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Why Can't MENA Countries Trade More?

The Curse of Bad Institutions

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Abstract

This paper explores the relationship between institutions and trade in the Middle East and North Africa (MENA) region. The literature offers a broad consensus that bad institutions hamper trade and that trade liberalization engenders institutional reforms; however, MENA has generally been neglected in this literature, even though most countries in the region suffer from a clear deficit of “good” institutions. Taking into account the inverse relationship between institutions and trade, we use a gravity model that explains bilateral trade for disaggregated goods and service sectors for 21 MENA countries over the period 1995-2014. Our results show that in the presence of excessive zero trade observations, poor institutions can be considered as fixed export costs that help explain the zero probability of trade for some countries. We find that institutions do matter for trade after controlling for the endogeneity problem between institutions and trade.

Résumé

Cet article examine la relation entre les institutions et le commerce dans la région du Moyen-Orient et de l’Afrique du Nord (MENA). La littérature a conclu que les mauvaises institutions entravent le commerce et que la libéralisation des échanges engendre des réformes institutionnelles. Cependant, la région MENA a été généralement négligé dans cette littérature, même si la plupart des pays de la région souffrent d’un problème de « bonnes » institutions. Compte tenu de la relation inverse entre les institutions et le commerce, nous utilisons un modèle de gravité qui explique le commerce bilatéral des biens et services ventilés pour 21 pays de la région sur la période 1995-2014. Nos résultats montrent que, en présence d’un nombre excessif de zéros dans les données du commerce international, les institutions pauvres peuvent être considérées comme étant un coût fixe à l’exportation, ce qui explique la probabilité du commerce de valeur nulle pour certains pays. Nous trouvons ainsi que les institutions ont un impact significatif sur le commerce après avoir contrôlé le problème d’endogénéité entre ces deux variables.

1. Introduction

“Institutions are the rules of the game in a society” (North 1990, p.3). They shape the framework that facilitates economic transactions, hence reducing the uncertainty associated with such transactions.

International trade involves a large number of uncertainties. Trading partners are often located far from each other and operate in different jurisdictions, different currencies, and different languages. To decrease the uncertainty associated with international trade, trading partners sign an agreement and the institutional framework of both partners governs the enforcement of this contract. Thus, the security of international exchange depends on the strength of institutions. High quality institutions are expected to reduce transaction costs and thus have a positive effect on international trade. Inefficient institutions, on the other hand, can hamper trade: corruption, inadequate information about international trading opportunities, and imperfect contract enforcement dramatically increase transaction costs associated with international trade. Higher transaction costs harm the international competitiveness of domestic exporters and raise the final consumer price of imported goods.

This paper explores the relation between institutions and trade in the context of the Middle East and North Africa (MENA) region. The quality of institutions in MENA countries is poor, with red tape and the proliferation of laws and regulations creating multiple opportunities for corruption. In addition to concerns about the quality of the region’s administration, there are also serious concerns about the quality of MENA’s political institutions such as political rights, civil liberties, and freedom of the press. These deficiencies have been highlighted as being responsible for the region’s slow economic activity (Nabli, 2007). However, and surprisingly, data from the World Development Indicators (2014) show that in 2012, the share of trade¹ in MENA’s gross domestic product (95 percent) was higher than other regions, including developed regions like North America (33 percent) and developing regions like Africa south of the Sahara (66 percent).

The literature regarding trade and institutions (Chong et al., 2000; Acemoglu et al., 2001; Alcalá and Ciccone, 2004; Dollar and Kraay, 2002; Hall and Jones, 1999; Rodrik, 2000; Rodrik et al., 2002, etc.) has typically been more focused on the role that good institutions and trade openness play in explaining economic growth. The conclusion stemming from the literature is that causality runs in all possible directions. First, good institutions matter for long-term growth and improved productivity. Second, accelerated growth and higher trade openness enhance the demand for a better institutional framework. Third, economic growth and good institutions enhance trade openness. Recently, a couple of empirical studies started to investigate the direct impact of institutions on trade. Anderson and Marcouiller (2002) use survey data from the World Economic Forum on contractual enforcement and corruption as an index of institutional quality. The results of their gravity model show that inadequate institutions constrain trade as much as tariffs do. The authors

¹ Share of trade to GDP is the sum of exports and imports to GDP.

argue that cross-country variation in the effectiveness of institutions, and consequent variation in the prices of traded goods, offer a simple explanation of the stylized fact that high-income, capital-abundant countries trade disproportionately with each other. Rauch and Trindade (2002) focus on the role of business and social networks in enforcing trade contracts and reducing information costs associated with international trade. They find that ethnic Chinese networks, proxied by the product of ethnic Chinese population shares, increased bilateral trade more for differentiated than for homogeneous products. De Groot et al. (2004) use a gravity model and the institutional quality database compiled by Kaufmann et al. (2002) to show that the difference in the quality of domestic institutions explains why OECD countries trade disproportionately both with each other, and with non-OECD countries. Koukhartchouk and Maurel (2003) measure institutional quality using data from the Heritage Foundation, Index of Economic Freedom. Using a gravity model, they show that institutions matter for bilateral trade. Furthermore, the convergence of institutional variables toward the European Union (EU)'s quality standards, driven by the current process of EU enlargement and the application of Russia to join the WTO, can be expected to deepen the level of Europe's trade integration.

Surprisingly, the MENA region has not been the subject of much research regarding the relationship between institutions and trade, although most MENA countries suffer from a clear deficit of "good" institutions. World Bank Investment Climate Surveys reveal that cumbersome licensing processes, complex regulations, opaque bidding procedures, and time and financial costs imposed by regulatory and administrative barriers are major obstacles to conducting business in the region. Other obstacles include regulations that slow customs clearance and deficient judicial systems; the MENA region compares poorly with other regions in the complexity and time needed to initiate and complete a legal claim.

Unpredictable enforcement is an even more serious problem in the region (Nabli, 2007). Page and Van Gelder (2001) argue that the problem for MENA countries is both an institutional framework that does not align prices with costs and the lack of an enabling environment that would permit and entice private provision. Such poor institutions, in which corruption prevails, will consequently hamper competition and trade liberalization. However, and surprisingly, in 2012, the share of trade in MENA's GDP (95 percent) was the highest among all the regions. The share of service trade is not as bright as the share of goods trade, accounting for only 15 percent of MENA's GDP, although this percentage is still higher than share of services trade in other developed and developing regions.

These facts regarding the quality of MENA's institutions and the region's share of trade in GDP contradict two extensively documented facts in the literature regarding trade and institutions: first, countries that trade more are likely to have better institutions and second, countries with better institutions tend to trade more. This paper attempts to solve this puzzle by exploring the relationship between institutions and trade in the context of the MENA region.

We believe that the bright trade figures calculated at the aggregate level and listed above mask the heterogeneity that exists among the region's countries and sectors; for this reason, we perform our analysis using disaggregated data. Therefore, we propose a gravity equation to assess the institutional quality of importers and exporters in bilateral trade flows for 99 industrial sectors for 21 MENA countries over the period 1995-2014. Given the key differences between trade in goods and trade in services - mainly that services have an intangible nature, so they cannot be stored, their characteristics are not observable before purchase, their consumption is often coincident to production, and they do not physically move – we believe that the relationship between institutions and trade may differ for goods and services. However, since bilateral trade flows in services are not available at a disaggregated level, we propose an adaptation of the gravity model (as suggested by van Lynden, 2011), using unilateral variants of the variables that influence bilateral trade for 17 service sectors for 2000-2014. These unilateral variants will be country-specific rather than country-pair-specific.

We construct an institutional index from the World Governance Indicators and we take into consideration the reverse causality between institutions and trade with a two-step analysis. We first predict the value of institutions using a set of explanatory variables that are exogenous to trade. Our results show that institutions are affected by the legal origin, the institutions of the trade partner, and the presence of a conflict. Then, we incorporate the predicted value of institutions in the gravity equation. We run a Poisson Pseudo-Maximum Likelihood Estimator (PPML) to deal with the zero trade problem discussed in the trade literature. However, we also recognize the shortcomings of the PPML model in the presence of excessive zero trade observations and thus apply a Zero-Inflated Poisson (ZIP) model. The use of the ZIP model is justified by the fact that poor institutions can be considered as fixed export costs that help explain the zero probability of trade for some countries. Our results show that institutions do matter for trade after controlling for the endogeneity problem between institutions and trade.

The paper is organized as follows. Section 2 describes some stylized facts regarding trade and institutions in the MENA region. Section 3 presents the data and explains the econometric specifications. Section 4 shows our empirical results and Section 5 concludes.

2. Trade and Institutions in the MENA Region

Current research suggests that the quality of institutions has a strong bearing on competitiveness and growth. Although institutions matter, it can be difficult to measure institutional quality because many aspects of institutional structure are not easily observed. The literature tries to address this problem by using proxies for some aspects of institutional quality. Examples include the frequency of coups and revolutions as a proxy for government stability (Barro, 1991), the size of the black market and the percentage of national income in "contract intensive" activities as proxies for the effectiveness of economic institutions (Clague

et al.1996). Other studies use survey information regarding countries' business risks (such as the risk of nationalization, the prevalence of corruption, the efficiency of dispute resolution procedures, etc.) collected by private firms from professionals who have done business in the country (Mauro, 1995; Knack and Keefer, 1995). Empirical studies on the direct impact of institutions on trade use various data on institutional quality such as survey data from businessmen by the World Economic Forum on contractual enforcement and corruption (Anderson and Marcouiller, 2002), an institutional quality database compiled by Kaufmann et al. (2002) (De Groot et al., 2004), and data from the Heritage Foundation, Index of Economic Freedom (Koukhartchouk and Maurel, 2003).

The Index of Economic Freedom² (IEF) shows that most of the 15 MENA countries graded are “moderately free” or “mostly unfree”, with Iran and Algeria being “repressed”. Iran is ranked 171 among the 178 countries graded. Yemen, Egypt, Tunisia, and Lebanon are classified as “mostly unfree,” while Morocco, Saudi Arabia, Kuwait, Oman, and Jordan are classified as “moderately free”. By contrast, Bahrain, United Arab Emirates, Qatar, and Israel are “mostly free”. Bahrain remained the region's top performer in the IFC, despite a 1.7 point loss, with an overall score of 73.4 points. Israel posted a 2.1 point rise in its score, pulling it out of the ranks of the “moderately free”, while Morocco showed 1.8 point improvement in its score, pulling it out of the ranks of the “mostly unfree” (Table 1a).

However, a closer look into the components of the IEF (Table 1b) shows that countries' performance in various aspects of economic freedom is not necessarily consistent with the overall ranking. On the one hand, some “mostly free” countries perform poorly in the following aspects: Bahrain in “Freedom from corruption”, Qatar and UAE in “Investment freedom” and “Financial freedom”, and Israel in “Government spending”. On the other hand, “repressed” countries like Iran and Algeria perform well or relatively well in “Fiscal freedom” and “Business freedom”, in “Government spending” (Iran), and in “Monetary freedom” and “Trade freedom” (Algeria). “Mostly unfree” countries perform very poorly in “Property rights” and “Freedom from corruption”, as well as in “Investment Freedom” and “Financial Freedom” (except Lebanon for the last two aspects). Finally, it is worth mentioning that 9 out of the 15 MENA countries score above 90 on the “Fiscal freedom” aspect.

² The Index of Economic Freedom, the Heritage Foundation evaluates countries in four broad policy areas that affect economic freedom: rule of law, government size, regulatory efficiency, and market openness. There are 10 specific categories: property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. Scores in these categories are averaged to create an overall score. Based on an average score, each of 178 countries graded in the 2015 Index is classified as “free” (i.e., combined scores of 80 or higher); “mostly free” (70-79.9); “moderately free” (60-69.9); “mostly unfree” (50-59.9); or “repressed” (under 50).

Table 1a: 2015 IFC for Selected MENA countries

	World Rank	Region Rank	2015 Score	Change in Yearly Score from 2014
Iran	171	15	41.8	1.5
Algeria	157	14	48.9	-1.9
Yemen	133	13	53.7	-1.8
Egypt	124	12	55.2	2.3
Tunisia	107	11	57.7	0.4
Lebanon	94	10	59.3	-0.1
Morocco	89	9	60.1	1.8
Saudi Arabia	77	8	62.1	-0.1
Kuwait	74	7	62.5	0.2
Oman	56	6	66.7	-0.7
Jordan	38	5	69.3	0.1
Israel	33	4	70.5	2.1
Qatar	32	3	70.8	-0.4
UAE	25	2	72.4	1.0
Bahrain	18	1	73.4	-1.7

Source: 2015 Index of Economic Freedom, the Heritage Foundation.

Note: - Countries (total of 178 countries graded) are classified as “free” for an IEF score of 80 or higher, “mostly free” for an IEF score between 70 and 79.9, “moderately free” between 60 and 69.9, “mostly unfree” between 50 and 59.9 or “repressed” for an IEF score under 50. UAE refers to United Arab Emirates.

Table 1b: Performance in Aspects of Economic Freedom Entering the Composition of the IEF 2015 for Selected MENA Countries

	Property Rights	Freedom from Corruption	Fiscal Freedom	Government Spending	Business Freedom	Labor Freedom	Monetary Freedom	Trade Freedom	Investment Freedom	Financial Freedom
Algeria	30.0	36.0	80.0	38.7	66.6	50.5	71.2	60.8	25.0	30.0
Bahrain	60.0	48.0	99.9	73.1	72.5	83.1	74.2	78.6	65.0	80.0
Egypt	20.0	32.0	85.8	68.0	65.4	53.6	67.4	70.0	50.0	40.0
Iran	10.0	25.0	81.2	93.0	57.0	51.3	48.7	41.4	0.0	10.0
Iraq	N/A	16.0	N/A	43.8	57.7	74.4	73.6	N/A	N/A	N/A
Israel	75.0	61.0	61.9	47.8	72.4	67.1	81.6	88.6	80.0	70.0
Jordan	60.0	45.0	93.7	70.7	59.1	74.4	80.6	79.6	70.0	60.0
Kuwait	45.0	43.0	97.7	61.1	58.6	64.2	74.0	76.2	55.0	50.0
Lebanon	20.0	28.0	91.3	70.6	54.7	60.7	72.0	75.8	60.0	60.0
Libya	10.0	15.0	95.0	37.5	46.8	66.7	71.4	80.0	5.0	20.0
Morocco	40.0	37.0	70.9	61.0	68.8	33.4	81.9	78.2	70.0	60.0
Oman	55.0	47.0	98.5	44.2	68.4	76.1	76.2	76.8	65.0	60.0
Qatar	70.0	68.0	99.7	71.9	70.5	71.2	79.7	81.8	45.0	50.0
Saudi-Ar.	40.0	46.0	99.7	61.9	65.8	72.7	68.4	76.4	40.0	50.0
Syria	10.0	17.0	N/A	N/A	57.3	49.1	N/A	N/A	0.0	20.0
Tunisia	40.0	41.0	74.3	70.8	81.2	69.1	74.8	61.2	35.0	30.0
UAE	55.0	69.0	99.5	85.8	74.7	83.8	83.8	82.4	40.0	50.0
Yemen	30.0	18.0	91.5	59.9	54.0	57.1	68.5	77.6	50.0	30.0

Source: 2015 Index of Economic Freedom, the Heritage Foundation.

Note: UAE refers to United Arab Emirates.

Countries' performance on institutional indicators entering in the calculations of the Global Competitiveness Index³ (GCI) does not completely overlap with the IFC outcomes, as these indices do not cover the same aspects of institutional quality. Table 2 shows that Qatar is the regions' top performer in all the institutional indicators, with rankings going from 1 to 15 among 144 countries, except for the "Strength of investor protection", where Qatar holds the position 105 (Table 2). It is worth noting that Qatar is ranked first in the following institutional indicators: "Favoritism in decisions of government officials", "Wastefulness of government spending", "Burden of government regulation", and "Business costs of crime and violence". The United Arab Emirates is the region's second top performer, closely following Qatar's performance and holding the first position in "Organized crime" and the second position in "Business costs of crime and violence". Oman has good rankings in all institutional indicators except "Strength of investor protection". Next follows Bahrain, which performs relatively well in all indicators except "Business costs and terrorism" (rank 120) and "Strength of investor protection" (rank 98). Saudi Arabia holds relatively good positions in all indicators. Israel is the region's best performer in "Strength of investor protection" (rank 6) but shows dimmer figures in other institutional indicators, particularly in "Burden of government regulation" (rank 116), "Business costs of terrorism" (rank 132), and "Efficacy of corporate boards" (rank 89). Libya, Lebanon, Egypt, Iran, Algeria, and Yemen are the region's worst performers. Lebanon and Egypt respectively hold the ranks 140 and 143 (out of 144 countries) in "Business costs and terrorism", while Yemen is ranked last in the same category. Lebanon is ranked 141st in "Ethical behavior of firms", 142nd in "Favoritism in decisions of government officials", and 143rd in "Wastefulness of government spending". Libya is ranked 143rd in "Reliability of police services" and "Strength of investors' protection" and 144th in each of "Strength of auditing and reporting standards", "Efficacy of corporate boards", and "Protection of minority shareholders' interests". Yemen is ranked 140th in "Diversion of public funds", "Reliability of police services", and "Efficacy of corporate boards", 143rd in "Strength of auditing and reporting standards", and 144th in "Irregular payments and bribes".

The "ease of doing business" (EDB) ranking (Table 3) gives support to the stylized fact that the United Arab Emirates, Saudi Arabia, Qatar, and Bahrain are the region's top performers, holding the rank 22, 49, 50, and 53, respectively, among 189 countries. Libya is the worst performer of the region, ranked 188th out of 189. Algeria, Djibouti, Iraq, and Syria are also in poor positions, with respective ranks of 154, 155, 156, and 175. A closer look at the indicators shows that MENA countries holding top ranks in the EDB do not necessarily perform well in all indicators. For instance, the United Arab Emirates and Bahrain do not

³ The Global Competitiveness Index has been used since 2005 by the World Economic Forum as a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness. It is a weighted average of many different components, each measuring a different aspect of competitiveness grouped in 12 pillars: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation.

perform well in “Enforcing contracts”, Saudi Arabia performs poorly in “Trading across borders” and “Solving Insolvency”, Qatar does not perform well in “Getting credits”, and Bahrain performs poorly in “Start a business”. By contrast, poor performers in EDB can have good scores in specific indicators: Oman in “Registering property”, Kuwait and Malta in “Protecting minority investors”, Egypt in “Getting credit”, and Iran in “Enforcing contract”.

Table 2: Rank on Institutional Indicators Entering the Composition of the GCI 2014-2015 for Selected MENA Countries

	Algeria	Bahrain	Egypt	Iran	Israel	Jordan	Kuwait	Lebanon	Libya	Malta	Morocco	Oman	Qatar	Saudi Arabia	Tunisia	UAE	Yemen
Property rights	97	29	104	86	43	34	51	108	131	36	41	30	7	32	76	23	129
Intellectual property protection	114	31	110	127	33	34	83	139	143	36	64	29	5	28	102	18	137
Diversion of public funds	112	35	101	84	39	43	57	137	133	40	47	24	4	25	56	7	140
Public trust in politicians	80	28	93	65	81	41	56	144	112	43	53	14	2	12	63	3	98
Irregular payments and bribes	120	28	65	97	33	46	57	142	122	59	53	29	5	22	77	4	144
Judicial independence	85	47	57	89	16	46	37	138	104	40	81	29	13	26	75	22	128
Favoritism in decisions of government officials	77	26	36	68	79	34	81	142	124	72	44	20	1	25	60	5	136
Wastefulness of government spending	74	17	130	82	77	32	92	143	136	34	41	6	1	12	64	2	141
Burden of government regulation	104	11	46	125	116	33	135	131	134	76	53	14	1	45	66	3	107
Efficiency of legal framework in settling disputes	108	40	105	94	46	31	65	132	135	37	73	27	6	34	75	17	141
Efficiency of legal framework in challenging regs.	104	39	82	130	35	22	45	139	127	50	73	37	4	27	63	15	123

Transparency of government policymaking	107	26	72	127	63	30	103	138	139	65	47	31	5	38	90	10	96
Business costs of terrorism	129	120	143	127	132	84	72	140	142	55	67	11	9	62	133	10	144
Business costs of crime and violence	93	68	137	112	49	41	30	113	138	13	28	5	1	17	107	2	139
Organized crime	94	14	127	121	75	37	43	88	116	26	33	3	2	10	103	1	133
Reliability of police services	74	36	111	80	69	31	57	132	143	33	41	27	3	34	70	7	140
Ethical behavior of firms	100	27	69	121	43	36	61	141	127	44	52	25	9	30	75	11	126
Strength of auditing and reporting standards	134	17	117	125	31	54	73	98	144	13	49	29	10	33	78	26	143
Efficacy of corporate boards	137	45	136	122	89	92	127	133	144	66	52	37	12	49	108	15	140
Protection of minority shareholders' interests	113	19	109	128	44	39	73	121	144	29	59	17	5	22	82	16	134
Strength of investor protection, 0–10 (best)*	83	98	117	117	6	130	68	83	143	57	98	83	105	22	45	83	113

Source: The Global Competitiveness Report 2014-2015, World Economic Forum.

Note: - Indicators that are derived from the World Economic Forum's annual Executive Opinion Survey. Indicators not derived from the Survey are identified by an asterisk (*). The value included in the table is the country's rank among the 144 economies included in the Index.

UAE refers to United Arab Emirates.

Table 3: Performance in Indicators Entering the Composition of the EDB Ranking 2015 for MENA Countries

	EDB Rank	Start a Business	Construction Permits	Getting Electricity	Registering Property	Getting Credit	Protecting Minority Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Resolving Insolvency
UAE	22	2	1	1	1	3	1	1	1	12	6
Saudi Arabia	49	8	4	2	4	1	4	3	10	8	17
Qatar	50	7	5	5	5	12	9	1	8	5	1
Bahrain	53	11	2	9	2	5	7	4	9	13	5
Tunisia	60	6	9	4	8	7	5	14	4	2	2
Oman	66	10	6	11	3	7	9	5	7	15	8
Morocco	71	1	7	13	15	5	9	12	2	3	9
Kuwait	86	17	10	14	7	7	1	6	13	16	11
Malta	94	12	11	17	9	14	3	7	3	7	4
Lebanon	104	9	16	7	12	7	8	8	11	9	12
Egypt	112	4	14	15	10	1	13	18	12	18	10
Jordan	117	5	12	6	13	18	16	9	5	10	14
Iran	130	3	17	16	19	3	16	16	19	1	13
Yemen	137	13	8	18	6	18	18	17	16	4	16
WBG	143	19	18	12	11	7	14	10	14	6	18
Algeria	154	14	13	19	18	14	12	20	15	11	7
Djibouti	155	20	15	20	17	16	18	13	6	19	3
Iraq	156	15	3	3	14	16	15	11	20	17	18
Syria	175	18	19	10	16	13	5	15	18	20	15
Libya	188	16	19	8	20	18	20	19	17	14	18

Source: Doing Business data, the World Bank.

Note: - Ease of doing business ranks economies from 1 to 189, with first place being the best. A high ranking (a low numerical rank) means that the regulatory environment is conducive to business operation. The index averages the country's percentile rankings on 10 topics covered in the World Bank's Doing Business. The ranking on each topic is the simple average of the percentile rankings on its component indicators.

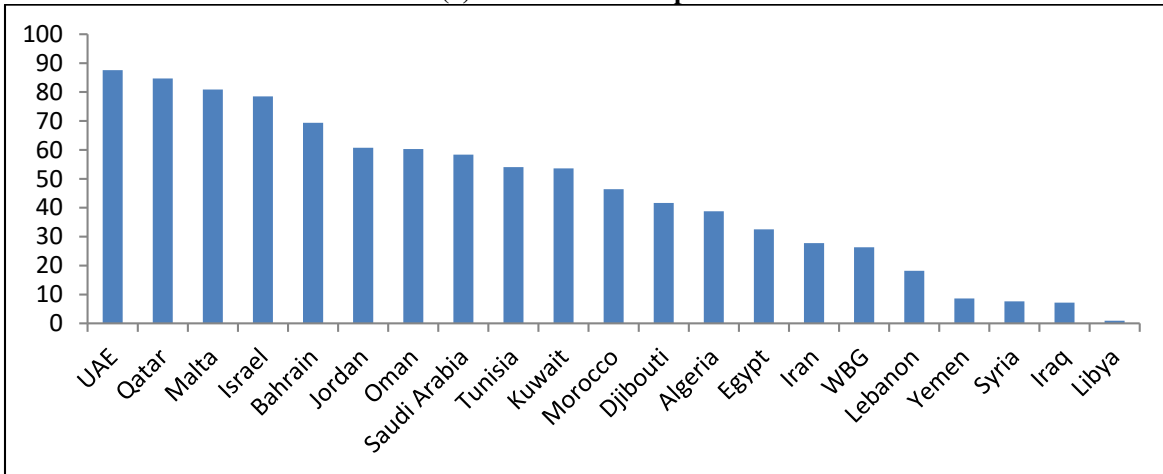
UAE refers to United Arab Emirates.

The Worldwide Governance Indicators⁴ (WGI) show that the United Arab Emirates, Qatar, Malta, and Israel are the region's top performers in "Control of Corruption", "Government Effectiveness", "Regulatory quality", and "Rule of Law", holding a percentile rank of 70 and above (Figure 1). Israel drops down in the ranking to a percentile rank of 15.64 in "Political stability and absence of violence/Terrorism" due to the Palestinian conflict. Malta is the region's top performer in "Voice and accountability" (86.26), followed by Israel (66.35); both countries rank far away from other MENA countries. It is worth noting that Saudi Arabia that performs well or relatively well in almost all of the WGI, but holds the last percentile rank in "Voice and accountability". Similarly, Bahrain performs well or relatively well in all the WGI but holds an 8.53 percentile rank in "Political stability and absence of violence/terrorism" and a 12.32 percentile rank in "Voice and accountability". Iran, Iraq, Syria, and Libya are generally bad performers across all indicators.

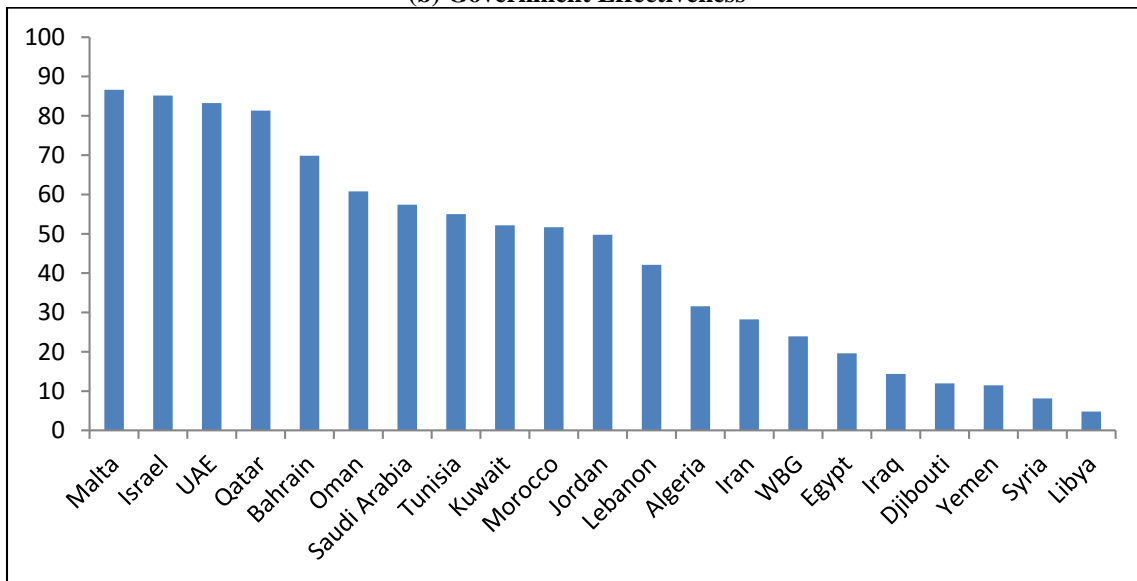
⁴ The World Bank's Worldwide Governance Indicators consist of six composite indicators covering broad dimensions of governance in over 200 countries since 1996: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. These indicators are based on several hundred variables obtained from 31 different data sources, capturing governance perceptions as reported by survey respondents, non-governmental organizations, commercial business information providers, and public sector organizations worldwide. Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Political Stability and Absence of Violence/Terrorism captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism. Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Voice and Accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

Figure 1: Worldwide Governance Indicators for MENA Countries in Percentile Rank, 2013

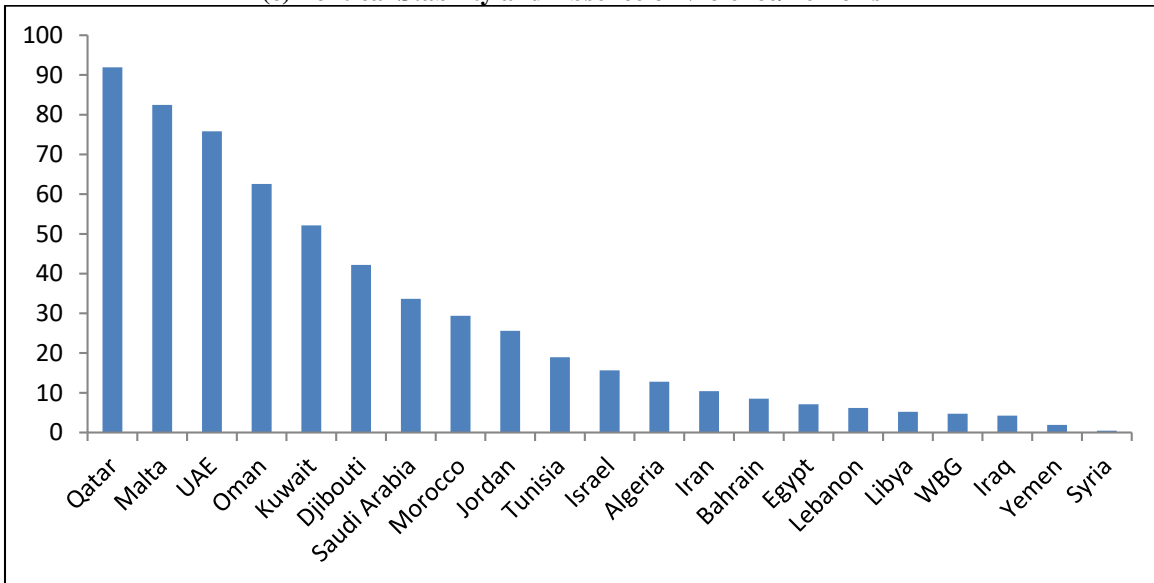
(a) Control of Corruption



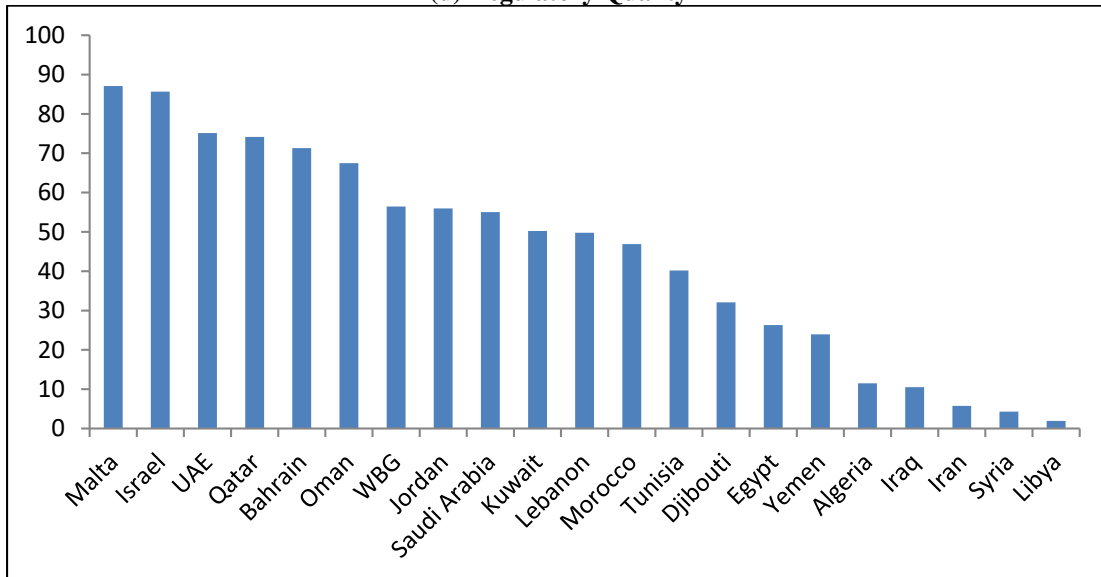
(b) Government Effectiveness



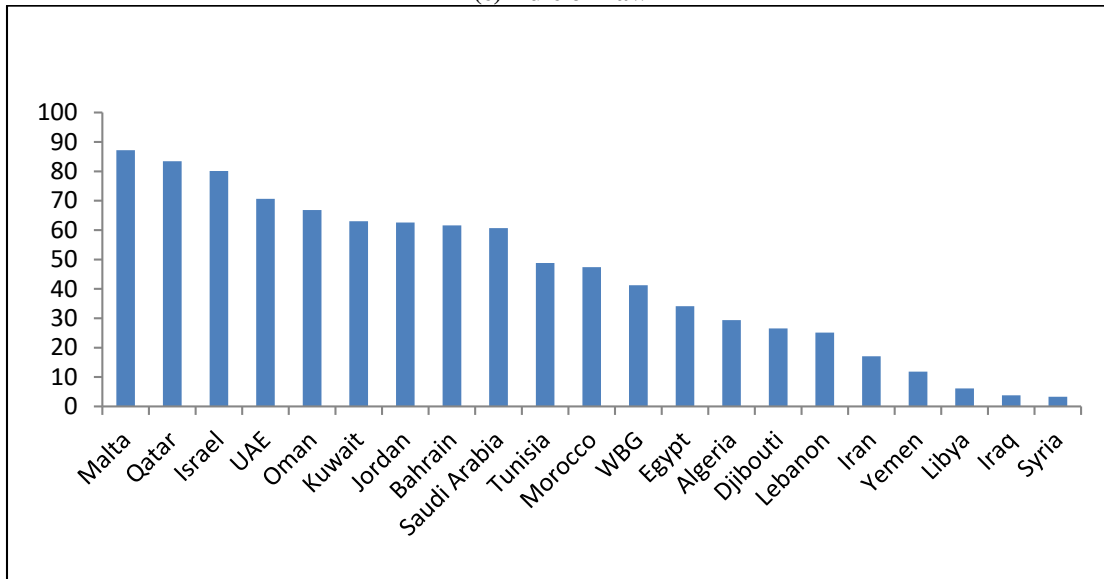
(c) Political Stability and Absence of Violence/Terrorism



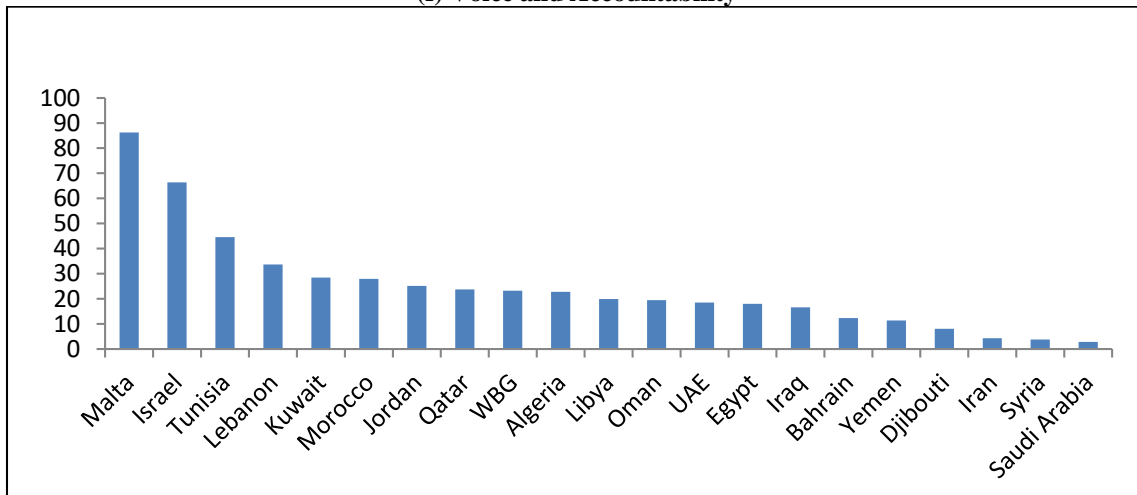
(d) Regulatory Quality



(e) Rule of Law



(f) Voice and Accountability



Source: World Governance Indicators, the World Bank.

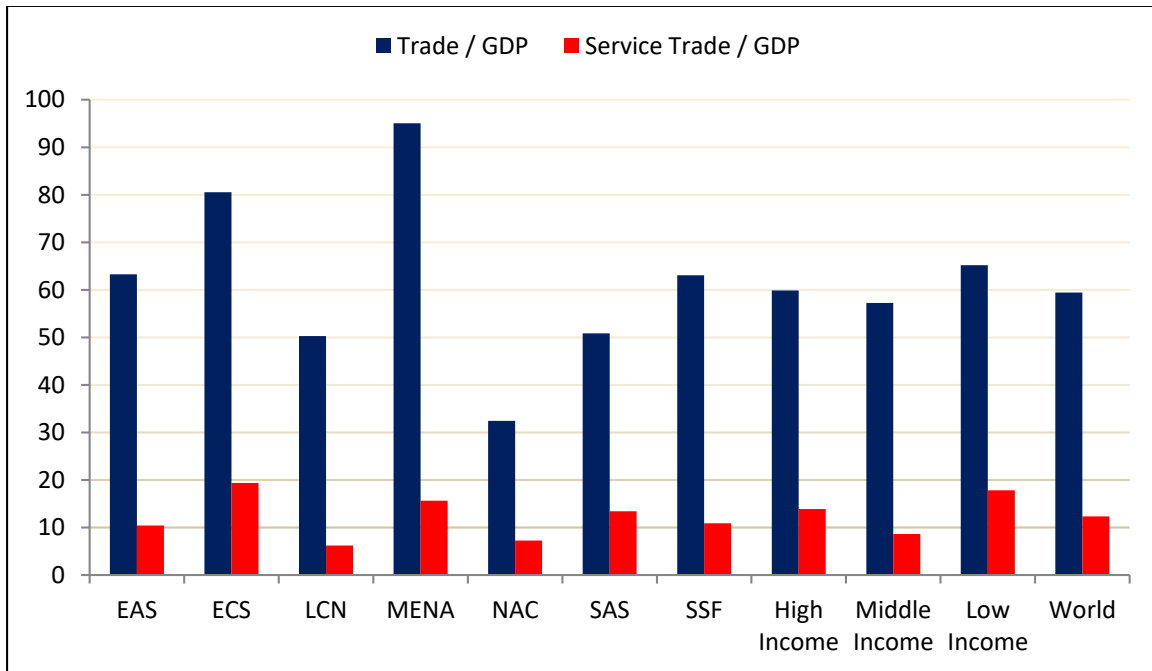
Note: Percentile rank indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank. Percentile ranks have been adjusted to correct for changes over time in the composition of the countries covered by the WGI.

The WGI ranking for MENA countries has been quasi-static over the years, with only few exceptions. Data from WGI show that Egypt, which was initially an “average” performer, dropped drastically in the percentile ranking between 1996 and 2013, losing 20 to 25 points in each indicator. The same applies to Libya, Syria, and Yemen, although these countries were initially “below average” performers. Iraq showed an average 10 point improvement in all indicators except “Political stability” and “Rule of law”, but still holds lower percentile ranks. Qatar, which used to hold “average” positions, went 25 to 30 points up in the ranking to become among the top performers in all indicators except “Voice and accountability”.

Although the institutional indicators and indexes discussed here measure various aspects of institutional quality, they all agree on the fact that at least the majority of MENA countries are cursed with bad institutions, condemning them to suffer from authoritarianism, economic stagnation, state weakness, and other ills. However, surprisingly, in 2013, the MENA region witnessed the highest share of trade in GDP in the world (95 percent), outpacing developed regions like North America (32 percent) as well as developing ones like Africa south of the Sahara (63 percent) (Figure 2). Nevertheless, a closer look to the data shows that this is mainly due to petroleum exports and that MENA trade excluding oil is at about the world average; the region's exports alone are below the world average. Behar and Freund (2011) show that, conditioning on GDP, distance, and a number of other factors, a typical MENA country under-trades with other countries: exports to the outside world are at only one-third of their potential. However, intra-MENA trade is conditionally higher than extra-MENA trade. These results hold for aggregate exports, non-natural exports, and non-petroleum exports.

Figure 2 shows that the share of services trade in MENA's GDP is low (nearly 16 percent), although this percentage is still higher than other developed and developing regions. Figure 3 shows that the share of services exports in GDP is much lower, around 6 percent; however, this is very close to the world average and exceeds shares for the majority of the other regions. Sectors like tourism, transportation, remittances, and, to a lower extent, financial, transportation, and telecommunication services are the driving forces behind this stylized fact.

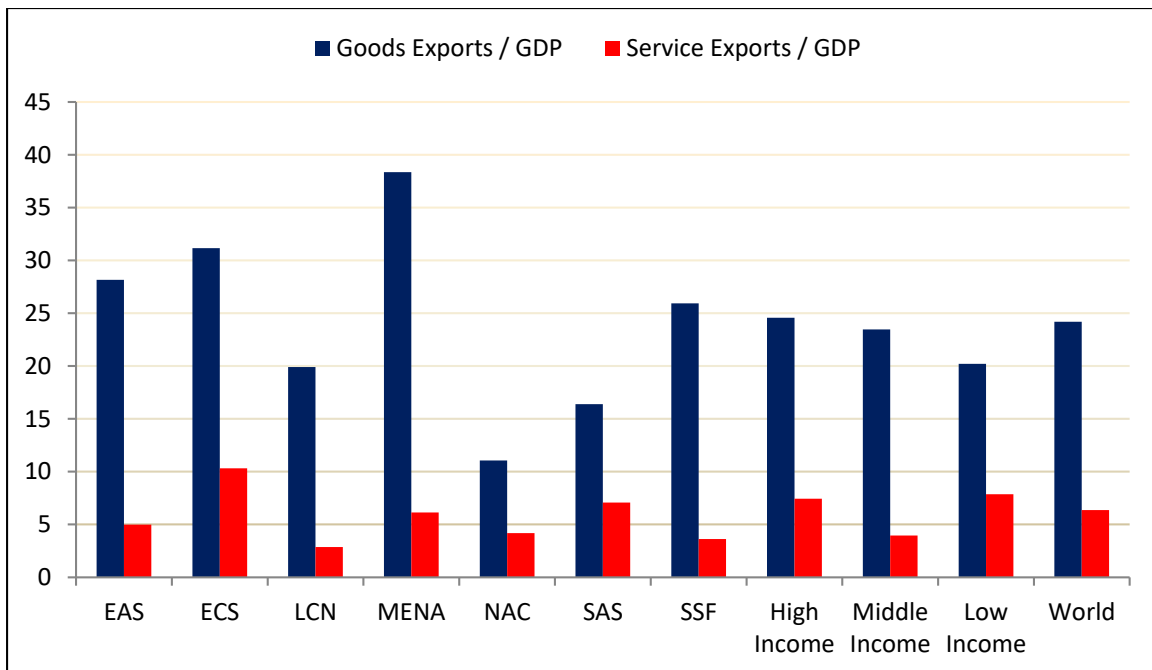
Figure 2: Trade as a Percentage of GDP, 2013



Source: World Bank, World Development Indicators database online, 2015.

Note: (i) Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product. (ii) EAS: East Asia & Pacific; ECS: Europe & Central Asia; LCN: Latin America & Caribbean; MENA: Middle East & North Africa; NAC: North America; SAS: South Asia; SSF: Sub-Saharan Africa.

Figure 3: Exports as a Percentage of GDP, 2013



Source: Authors' Calculations from World Bank, World Development Indicators database online, 2015.

Note: EAS: East Asia & Pacific; ECS: Europe & Central Asia; LCN: Latin America & Caribbean; MENA: Middle East & North Africa; NAC: North America; SAS: South Asia; SSF: Sub-Saharan Africa.

Table 4 shows that Malta, the United Arab Emirates, Bahrain, and Qatar, which perform well on the institutional indicators discussed previously, exceed the region's average trade share in GDP, with the highest share among MENA countries for Malta (226 percent in 2013). According to authors' calculations, Malta has a comparative advantage,⁵ mainly in fish, crustaceans, tramway locomotives, machinery, nuclear reactors, pharmaceutical products, cereal, flour, milk preparations and products, clocks and watches, and toys and games. Malta also exhibits the highest share for services trade in GDP (88 percent in 2011), with a comparative advantage in personal, cultural, and recreational services, financial services, royalties, and license fees. The United Arab Emirates exhibits a comparative advantage in meat, cocoa, wood and articles of wood, wood charcoal, glass and glassware, iron and steel, rubber, furskins and artificial fur, machinery, nuclear reactors, boilers, coffee, tea, mate and spices, photographic or cinematographic goods, cereals, wastes of food industry, animal fodder, impregnated, coated or laminated textile fabric, aluminum, pearls, precious stones, metals, clocks and watches, copper, ceramic products, artificial flowers, and human hair. Bahrain has mainly a revealed comparative advantage in essential oils, perfumes, cosmetics, furniture, lighting, miscellaneous articles of base metal, railway, tramway locomotives, stone, and cement. The share of Bahrain's services in GDP used to exceed the region's average over the past year but fell below average recently. Qatar's comparative advantage resides in mineral fuels, oils, distillation products, musical instruments, and parts and accessories. Qatar also exceeds the region's share of services trade in GDP, with a comparative advantage in travel, transportation, insurance, communication, and government services. Surprisingly, Israel, which is an "average" or a "relatively good" performer on some institutional aspects, has a share of trade in GDP (65 percent in 2013) below the region's average. However, Israel's services trade in GDP exceeds the region's average, with a comparative advantage in royalties and license fees, computer and information services, transportation, construction services, and other business services. On the other hand, countries like Jordan, Lebanon, Tunisia, and Libya, which perform poorly or relatively poorly on different institutional indicators, exceed the region's average share in GDP for total trade (114 percent, 128 percent, 103 percent, and 135 percent, respectively) and for services trade except for Libya (33 percent, 62 percent, and 17 percent, respectively). Jordan has a revealed comparative advantage mostly in machinery, nuclear reactors, knitted or crocheted fabric, tramway locomotives, articles of apparel, paper and paperboard, beverages and vinegar, inorganic chemicals, tobacco and manufactured tobacco substitutes, salt, stone, and cement, as well as in remittances and government services. Lebanon's comparative advantage resides mainly in services (tourism, remittances, and financial and construction services). Tunisia benefits from a comparative advantage in inorganic chemicals, precious metal compounds, products of animal origins, miscellaneous articles of base metal, articles of apparel, articles of

⁵ The Revealed Comparative Advantage index is based on export data only. The results are available to the interested reader upon request.

leather, musical instruments, and electrical and electronic equipment, as well as in remittances and travel and financial services.

Since international trade involves transactions across borders, conventional wisdom suggests that the quality of institutions of trading partners affects international trade. In particular, bad institutions are an impediment to the international exchange of goods and services. Although the discussion above based on aggregate data partially supports this fact, it is worth noting that sectors differ in the way in which they are governed and affected by institutions.

Table 4: Trade as a Percentage of GDP for MENA Countries (2005 – 2014)

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Algeria	Services	7.10	6.32	7.14	8.52	10.66	9.57	8.20	7.18	6.98	..
	Total	71.28	70.73	71.94	76.68	71.32	69.87	67.71	66.86	63.42	61.46
Bahrain	Services	28.63	27.38	24.77	23.13	24.29	23.87	17.47	14.84	14.78	..
	Total	148.31	147.10	137.79	145.88	117.96	120.47	126.81	122.16	..	..
Djibouti	Services	46.87	44.31	39.68	40.58	35.70	38.29	37.64	35.11	36.74	..
	Total	91.58	97.22	134.24	..	..	..	..	..	..	..
Egypt	Services	28.04	25.77	26.28	26.12	18.76	17.60	14.07	14.54	..	..
	Total	62.95	61.52	65.08	71.68	56.55	47.94	45.26	43.28	42.84	39.24
Iran	Services	..	..	..	..	..	..	..	..	..	..
	Total	57.71	52.26	49.97	..	..	..	..	..	..	..
Iraq	Services	12.91	8.98	6.45	6.89	9.63	9.17	7.51	7.40	..	..
	Total	115.74	89.65	74.09	81.06	78.69	73.50	72.17	80.45	77.12	..
Israel	Services	21.74	22.43	22.14	20.99	19.36	18.91	18.54	20.29	18.58	..
	Total	82.15	81.99	82.44	77.88	64.15	68.03	71.41	72.31	64.48	62.32
Jordan	Services	39.36	39.63	41.92	40.45	35.70	38.38	35.41	35.44	32.54	..
	Total	146.91	141.75	145.99	144.02	114.96	117.26	121.51	120.51	114.44	112.49
Kuwait	Services	16.70	18.79	20.51	18.82	23.90	21.48	18.90	17.20	15.63	..
	Total	92.24	89.71	91.73	92.68	88.86	97.03	99.12	101.01	98.11	..
Lebanon	Services	88.10	93.61	92.53	107.85	88.08	76.49	81.43	65.87	62.03	..
	Total	96.37	94.65	101.29	109.51	92.75	98.12	100.40	133.55	128.03	126.85
Libya	Services	6.09	5.55	4.05	5.22	8.64	8.74	12.76	8.73	13.21	..
	Total	90.86	101.86	102.22	101.49	102.06	107.70	99.62	114.32	135.26	97.92
Malta	Services	54.47	68.43	74.68	83.19	80.84	88.10	88.19	..	..	..
	Total	156.72	177.51	180.79	177.06	157.79	172.95	182.51	231.04	226.12	..
Morocco	Services	22.02	24.15	25.90	24.73	23.90	24.36	24.67	24.49	21.10	..
	Total	70.23	73.88	80.61	88.35	68.40	76.31	84.26	86.22	80.51	81.12

Oman	Services	13.14	13.99	16.10	12.65	14.68	14.19	14.98	14.84	16.49	..
	Total	89.34	87.84	96.47	95.66	85.28	89.82	103.10	100.07	..	..
Qatar	Services	..	..	..	..	..	..	14.29	17.81	19.02	21.90
	Total	94.75	98.57	96.11	89.43	80.45	83.74	97.46	104.42	..	..
SA	Services	13.56	16.92	19.11	16.28	19.75	16.60	13.37	11.51	11.89	14.57
	Total	81.95	89.94	94.86	96.10	84.86	82.77	85.76	83.74	82.97	81.73
Syria	Services	18.26	16.33	17.01	..	..	..	..	..	..	..
	Total	82.01	78.23	76.48	..	..	..	..	..	..	..
Tunisia	Services	18.54	18.95	19.23	20.25	18.88	19.96	16.97	18.29	17.31	..
	Total	90.25	93.94	104.08	115.40	94.37	104.86	105.57	107.54	103.15	..
UAE	Services	..	..	..	..	..	..	..	..	..	..
	Total	119.55	119.48	136.80	148.51	153.46	151.00	163.13	173.29	176.07	185.60
WBG	Services	16.77	16.72	20.19	20.01	20.81	22.16	19.25	18.93	13.22	..
	Total	88.94	90.01	97.18	87.07	83.60	74.40	71.88	72.44	71.14	78.95
Yemen	Services	9.63	12.60	10.11	11.69	11.80	12.22	11.04	12.22	11.12	..
	Total	76.77	82.08	..	..	..	..	..	..	..	..

Source: World Development Indicators database online, 2015.

Note: SA: Saudi Arabia; WBG: West Bank & Gaza.

3. Methodology

The methodology used in this article draws on the pioneering work of Tinbergen (1962) and Anderson (1979): the gravity model. Standing as an essential tool in the empirics of international trade to predict bilateral trade flows using multiple determinants of trade, the gravity model has undergone significant theoretical and empirical improvements over the years (Mac Callum, 1995; Feenstra et al., 2001; Feenstra, 2002; Anderson and van Wincoop, 2003; Evenett and Keller, 2002; Santos Silva and Tenreyro, 2006), enforcing its theoretical base and narrowing the gap between theoretical and empirical findings.

As discussed earlier, we would expect high quality institutions to reduce the level of uncertainty inherent in the interaction between trading partners and thus to decrease the transaction costs associated with international trade. By contrast, inefficient institutions, both in the home and in the foreign country, can present serious obstacles to trade. We construct an institutional index from the World Governance Indicators (available since 1996), using a Factor Analysis technique that helps us create indices with variables measuring similar things conceptually, for data reduction purposes. Moreover, as sectors with high “institutional intensity” are more sensitive to the quality of institutions, the effect of institutions on trade is expected to vary among countries depending on their comparative advantage. Therefore, we run the regressions at a disaggregated sectoral level for both manufacturing and services sectors.

The risk associated with disaggregated trade data is the existence of zero-valued trade flows, as all countries do not produce all available goods nor do they all have an effective demand for all available goods. One of the shortcomings of the log-normal specification of the gravity equation is that it cannot deal well with zero-valued trade flows, since the logarithm of zero is undefined (Burger et al., 2009). This justifies the use of alternative regression techniques.

To deal with the zero bilateral trade issue, we opt for a Poisson pseudo-maximum likelihood regression, as suggested by Santos Silva and Tenreyro (2006). The Poisson pseudo maximum likelihood (PPML) estimator is a non-linear estimator used to deal with the zero trade observations and to provide unbiased and consistent estimates that are robust to the presence of heteroscedasticity. The PPML estimator offers several desirable properties for gravity models. First, it is consistent in the presence of fixed effects, which can be entered as dummy variables as in simple Ordinary Least Squares (OLS) regressions. This point is particularly important for gravity modeling because most theory-consistent models require the inclusion of fixed effects by exporter and by importer. Second, the Poisson estimator naturally includes observations for which the observed trade value is zero. Such observations are dropped from the OLS model because the logarithm of zero is undefined. Moreover, those zero observations are relatively common in disaggregated trade matrices, since not all countries trade all products with all countries and since wars can result in the cessation of trade between partners. Third, the interpretation of the coefficients from the Poisson model is

straightforward and follows exactly the same pattern as OLS. Although the dependent variable for the Poisson regression is specified as exports in levels rather than in logarithms, the coefficients of any independent variable entered in logarithms can still be interpreted as simple elasticities. The coefficients of independent variables entered in levels are interpreted as semi-elasticities, like in the Ordinary Least Squares estimator.

For bilateral trade in manufacturing, we use the UN Comtrade database with 99 sectors (two-digit HS commodities) for the period 1995-2014. Our estimable equation is:

$$X_{ijkt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Dist_{ij} + \beta_4 Contig_{ij} + \beta_5 Com\ col_{ij} + \beta_6 Col_{ij} + \beta_7 Col.45_{ij} + \beta_8 RTA_{ij} + \beta_9 Com.Lang_{ij} + \beta_{10} Instexp_{it} + \sigma t + \varepsilon_{ijkt} \quad (1)$$

where X_{ijkt} is the bilateral trade flow between country i and country j in year t for sector k ; $\ln GDP_{it}$ and $\ln GDP_{jt}$ are country i and j 's real gross domestic product; $\ln Dist_{ij}$ is the bilateral distance between the two countries; $Contig_{ij}$, $Comcol_{ij}$, Col_{ij} , $Col.45_{ij}$, RTA_{ij} and $Com.Lang_{ij}$ are dummy variables that take the value of 1 if the two countries share common borders, have been colonized by the same colonizer, had previous colonial links, are members of a regional trade agreement, and share common languages; $Instexp_{it}$ is the estimated institutional indicator that control for the quality of institutions in country i in year t ; σ is year dummies; and ε_{ijkt} is the discrepancy term.

For services, bilateral trade data is only available in the UN Comtrade database for a few MENA countries and to our knowledge is not available at a disaggregated level elsewhere. Therefore, the dependent variable is total exports in 17 service sectors for 21 countries over the period 2000-2014. Domestic institutions are also expected to affect a country's overall level of openness, in the sense that countries with better institutions trade more. Inefficient institutions represent a cost factor for domestic exporters and thus lower their international competitiveness, with negative repercussions on export flows.

The estimable equation is as follows:

$$X_{itk} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Lat_i + \beta_3 Arabic_i + \beta_4 France_i + \beta_5 UK_i + \beta_6 Instexp_{it} + \sigma t + \varepsilon_{it} \quad (2)$$

Our explanatory variables are the natural log of country i 's GDP and unilateral variants of the gravity-type variables: a dummy variable taking the value of 1 if 20 percent of the population speaks Arabic and zero otherwise (*Arabic*). We also include two dummy variables to determine whether a country has been colonized by France or the United Kingdom. We capture the effect of distance by taking the average distance between each country and its trade partners (*Lat*). $Instexp_{it}$ is an institutional indicator that controls for the quality of institutions in country i ; σ is year dummies; and ε_{ijkt} is the discrepancy term.

The conclusion that stems from the literature on trade and institutions is that causality runs in both directions. First, good institutions improve productivity and thus enhance trade. Second, higher trade openness reinforces the demand for a better institutional framework. Therefore, there is an endogeneity problem with the estimation of the equations above; we take this into account by following a two-stage analysis for all the regressions.

The first step predicts the institutions of the exporter according to the following equation:

$$InstExp_{it} = \beta_0 + \beta_1 InstImp_{it} + \beta_2 RTA_i + \beta_3 war_{it-1} + \beta_4 colony_i + \beta_5 Com.Col_i + \beta_6 Legalfr_i + \beta_7 LegalUK_i + \beta_8 oilrent/GDP_{it} + \sigma t + \epsilon_{it} \quad (3)$$

where $InstImp_{it}$ represents the institutional quality of the importer; RTA_i a dummy variable taking the value 1 if the country is a member of a regional trade agreement and 0 otherwise; war_{it-1} is lagged conflicts. $Colony_{it}$ and $ComCol_{it}$ represent the country's colonial links; $oilrent/GDP_{it}$ is oil rent as a percentage of GDP; and $Legalfr_i$ and $LegalUK_i$ is the legal origin of the country's law (whether French or English). We also add year dummies to control for any year unobservable characteristic, and we cluster by exporter.

In the second step, the predicted values of institutions are introduced in equations (1) and (2)⁶.

The rationale behind the choice of the above-listed explanatory variables in step 1 is as follows:

1. Colonial links: There is common consensus in the literature that institutions in former colonies were shaped, at least partially, by their colonization experience. There were different types of colonization policies which created different sets of institutions. At one extreme, European powers set up "extractive states", where institutions did not introduce much protection for private property, as the main purpose was to transfer as much of the resources of the colony to the colonizer with the minimum amount of investment possible. At the other extreme, many Europeans settled in a number of colonies, trying to replicate European institutions, with great emphasis on private property and checks against government power (Acemoglu et al., 2001).
2. Membership in RTA: Improving the institutional quality of a country is usually a pre-requisite for entering a trade agreement.
3. Institutional quality of the importer: The institutional quality of the importer shapes the institutions of the exporter. If the importer is endowed with good institutions, an effort will be made by the exporter to improve the quality of its institutions up to the level of the institutional quality of the importer in order for trade to take place between the two partners.

⁶The second stage standard errors are underestimated because of the errors coming from a first stage estimation. Therefore, t-statistics may be overestimated.

4. Conflicts: The consequences of war are profound, dynamic, and far-reaching. In addition to battlefield casualties, armed conflicts are detrimental to social, political, and economic institutions by creating political instability, destroying a country's social fabric, and endangering civil liberties.
5. Oil rent: 12 out of 21 MENA countries are oil-exporting countries. Therefore, resource abundance is expected to cause weak and predatory state institutions, according to rentier state theory.
6. The legal origin of the country's law: One strand of the political economy literature suggests that colonization by the British led to better outcomes than colonization by the French or by the smaller colonial powers, because of either the adaptability of British legal institutions to the market economy or the higher levels of personal freedom provided by British culture (Lee and Schultz, 2012).

One of the important limitations of the PPML estimation model implemented in equations (1) and (2) is that it is vulnerable to the problem of excessive zeros in the trade observations. Burger et al. (2009) propose the usage of the zero-inflated models, as they are noted to be consistent in the presence of excessive zeros. We opt for a zero-inflated Poisson regression analysis. The zero-inflated Poisson model (Lambert, 1992; Greene, 1994) considers two different kinds of zero-valued trade flows: countries that never trade and countries that do not trade now, but potentially could trade in the future (based on the latent probability to trade according to dimensions like distance, institutional proximity, and others). Therefore, a distinction is made between pairs of countries with exactly zero probability of trade, pairs of countries with a non-zero trade probability that still happen not to be trading in a given year, and pairs of countries that are trading. Accordingly, the estimation process of the zero-inflated Poisson model consists of two parts: a logit regression of the probability that there is no bilateral trade at all and a Poisson regression of the probability of each count for the group that has a non-zero probability or interaction intensity other than zero. Hence, the probability of trade, which reflects trade potential, is separated from the volume of trade as stemming from two different processes. Although both processes may depend on the same variables, as profitability will generally rise if the potential size of trade gets larger, this does not imply that profitability only reflects the potential size of the flow. In fact, some variables may be more important in determining the profitability of bilateral trade than the potential volume of that trade (Burger et al, 2009).

This discussion is particularly important for developing countries, where the concern of excessive zeros arises from the fact that many of the zero trade observations may reflect countries' inability to trade due to a lack of technical and financial capability, as well as a lack of capacity to comply with importing countries' standards. This inability to trade may also be explained by a poor institutional quality that increases the uncertainty of international transactions and thus the cost of international economic exchange (North,

1981). These costs are largely independent of the size of the transaction, vary across countries, and are quite persistent over time. In short, they are potentially good candidates for fixed export costs. Therefore, it would be interesting to first show the extent to which poor institutions can explain the “certain zero” trade flows. Then, a Poisson model is generated to predict the counts for the trade flows that are not “certain zeros”.

Our zero inflated Poisson model for bilateral trade in goods is specified as follows:

Logit regression:

$$P(\text{Trade} = 0)_{ijkt} = \beta_0 + \beta_1 \ln \text{GDP}_{it} + \beta_2 \ln \text{GDP}_{jt} + \beta_3 \ln \text{Dist}_{ij} + \beta_4 \text{Contig}_{ij} + \beta_5 \text{Com col}_{ij} + \beta_6 \text{Col}_{ij} + \beta_7 \text{Col. 45}_{ij} + \beta_8 \text{RTA}_{ij} + \beta_9 \text{Com. Lang}_{ij} + \beta_{10} \text{Instexp}_{it} + \text{year dummies} + \epsilon_{it} \quad (4)$$

Poisson regression:

$$X_{ijkt} = \beta_0 + \beta_1 \ln \text{GDP}_{it} + \beta_2 \ln \text{GDP}_{jt} + \beta_3 \ln \text{Dist}_{ij} + \beta_4 \text{Contig}_{ij} + \beta_5 \text{Com col}_{ij} + \beta_6 \text{Col}_{ij} + \beta_7 \text{Col. 45}_{ij} + \beta_8 \text{RTA}_{ij} + \beta_9 \text{Com. Lang}_{ij} + \text{year dummies} + \epsilon_{it} \quad (5)$$

And for services exports:

Logit regression:

$$P(\text{Trade} = 0)_{ijkt} = \beta_0 + \beta_1 \ln \text{GDP}_{it} + \beta_2 \text{Arabic}_i + \beta_3 \text{Lat}_i + \beta_4 \text{France}_i + \beta_5 \text{UK}_i + \beta_6 \text{Instexp}_{it} + \text{year dummies} + \epsilon_{it} \quad (6)$$

Poisson regression:

$$X_{ijkt} = \beta_0 + \beta_1 \ln \text{GDP}_{it} + \beta_2 \text{Arabic}_i + \beta_3 \text{Lat}_i + \beta_4 \text{France}_i + \beta_5 \text{UK}_i + \text{year dummies} + \epsilon_{it} \quad (7)$$

As discussed earlier, the Logit regression represents the probability of zero trade. Therefore, the gravity variables having a positive effect on bilateral trade are expected to decrease the probability of zero trade between two countries at a given year, namely the exporter’s and importer’s GDP, the contingency, the variables regarding colonial links, common language, and RTA. More importantly, the quality of institutions is expected to decrease the probability of zero trade. By contrast, distance is expected to increase the probability of zero trade.

4. Empirical Findings

Our findings are presented in Tables 5-9. As discussed in the previous section, we control for the inverse causality between trade and institutions through a two-step analysis in which we first run equation (3) and then introduce the predicted value of the exporter's institutions in both equations (1) and (2). The results of equation (3) are displayed in Table 5. The institutional quality of the importer, the conflict variable, and the origin of the country's legal framework are the only significant variables in explaining the institutional quality of MENA exporters, and they all have the expected sign. In other words, the origin of the legal framework and the institutional quality of the importer have a significant positive effect on the exporter's institutions, while the war variable has a significant negative impact on the institutional quality of the exporter.

Table 5: Estimating the Institutional Index of the Exporter (First-Step)

	Inst. Exp.
Inst. Imp.	0.0460**
	(0.0184)
RTA	-0.576
	(0.467)
Lag war	-0.507*
	(0.289)
Colony	-0.0763
	(0.114)
Com. Col.	0.250
	(0.160)
Legal Fr.	1.049***
	(0.289)
Legal UK	2.149***
	(0.434)
Oil rent/GDP	-0.0159
	(0.0119)
Constant	-1.069***
	(0.287)
Year dummies	YES
Observations	2027468
R-squared	0.370

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Then we implement the predicted value of the exporter's institutions in equation (1) for goods and equation (2) for services. Table 6 shows the results of the regressions for goods sectors, with the first three columns representing the OLS, Panel, and PPML results. The classical gravity variables have the expected sign and

significance level, i.e., the coefficients of the exporter's and importer's GDP are both positive and significant; the coefficient of the distance is negative and significant; and the coefficients of RTA, colonial variables, contingency, and common language are positive and significant. More importantly, the institutional quality of the exporter has a significant and positive effect on bilateral trade flows. As the institutional index increases by one unit, showing an improvement in the institutional quality, bilateral trade flows in goods increase at least by 6 percent. When the predicted value of the exporter's institutions is implemented in the Logit regression of the zero-inflated Poisson model, the results show that the variables have the expected signs in the Logit regression (equation 4) and Poisson regression (equation 5). Those results are displayed in Table 6, columns 5 and 4, respectively. The exporter's and importer's GDP, as well as variables such as contingency, common language, RTA, and colonial links, all have a significant negative effect on the probability of zero trade, while distance has a positive significant impact on the probability of zero trade. Our variable of concern, namely the institutional quality of the exporter, exerts a significant negative impact on the probability of zero trade. If the institutional index of the exporter increases by one point, showing an improvement in the institutional quality of the exporter, the odds that trade would be "certain zero" decreases by a factor of $\exp(0.479) = 1.61$.

Finally, the Vuong test (Vuong, 1989) shows that the zero-inflated Poisson model is favored above its non-zero inflated counterpart due to the existence of excessive zero counts.

Table 6: Regressions for Bilateral Trade in Goods (Second Step)

	OLS	Panel	PPML	ZIP	
	Ln(Trade)	Ln(Trade)	Trade	Trade	P(Trade=0)
Ln(GDP Exp.)	0.480***	0.521***	0.675***	0.698***	-0.223***
	(0.0253)	(0.0215)	(5.04e-07)	(5.60e-07)	(0.00145)
Ln(GDP Imp.)	0.286***	0.260***	0.870***	0.760***	-0.198***
	(0.0148)	(0.0126)	(3.36e-07)	(3.34e-07)	(0.000806)
Ln(Dist.)	-0.562***	-0.549***	-0.536***	-0.395***	0.403***
	(0.0428)	(0.0373)	(6.95e-07)	(6.91e-07)	(0.00223)
Contig.	0.634***	0.789***	-0.0440***	0.0920***	0.204***
	(0.177)	(0.182)	(2.21e-06)	(2.23e-06)	(0.00886)
Colony	0.376*	0.457**	0.426***	0.155***	-0.488***
	(0.228)	(0.197)	(3.53e-06)	(3.51e-06)	(0.0210)
Com. Lang.	0.615***	0.521***	0.526***	0.217***	-0.608***
	(0.0778)	(0.0710)	(1.27e-06)	(1.24e-06)	(0.00403)
Com. Col.	-0.0612	0.0159	0.986***	0.769***	-0.0323***
	(0.0841)	(0.0785)	(1.54e-06)	(1.49e-06)	(0.00483)
RTA	1.095**	0.224	1.306***	1.179***	-1.078***
	(0.467)	(0.497)	(3.39e-06)	(3.53e-06)	(0.0209)
Col. 45	0.313	0.254	-0.471***	-0.280***	0.144***
	(0.461)	(0.518)	(4.07e-06)	(4.06e-06)	(0.0265)
Inst. Exp.	0.781***	0.399***	0.0561***		-0.479***
	(0.0556)	(0.0307)	(7.55e-07)		(0.00294)
Constant	-3.988***	-4.944***	-21.28***	-19.16***	8.117***
	(0.839)	(0.733)	(1.60e-05)	(1.69e-05)	(0.0457)
Year dummies	YES	YES	YES	YES	YES
Observations	659065	659065	1880488	1880488	1880488
R-squared	0.124				
Vuong test					156.72***
Number of id		102224			

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Finally, to look at the “institutional intensity” of the region’s manufacturing sectors, we run the regressions at a sectoral level. For the sake of brevity, Table 7 only reports the results for selected manufacturing sectors using the zero-inflated Poisson model. Two remarks are worth mentioning. First, the institutional quality reduces the probability of zero trade for all manufacturing sectors, i.e. the coefficient of the institutional index in all the Logit regressions is negative and significant. Second, by comparing different sectors, we find that differentiated and high value-added products are more affected by the quality of institutions than

homogenous and low value-added products. The coefficient of the institutional index is lower, in absolute value, for low value-added products (Figure 4a and 4b). As argued by Rauch (1999), homogeneous and low value-added goods (processed foods and beverages) can be compared solely on the basis of price differences and can be traded on organized exchanges with the possibility for international arbitrage of price differences. By contrast, because of their heterogeneity, diverse varieties of a differentiated product (machines, high technology equipment, etc.) cannot be compared on the basis of prices alone and cannot be traded on organized exchanges. Moreover, since information is important in trading such high value-added goods, it is quite obvious that institutions matter more for them than for low value-added products. In other terms, differentiated products are traded through searching and matching between traders, customers and suppliers. The process of search is facilitated by factors that improve the information flow and knowledge of foreign markets (such as shared language, colonial links, and legal origin). All these factors improve institutions, as has been shown in the first step, and therefore boost trade in high value-added products. Our results are in line with the findings of Rauch and Trindade (2002), who show that Chinese networks increase bilateral trade more for differentiated than for homogeneous products.

Table 7a: Sectoral Regressions for Selected Products

	02. Meat		04. Dairy product		08. Edible fruit and nuts		31. Fertilisers	
	Trade	P(Trade=0)	Trade	P(Trade=0)	Trade	P(Trade=0)	Trade	P(Trade=0)
Ln(GDP Exp.)	0.567***	-0.244***	0.561***	-0.246***	0.933***	-0.346***	-0.0137***	-0.0858***
	(2.59e-05)	(0.0201)	(9.54e-06)	(0.0141)	(6.96e-06)	(0.0130)	(3.79e-06)	(0.0167)
Ln(GDP Imp.)	0.241***	-0.181***	0.234***	-0.0956***	0.607***	-0.265***	0.534***	-0.269***
	(1.46e-05)	(0.0112)	(5.83e-06)	(0.00750)	(3.85e-06)	(0.00710)	(2.27e-06)	(0.00892)
Ln(Dist.)	-0.506***	0.502***	-0.683***	0.420***	-1.075***	0.608***	0.0866***	0.296***
	(3.26e-05)	(0.0290)	(1.16e-05)	(0.0221)	(8.33e-06)	(0.0202)	(5.44e-06)	(0.0226)
Contig.	1.252***	0.123	0.571***	0.00236	-0.168***	0.191**	-0.642***	-0.187**
	(6.38e-05)	(0.0943)	(2.23e-05)	(0.0863)	(1.95e-05)	(0.0874)	(3.18e-05)	(0.0871)
Colony	-4.064***	0.150	-2.354***	-0.819***	0.386***	-1.355***	0.546***	-0.915***
	(0.00124)	(0.234)	(0.000229)	(0.191)	(3.30e-05)	(0.237)	(2.11e-05)	(0.182)
Com. Lang.	0.375***	-0.745***	2.152***	-1.081***	0.330***	-0.790***	-0.391***	-0.479***
	(5.72e-05)	(0.0521)	(2.70e-05)	(0.0372)	(1.34e-05)	(0.0365)	(1.20e-05)	(0.0442)
Com. Col.	-0.967***	-0.336***	-1.300***	-0.0774*	-0.625***	0.154***	0.732***	-0.116**
	(7.52e-05)	(0.0616)	(2.89e-05)	(0.0457)	(2.12e-05)	(0.0438)	(1.13e-05)	(0.0514)
RTA	-0.554***	0.585**	-2.090***	-0.0495	-2.784***	-1.608***	-2.238***	-2.052***
	(0.000363)	(0.273)	(0.000163)	(0.196)	(6.12e-05)	(0.201)	(6.46e-05)	(0.203)
Col. 45	3.464***	-0.158	-1.251***	0.653***	0.954***	1.272***	0.0146***	1.058***
	(0.00126)	(0.291)	(0.000390)	(0.243)	(3.81e-05)	(0.284)	(2.98e-05)	(0.254)
Inst. Exp.		-0.360***		-0.269***		-0.374***		-0.791***
		(0.0406)		(0.0273)		(0.0237)		(0.0337)
Constant	-3.566***	8.285***	-1.197***	6.240***	-16.14***	10.98***	2.294***	7.524***
	(0.000814)	(0.630)	(0.000309)	(0.449)	(0.000208)	(0.413)	(0.000120)	(0.508)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	12933	12933	20899	20899	25857	25857	18013	18013

Robust standard errors in parentheses

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

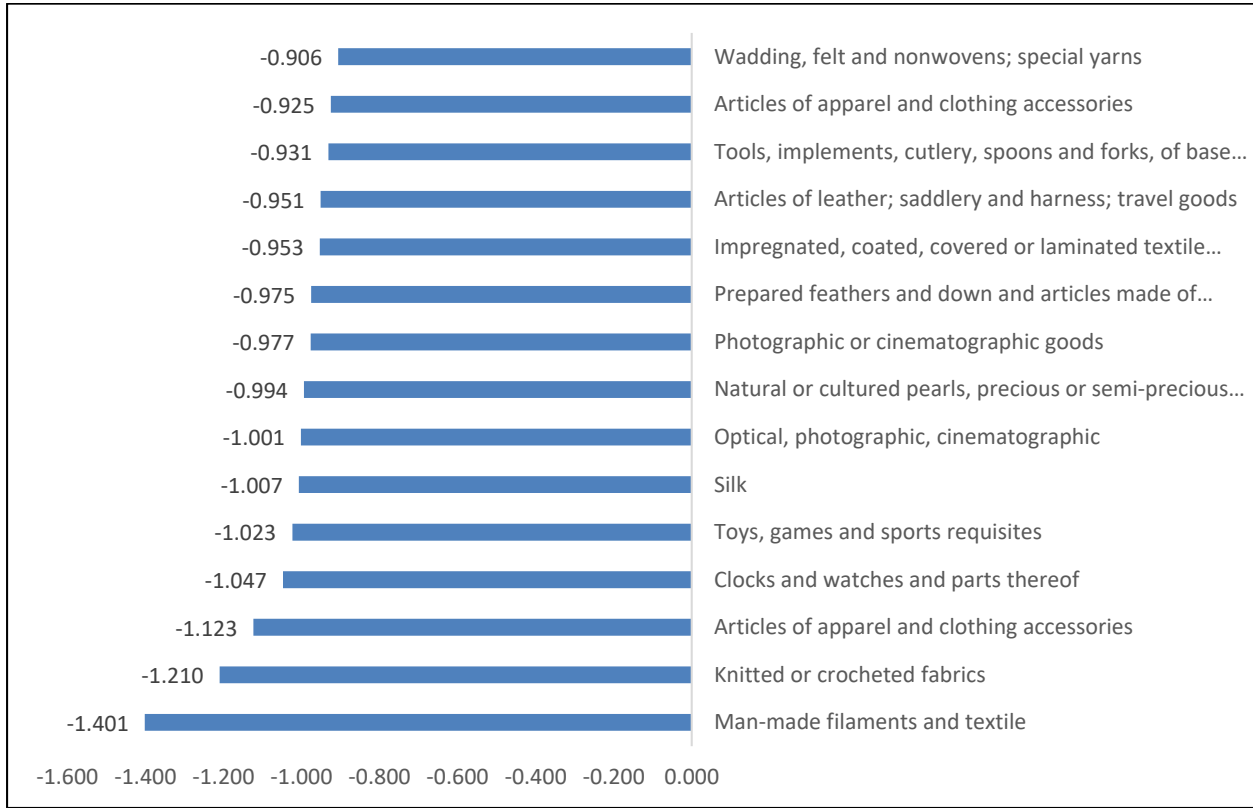
Table 7b: Sectoral Regressions for Selected Products (Cont'd)

	62. Apparel		70. Glass prod.		85. Machinery		95. Toys and Games	
	Trade	P(Trade=0)	Trade	P(Trade=0)	Trade	P(Trade=0)	Trade	P(Trade=0)
Ln(GDP Exp.)	0.399***	-0.160***	1.223***	-0.420***	0.662***	-0.225***	0.221***	-0.266***
	(3.92e-06)	(0.0116)	(1.48e-05)	(0.0124)	(2.16e-06)	(0.00989)	(1.34e-05)	(0.0140)
Ln(GDP Imp.)	1.571***	-0.323***	0.485***	-0.285***	0.697***	-0.290***	0.560***	-0.217***
	(4.80e-06)	(0.00688)	(6.23e-06)	(0.00696)	(1.28e-06)	(0.00585)	(9.91e-06)	(0.00828)
Ln(Dist.)	-2.280***	0.492***	-0.894***	0.516***	-0.490***	0.451***	-0.904***	0.591***
	(6.47e-06)	(0.0190)	(1.34e-05)	(0.0195)	(2.63e-06)	(0.0173)	(1.84e-05)	(0.0226)
Contig.	-2.120***	0.335***	0.0626***	0.269***	-0.171***	0.587***	-0.746***	0.190**
	(2.46e-05)	(0.0875)	(3.23e-05)	(0.0862)	(7.98e-06)	(0.0865)	(5.62e-05)	(0.0910)
Colony	-0.463***	-1.049***	0.0826***	-1.178***	-1.220***	-0.566**	-3.961***	-0.406**
	(3.36e-05)	(0.247)	(7.74e-05)	(0.248)	(3.10e-05)	(0.227)	(0.000870)	(0.207)
Com. Lang.	0.360***	-0.762***	0.581***	-0.902***	1.621***	-1.088***	0.181***	-0.565***
	(1.11e-05)	(0.0348)	(2.33e-05)	(0.0358)	(4.46e-06)	(0.0324)	(3.33e-05)	(0.0398)
Com. Col.	-1.456***	0.257***	-0.124***	0.0590	0.464***	-0.0343	-0.00449***	0.139***
	(2.47e-05)	(0.0403)	(2.96e-05)	(0.0416)	(5.55e-06)	(0.0353)	(4.27e-05)	(0.0472)
RTA	-2.668***	-2.195***	-0.538***	-1.560***	0.124***	-3.476***	-1.505***	-1.201***
	(3.42e-05)	(0.216)	(9.46e-05)	(0.206)	(1.34e-05)	(0.268)	(0.000202)	(0.221)
Col. 45	1.850***	0.370	-0.0379***	0.612**	1.739***	0.427	4.451***	-0.293
	(3.51e-05)	(0.318)	(9.45e-05)	(0.299)	(3.15e-05)	(0.291)	(0.000871)	(0.264)
Inst. Exp.		-0.925***		-0.486***		-0.837***		-1.023***
		(0.0264)		(0.0235)		(0.0222)		(0.0311)
Constant	-19.40***	8.529***	-22.92***	14.16***	-14.54***	9.328***	0.813***	8.260***
	(0.000163)	(0.373)	(0.000429)	(0.399)	(6.58e-05)	(0.325)	(0.000442)	(0.439)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	28558	28558	28186	28186	35573	35573	20442	20442

Robust standard errors in parentheses

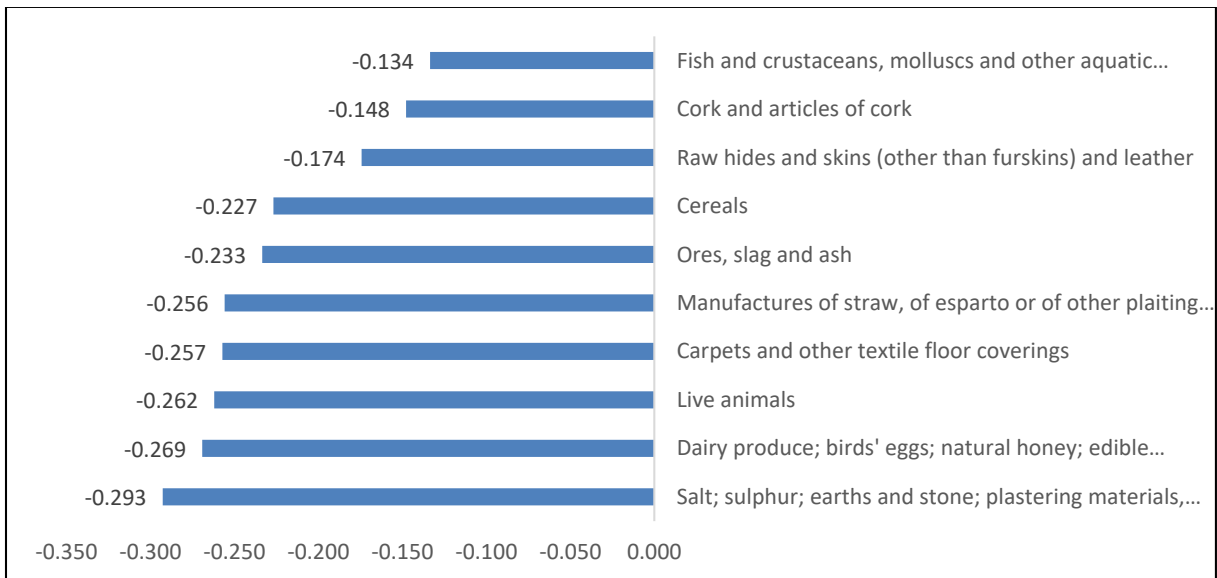
*** p<0.01, ** p<0.05, * p<0.1

Figure 4a: Sectors with the Highest Regression Coefficients for the Institutional Index



Source: Authors' calculations. Results of the Logit Regression of the zero-inflated Poisson Model.

Figure 4b: Sectors with the Lowest Regression Coefficients for the Institutional Index



Source: Authors' calculations. Results of the Logit Regression of the zero-inflated Poisson Model.

As bilateral trade data is not available for disaggregated service sectors, we use the unilateral variant of the gravity model specified in the previous section. The first three columns of Table 8 show that the most of the gravity variables have their expected signs under the OLS, Panel, and PPML specifications. The results of the ZIP model are not considered here, as the Vuong test (Vuong, 1989) does not give support to that model over the regular Poisson model. GDP and colonial dummies (both France and UK) have a significant positive impact on exports in services. Most importantly, the institutions variable has a significant positive impact on service exports that is robust to the change in the econometric specification. As the quality of institutions improves by one point, the increase in services exports ranges from 0.25 to 1.35 points, depending on the econometric specification.

Table 8: Regressions for Service Exports (Second Step)

	OLS	Panel	PPML	ZIP	
	Ln(Trade)	Ln(Trade)	Trade	Trade	P(Trade=0)
Ln(GDP Exp.)	0.435*** (0.0374)	0.487*** (0.109)	0.357*** (6.10e-07)	0.400*** (6.17e-07)	-0.134*** (0.0275)
Arabic	0.277*** (0.0987)	-0.312 (0.384)	-0.229*** (1.86e-06)	-0.163*** (1.73e-06)	0.428*** (0.0830)
France col	0.542*** (0.136)	1.283*** (0.472)	1.054*** (2.82e-06)	1.026*** (2.69e-06)	-1.038*** (0.110)
UK. Col.	1.104*** (0.121)	1.666*** (0.406)	1.242*** (2.31e-06)	1.351*** (2.12e-06)	-0.592*** (0.0877)
Lat.	0.000167 (0.00676)	-0.0249 (0.0273)	0.0287*** (1.69e-07)	-0.0148*** (1.54e-07)	-0.0500*** (0.00524)
Inst. Exp.	1.345*** (0.0790)	0.295** (0.133)	0.246*** (1.23e-06)		0.515*** (0.0560)
Constant	7.673*** (0.868)	6.808** (2.683)	9.589*** (1.62e-05)	10.29*** (1.63e-05)	4.847*** (0.647)
Year dummies	YES	YES	YES	YES	YES
Observations	2584	2584	4624	4624	4624
R-squared	0.211				
Vuong test				0	
Number of id		191			

Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

When we run the regressions by sector, we find that institutions have a significant positive impact on the following service sectors: “Travel”, “Financial Services”, “Other Business Services”, and “Services not allocated. Counterintuitively, the results show that “Computer and information services”, “Communications services”, “Royalties and license fees”, “Personal, cultural, and recreational services”, and “Government Services” are negatively affected by the measure of institutional quality.

Table 9: Sectoral Regressions for Services (PPML)

	205	236	245	249	253	260	262	266	268	287	291	983
	Trade	Trade	Trade	Trade	Trade	Trade	Trade	Trade	Trade	Trade	Trade	Trade
Ln(GDP Exp.)	0.629** *	0.413** *	0.488** *	0.761** *	0.161	0.0696	1.583** *	0.964***	0.577** *	0.146	0.576***	0.132
	(0.0484)	(0.0534)	(0.0904)	(0.137)	(0.104)	(0.0752)	(0.114)	(0.0663)	(0.0756)	(0.104)	(0.0683)	(0.0842)
Arabic	0.206	0.684** *	0.886** *	-1.274**	1.675** *	- 0.840** *	- 3.085** *	-3.579***	- 1.576** *	- 0.937** *	0.790***	-0.0836
	(0.144)	(0.128)	(0.182)	(0.538)	(0.195)	(0.208)	(0.386)	(0.238)	(0.172)	(0.227)	(0.258)	(0.383)
France col	0.856** *	0.661** *	1.532** *	0.619	0.339	0.930*	4.976** *	6.938***	1.621** *	1.921** *	0.727***	0.314
	(0.197)	(0.196)	(0.247)	(0.469)	(0.287)	(0.509)	(0.692)	(0.345)	(0.328)	(0.318)	(0.230)	(0.490)
UK. Col.	1.668** *	0.495** *	2.482** *	0.500	0.928** *	0.0576	7.651** *	7.299***	-0.622	3.078** *	1.397***	3.009** *
	(0.163)	(0.178)	(0.299)	(0.316)	(0.323)	(0.567)	(0.765)	(0.333)	(0.386)	(0.297)	(0.198)	(0.449)
Lat.	0.00655	0.0346* *	0.0332* *	0.136*	-0.0207	0.103** *	0.0171	- 0.0765** *	0.0421* *	0.00680	- 0.0601** *	0.305** *
	(0.0182)	(0.0148)	(0.0145)	(0.0724)	(0.0183)	(0.0165)	(0.0232)	(0.0205)	(0.0174)	(0.0206)	(0.0156)	(0.0711)
Inst. Exp.	-0.179	0.694** *	-0.429**	0.0443	0.292	0.870** *	- 2.319** *	-0.734***	1.766** *	- 0.551** *	-0.595***	0.882** *
	(0.113)	(0.127)	(0.203)	(0.191)	(0.203)	(0.295)	(0.343)	(0.231)	(0.236)	(0.158)	(0.112)	(0.222)
Constant	4.142** *	9.124** *	3.838	-3.774	12.71** *	13.73** *	- 24.31** *	-8.387***	5.980** *	12.80** *	4.859***	4.966
	(1.554)	(1.545)	(2.527)	(5.802)	(2.517)	(1.795)	(3.429)	(1.549)	(1.767)	(2.318)	(1.789)	(4.433)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	272	272	272	272	272	272	272	272	272	272	272	272
R-squared	0.307	0.327	0.283	0.744	0.109	0.175	0.829	0.969	0.572	0.105	0.184	0.756

Robust standard errors in parentheses

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

We can summarize our main findings in three main points. First, the institutional quality of MENA exporters is explained by the importer's institutions and conflicts and the origin of the importer's legal framework. Second, the institutional quality of MENA exporters has a positive and significant impact on bilateral trade in goods and services exports. Third, at the sectoral level and in line with the literature, differentiated and high value-added products appear to be more affected by the quality of institutions than homogenous and low value-added products.

5. Conclusion and Policy Recommendations

This paper explores the relationship between institutions and trade in the MENA region. There is a common consensus that the quality of institutions in MENA countries is poor, but surprisingly, MENA's share of trade in gross domestic product (GDP) compares favorably to other regions. These bright trade figures calculated at the aggregate level mask the heterogeneity that exists among MENA countries and sectors, however, which is why we perform our analysis using disaggregated data. We run sectoral regressions through which we investigate the effect of institutions on trade flows in 99 manufacturing sectors over the period 1995–2014, and 17 services sectors over the period 2000–2014 for 21 MENA countries. We construct an institutional index using the World Bank's World Governance Indicators and take into consideration the reverse causality that exists between trade and institutions in a two-step analysis. We first estimate the institutional variable using explanatory variables such as conflicts, colonial links, the origin of the legal framework, the institutional quality of the importer, oil rent as a percentage of GDP, and membership in a regional trade agreement. Then, in a second step, the predicted value of institution is implemented in the gravity equation, which is estimated using different econometric techniques including the PPML estimator and ZIP model.

We find that the institutional quality of MENA exporters is explained by the importer's institutions and conflicts, and the origin of the importer's legal framework. Second, the institutional quality of MENA exporters has a positive and significant impact on bilateral trade in goods and services exports. Third, at the sectoral level, differentiated and high value-added products appear to be more affected by the quality of institutions than homogenous and low value-added products. Furthermore, these results are robust under a battery of sensitivity analysis tests.

Institutions do in fact matter for trade. Therefore, to reap the benefits of trade liberalization for growth, improving the quality of institutions should be the first item on the liberalization agenda for the MENA region. It is crucial that the region's countries become aware of the penalizing effect of bad institutions on their trade performance - and therefore on their growth - and dispose of the factors behind the poor quality of their institutions, such as corruption and political instability.

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