.214	
-	(1.081)	(1.072)	(1.103)	(0.706)	(1.332)	
Observations	224507	224507	80552	08512	224507	224507
D D Servations D^2	234391	234397	05332	90313	234391	234397
ĸ	0.048	0.049	0.041	0.057	0.012	0.524

 Table 4: Traditional Gravity Model- Equation (1)

Regressand: log real trade. OLS with year effects (intercepts not reported). Robust standard errors (clustering by country pairs) in parentheses. *: Values significant at 5% level.

	Dya Randon	7 adic n Effects	8 Dyadic Fixed Effects			
Year	1970-85	1986-99	1970-85	1986-99		
Both in OIC	-0.472* (0.050)	-0.430* (0.068)	-0.353* (0.057)	-0.163		
One in OIC	-0.136* (0.026)	-0.535* (0.035)	-0.055* (0.030)	-0.140* (0.056)		

Fable 5: Traditional	Gravity	Model-	Grouped k	y Year
	•/			•/

*: Values significant at the 5 percent level.

OLS with year effects (intercepts not reported).

Regressors not recorded: regional FTA; currency union; log distance; log product real GDP; log product real GDP per capita; common language; land border; number landlocked; number islands; log product land area; common colonizer; currently colonized; ever colony; and common country.

Tables 1 and 2 show that OIC members are more prone to conflict, and their institutional and governance quality are below the world average. Hence, in Table 6, variables for governance quality and conflict are introduced into the model. The dyadic random and fixed effects are used, in order to test whether these two factors are the main reasons behind the limited amount of trade experienced by OIC members. Dyadspecific effects are used because of their importance, as shown in Table 4. Unfortunately, the introduction of these two variables reduces the number of observations, because the data for governance quality are available only from 1984. (All of the regressions which include conflict and governance quality are from 1984 through 1999.) Table 6 shows that the addition of the governance and conflict variables changes neither the sign nor the statistical significance of the OIC membership dummies, again suggesting that OIC membership reduces trade volume. Hence, we can conclude by using the traditional model, that the effect of OIC membership on trade is negative.

	R	andom Effe	et	Fixed Effect			
	K		- 11	12			
	9 Gov	10 Conflict	11 Both	12 Gov	13 Conflict	14 Both	
Governance	0.334^{**}		0.329^{**}	0.156^{**}		0.150^{**}	
Conflict	(0.012)	-0.059** (0.005)	-0.013**	(0.011)	-0.035** (0.005)	-0.014**	
Both in OIC	-0.200** (0.075)	-0.422** (0.064)	-0.207** (0.075)	-0.137 (0.106)	-0.169* (0.095)	-0.154 (0.107)	
One in OIC	-0.377** (0.043)	-0.480** (0.033)	-0.384*** (0.043)	-0.276** (0.060)	-0.142** (0.051)	-0.289*** (0.061)	
Both in GATT/WTO One in GATT/WTO GSP	-0.040 (0.053) -0.079 (0.050) 1.083**	0.147** (0.038) 0.076** (0.036) 1.023**	-0.047 (0.053) -0.083* (0.050) 1.083**	-0.038 (0.057) -0.098* (0.052) 0.312**	$\begin{array}{c} 0.078^{*} \\ (0.042) \\ 0.026 \\ (0.038) \\ 0134^{**} \end{array}$	-0.048 (0.057) -0.104** (0.052) 0.310**	
Log Distance	(0.050) -1.343** (0.043)	(0.039) -1.450** (0.029)	(0.050) -1.343** (0.043)	(0.074)	(0.053)	(0.074)	
Log Product Real GDP Log Product Real	(0.043) 1.019^{**} (0.019) -0.417^{**} (0.021)	(0.029) 1.019^{**} (0.012) -0.408^{**} (0.015)	(0.043) 1.022^{**} (0.019) -0.422^{**} (0.021)	0.827** (0.077) -0.651** (0.073)	0.595** (0.060) -0.454** (0.058)	0.837** (0.077) -0.663** (0.073)	
GDP/Capita Regional FTA	0.207^{**}	0.413^{**}	0.208^{**}	0.291^{**}	0.293^{**}	0.292^{**}	
Currency Union	(0.074) 0.549^{**} (0.244)	(0.071) 0.640^{**} (0.181)	(0.074) 0.561^{**} (0.244)	(0.073) -0.464 (0.343)	(0.076) 0.788^{**} (0.275)	(0.073) -0.436 (0.343)	
Common Language Land Border	0.467** (0.078) 0.795**	0.245** (0.058) 0.712**	0.466** (0.078) 0.796**	(0.0.10)	(0.270)	(0.0.13)	
Number Landlocked Number Islands	(0.191) -0.669** (0.061) 0.171** (0.071)	(0.148) -0.725** (0.040) 0.139** (0.040)	(0.191) -0.674** (0.061) 0.175** (0.071)				
Log Product Land Area Common Colonizer	(0.071) -0.187** (0.016) -0.056* (0.030)	(0.049) -0.159** (0.010) -0.095** (0.023)	-0.188** (0.016) -0.056* (0.030)				
Currently Colonized Ever Colony	1.314** (0.226)	$\begin{array}{c} 0.441 \\ (0.811) \\ 1.885^{**} \\ (0.192) \\ 1.455 \end{array}$	1.315** (0.225)		-0.027 (0.836)		
Country		(1.727)					
Observations	55912 0.610	110803	55912	55912 0.302	110803	55912	

Table 6: Traditional Gravity Model with Dyadic Random and FixedEffects after the Addition of Polity and Conflict Variables

Notes: Year effects are not reported

3.4 Theoretical Model

In solving the McCallum (1995) border puzzle,¹⁴ Anderson and van Wincoop (2003) argue that the traditional empirical gravity equations do not have a theoretical foundation,¹⁵ that the estimations suffer from omitted variable bias and that a comparative static analysis is unfounded. Thus, as an alternative to the traditional gravity equation, we also estimate the effects of OIC membership by using the Anderson and van Wincoop (2003) theoretical gravity model of international trade. The specification for the theoretical model is:

(2)

$$\ln\left(\frac{Trade_{ij}}{Y_{i}Y_{j}}\right)_{t} = \alpha + \gamma_{1}BothOIC + \gamma_{2}OneOIC + \beta Z_{ijt} + \chi X_{ij} + \phi T + \varepsilon_{ijt}$$

The dependent variable in (2) is the natural log of the average bilateral trade over the product of GDPs. The theoretical model is estimated using country dummies to control for the multilateral resistance terms (see Anderson and van Wincoop: 2003, and Feenstra: 2004). The difference between (1) and (2) is that the theoretical gravity equation restricts the coefficient for the product of GDP in (1) to equal one, and the coefficient for the product of GDP per capita in (1) to equal zero. Table 7 reports the regression results from model (2). Unlike in previous results, the sign for the OIC variables is positive, but not all of the OIC coefficients are statistically significant. The contradictions again point to the differences in conclusion on the literature on the effects of international organizations on trade, where changes to the specifications and definitions of WTO membership can significantly change the results. However, since the dependent variable is trade per GDP, it is not surprising that the effect of OIC membership on trade volume is positive or not significant. As mentioned in Section 2, even though the OIC

¹⁴ McCallum (1995) found that the U.S.-Canada border led to trade between provinces that was a factor of 22 (i.e., 2,200 per cent) times greater than the trade between American states and Canadian provinces—a spectacular puzzle, in light of the low formal barriers on this border. Anderson and van Wincoop (2003) show that national borders reduce trade between industrialized countries by moderate amounts of 20–50 per cent.

cent. ¹⁵ "Contrary to what is often stated, the empirical gravity equations do not have a theoretical foundation" (Anderson and van Wincoop, 2003). This statement contrasts with the claims made by previous studies on empirical gravity equation.

members' share of worldwide trade is relatively small, their share of worldwide GDP is smaller still; thus, their ratio of trade-to-GDP is greater than the world average. For this reason, OIC membership does not reduce the share of trade-to-GDP for its members.

	Country-Specific				Fixed				
		Eff	ects			Eff	ects		
	15	16	17	18	19	20	21	22	
		Gov	Conflict	Both		Gov	Conflict	Both	
Governance		0.216**		0.225**		0.208**		0.213**	
		(0.028)		(0.028)		(0.014)		(0.014)	
Conflict			0.005	0.021			-	0.011*	
			(0.012)	(0.013)			0.014**	(0.006)	
	0.001.000	0.105	0.005444	0.1.1.1	0.051.000	0.400.0	(0.006)	0.40.64	
Both in OIC	0.321**	0.125	0.325**	0.144	0.2/1**	0.183*	0.257**	0.196*	
	(0.123)	(0.150)	(0.122)	(0.149)	(0.097)	(0.109)	(0.097)	(0.109)	
One in OIC	0.194*	0.060	0.198**	0.079	0.131**	-	0.119**	-	
	(0.100)	(0.128)	(0.100)	(0.128)	(0.052)	0.201**	(0.052)	0.191**	
						(0.062)		(0.062)	
Both in	0.223**	0.052	0.225**	0.064	0.157**	0.093*	0.151**	0.100*	
GATT/WTO	(0.091)	(0.124)	(0.091)	(0.125)	(0.043)	(0.057)	(0.043)	(0.057)	
One in	0.057	0.005	0.058	0.011	0.106**	0.029	0.103**	0.033	
GATT/WTO	(0.085)	(0.120)	(0.086)	(0.120)	(0.040)	(0.053)	(0.039)	(0.053)	
GSP	0.794**	0.708**	0.794	0.709**	0.200**	0.387**	0.198**	0.388**	
	(0.041)	(0.051)	(0.041)	(0.052)	(0.054)	(0.076)	(0.054)	(0.076)	
Log	-	-	-	-					
Distance	1.548**	1.502**	1.548**	1.503**					
	(0.028)	(0.039)	(0.028)	(0.039)					
Regional	0.558**	-0.101	0.557**	-0.101	0.073	-0.083	0.073	-0.083	
FTA	(0.134)	(0.171)	(0.134)	(0.172)	(0.078)	(0.077)	(0.078)	(0.077)	
Currency	1.257**	1.586**	1.257**	1.583**	0.976**	0.090	0.992**	0.065	
Union	(0.178)	(0.314)	(0.178)	(0.314)	(0.282)	(0.353)	(0.282)	(0.353)	
Common	0.315**	0.403**	0.315**	0.403**					
Language	(0.056)	(0.072)	(0.056)	(0.072)					
Land Border	0.448**	0.432**	0.448**	0.431**					
	(0.121)	(0.151)	(0.121)	(0.151)					
Number	-	-	-	-					
Landlocked	1.049**	0.661**	1.052**	0.712**					
	(0.255)	(0.325)	(0.255)	(0.325)					
Number	1.673**	0.525**	1.668**	0.518**					
Islands	(0.419)	(0.231)	(0.420)	(0.231)					
Log Product	0.163**	-	0.162**	-					

 Table 7: Theoretical Gravity Model

Land Area	(0.043)	0.080** (0.025)	(0.043)	0.080** (0.025)				
Common	0.656**	0.553**	0.656**	0.554**				
Colonizer	(0.076)	(0.116)	(0.077)	(0.116)				
Currently	-		-		0.612			
Colonized	0.932**		0.930**		(0.859)			
	(0.141)		(0.141)					
Ever Colony	1.309**	1.040**	1.310**	1.041**				
	(0.121)	(0.135)	(0.121)	(0.135)				
Common	1.951**		1.951**					
Country	(0.318)		(0.318)					
Observations R ²	110803	55912 0.469	110803 0.436	55912 0.469	110803	55912	110803	55912

Notes: Country specific and year fixed effects are not reported

5. Conclusion

OIC members are prone to conflict and their average institutional quality is below that of non-OIC countries. As there is a negative relationship between conflict and trade, and a positive relationship between institutional quality and trade, we expect these variables to dampen the statistical significance of the effects of OIC membership. However, the tests of whether or not OIC membership reduces trade volumes provide contradictory results. The signs for the OIC membership dummies change from negative to positive when the "traditional" and "theoretical" models are used. Furthermore, the addition and exclusion of the conflict and institutional variables do not significantly change the coefficients.

Even though the two different models provide contradictory results, since the theoretical model is based on a more solid theoretical framework, we conclude that an OIC membership does not reduce trade. OIC members' aggregate trade volume is small because their GDPs are small. In fact OIC members' world trade share is larger than their share of world GDP.

To increase trade volume, the OIC members need to improve their institutional and governance quality. The OIC members also need to reduce the incidence of conflicts within their border. The conflicts experienced within many OIC members' borders are related to many

factors, including those related to political system; for this reason, such systems must move in a direction that reduces the incentive for conflict, if an increase in overall trade is to be realized.

References

Al Atrash, H. and Yousef, T. (2000), "Intra-Arab trade: Is it too little?" IMF Working Paper 00/10, IMF.

Alston, R.M., Kearl, J.R. and Vaughn, M.B. (1992), "Is there a Consensus Among Economists in the 1990's ?" *American Economic Review*, 82, 203-209.

Anderson, J. and van Wincoop, E. (2003), Gravity with Gravitas: A Solution to the Border Puzzle," *American Economic Review*, 93, 170-192.

Blomberg, B. and Hess, G. (2006), "How Much Does Violence Tax Trade?" *Review of Economics and Statistics*, 88, 599-612.

Denzau, A. and Kim, M.H. (2006), "The WTO Does Promote Trade," Working Paper Claremont Graduate University.

Ekholm, K., Torstensson, J and Torstensson, R. (1996), "The economics of the Middle East Peace process: Are there prospects for trade and growth?" *World Economy*, 19, 555-574.

Frankel, J. and Romer, D. (1999), "Does Trade Cause Growth?" *American Economic Review*, 89, 379-399.

Giles, J.A. and Williams, C.L. (2000), "Export-Led Growth: A Survey of the Empirical Literature and Some Noncausality Results, Part 1," *Journal of International Trade and Economic Development*, 9, 261-337.

Giles, J.A. and Williams, C.L. (2000) "Export-Led Growth: A Survey of the Empirical Literature and Some Noncausality Results, Part 2," *Journal of International Trade and Economic Development*, 9, 445-470. Harbom, L., Hogbladh, S., Buhaug, H., Carlsen, J. and Ormhaug, C. (2006), UCDP/PRIO Armed Conflict Dataset Codebook, UCDP/PRIOR.

Kaufmann, D., A. Kraay and P. Zoido-Lobaton (1999), "Governance Matters," Policy Research Working Papers no. 2196, World Bank.

Kaufmann, D., A. Kraay and P. Zoido-Lobaton (2002), "Governance Matters II," Policy Research Working Papers no. 2772, World Bank.

Kim, M.H. (2006) "Does WTO Promote Trade: Further Evidences," Working Paper, Claremont Graduate University.

Kuran, T. (2004), Islam and Mammon: The Economic Predicaments of Islamism, Princeton, NJ: Princeton University Press.

Leeson, T. (2005), "How Important is State Enforcement for Trade," Working Paper 65, Mercatus Center.

Lissovolik, B. and Lissovolik Y. (2004), "Russia and the WTO: The Gravity of Outsider Status," *IMF Staff Papers*, 53, 1-27.

Marshall, M.G. and Jaggers, K. (2005), "Polity IV Project: Dataset Users' Manual," Center for Global Policy, School of Public Policy George Mason University.

Mayda, A. M. & Rodrik, D. (2005), "Why are some people (and countries) more protectionist than others?" *European Economic Review*, 49, 1393-1430.

Mohd. Amin, R., Hamid, Z., and Md. Saad, N. (2005), "Economic Integration Among the Members of the League of Arab States: An Empirical Evidence," *Journal of Economic Cooperation*, 26, 77-102.

Nugent, J and Mineisy, R. (2005), "Are There Shortfalls in MENA Trade? If So What Are Their Sources And What Should Be Done About Them?" Economic Research Forum 12th Annual Conference.

Rose, A. (2004), "Do we really know that the WTO increase trade?" *American Economic Review*, 94, 98-114.

Subramaniam and Wei, (2003), "The WTO Promote Trade Strongly but Unevenly," NBER Working Paper Series 10024.

Tomz, M., Goldstein, J., and Rivers, D (Forthcoming) "Membership Has Its Privileges: The Impact of GATT on International Trade," *American Economic Review*.

Whaples, R. (2006) "Do Economists Agree on Anything? Yes!" *The Economists' Voice*, 3 (9), Article 1.