Exports and governance: Is the Middle East and North Africa region different?

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1 | INTRODUCTION

The present research aims to analyse whether better governance rewards the economic performance of countries with an increase in bilateral trade flows. This analysis is motivated by the fact that the business environment in which firms develop their activities is expected to affect the aggregate performance of the whole economy, and in particular, international trade. Well-functioning institutions facilitate international transactions and reduce the uncertainty usually associated with trade. Handley and Limão (2017) and Bown and Keynes (2017) recently pointed out that events, such as threats to renegotiate trade agreements, can be harmful to the economy due to the uncertainty they involve. The political events that occurred in the second half of 2017 in Catalonia (Spain) are a good example of increasing uncertainty generated by governance failures. In September–October 2017, the business sector interpreted that an independence declaration by separatist authorities could have unforeseeable consequences that might harm their business environment. Consequently, many firms decided to move their headquarters to other Spanish regions. These facts not only indicate businesses’ fears of potentially being taken out of the European Union (EU) and the Euro-zone, but also threatened the governance framework (Cao, 2017; EU Observer, 2017).

In this paper, we specifically investigate the link between institutions and trade, and claim that better governance might offset unforeseeable events and reduce trade costs, and hence have a positive effect on exports. We focus on the economic region of the Middle East and North Africa (MENA), where countries faced the Arab Spring, which was sometimes followed by changes in leadership and power vacuums. In addition, the MENA region suffers from poor institutional quality at multiple levels, including the malfunctioning of public administration, deficiencies in political rights, rule of law and civil liberties and the proliferation of inefficient and/or ineffective laws and regulations.

Indicators for the quality of institutions commonly used in empirical trade research are regulatory constraints (e.g., Botero, Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002; Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002), the level of economic freedom (e.g., Doyle & Martínez-Zarzoso, 2011; Márquez-Ramos, Martínez-Zarzoso, & Suárez-Burguet, 2011), property rights (e.g., Hall & Jones, 1999; Márquez-Ramos, Florensa, & Recalde, 2017) and the level of democracy and corruption (Gylfason, Martínez-Zarzoso, & Wijkman, 2015; Horsewood & Voicu,
2012) among others. Furthermore, there are papers that focus on several interrelated pillars of governance (e.g., Berden, Bergstrand, & Etten, 2014; Bojnec, Ferto, & Fogarasi, 2014; Charron, Dykstra, & Lapuente, 2014; Méon & Sekkat, 2004). This literature indicates that single governance indicators might affect exports differently and some of them could be more relevant for developing countries than for the rest. We focus on this area of research using panel data techniques that will allow us to disentangle issues of causality (Gylfason et al., 2015) and focus on MENA countries and compare the effects with other regions in the world economy.

To the best of our knowledge, there have only been two studies that focus on MENA countries, namely Méon and Sekkat (2004) and Ali and Mdhillat (2015). The former focuses on the effect of institutional quality on trade in MENA countries in the 1990s using openness as a dependent variable and political risk as a proxy for the quality of institutions, while the later uses a gravity model approach using data in the 2000s but only focuses on corruption. We depart from these studies in two ways. First, we use the World Bank Worldwide Governance Indicators (WGI) and their six dimensions to investigate their specific effect on exports. We also investigate whether similarities in governance indicators between countries affect trade flows using a fuzzy index. Second, we apply the model to the most recent data and this allows us to account for the changes that occurred after the Arab Spring.

The main results show that individually, each of the six governance indicators in the exporting and the importing countries considered has a positive effect on bilateral trade. However, the results for MENA exporters indicate that governance in the importing countries does not affect MENA exports, but it does affect exports from the average exporter. Moreover, increasing country-pair similarity in governance indicators—in terms of the levels of regulatory quality and the rule of law in the exporting and importing countries—favours the exports of MENA countries. Meanwhile, similarities in voice and accountability and in political stability also foster exports for the average exporter, but not for MENA exporters.

The rest of the paper is structured as follows: Section 2 presents the literature review and Section 3 specifies the main hypotheses and the empirical model. Section 4 describes the data and variables and presents the descriptive statistics, followed by the results in Section 5. Finally, Section 6 concludes and presents a number of policy implications derived from our findings.

2 | LITERATURE REVIEW

2.1 | Governance and exports

The role and importance of institutions have been examined extensively in the economic literature (see, e.g., Acemoglu, Johnson, & Robinson, 2001, 2002; Acemoglu, Johnson, Robinson, & Thaicharoen, 2003; Acemoglu & Yared, 2010; Easterly, 2001; Hall & Jones, 1999; La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997, 1998). Most authors find that weak institutional quality causes lower per capita income and higher macroeconomic volatility. Since international trade is also a potential contributor to macroeconomic outcomes, it is natural to think that the historically determined component of institutions should also have an effect on trade flows.

This paper is closely related to the literature analysing the causal link between governance indicators and international trade (see Acemoglu & Yared, 2010; Anderson & Marcouiller, 2002; Berden et al., 2014; Bojnec et al., 2014; Dutt & Traca, 2010; Gylfason et al., 2015; Horsewood & Voicu, 2012; Levchenko, 2007; Márquez-Ramos, 2011; Milner & Mukherjee, 2009; Morrow, Siverson, & Tabares, 1998; Nunn & Trefler, 2014). Despite the fact that different methodological approaches have been used to test this relationship, in most cases the results indicate that governance affects trade
flows. For example, Levchenko (2007) proposed a model in which institutional differences are modelled within the framework of incomplete contracts, a channel that was pointed out by Acemoglu et al. (2003) when investigating the association between governance and economic performance. In this framework, those differences are a source of comparative advantage. The author tests the model using US imports and finds that institutional differences are an important determinant of trade flows. In the same vein, Nunn and Trefler (2014) argue that institutional sources of comparative advantage are quantitatively as important as traditional sources, although they operate through fundamentally different channels. The authors survey both the theoretical and the empirical literature supporting the view that domestic institutions affect international trade and emphasise the importance of econometric endogeneity problems that emerge as a consequence of reverse causality, since international trade could also have an impact on domestic institutions.

An alternative approach was presented by Milner and Mukherjee (2009), who present a literature review of the interactions between democracy and globalisation, mainly focusing on trade and capital account openness. They conclude that there is generally robust evidence indicating that democracy fosters trade and capital account liberalisation, but that empirical support for the predicted positive effect of economic openness on democracy among developing countries is weak.

The literature using the gravity model of trade, which is our selected methodological approach, is summarised in Table A8 in the Appendix. The entries on the table indicate the methods and samples used and the main results of studies that use governance as a first-order determinant of bilateral trade flows.

The evidence indicates that bilateral trade depends on the political decisions of countries (Acemoglu & Yared, 2010; Morrow et al., 1998). Morrow et al. (1998) showed that trade among countries increases due to joint democracy and common interests, while Acemoglu and Yared (2010) proved that nationalist and militarist sentiments are important determinants of bilateral trade using the change in the interaction of the exporter’s and the importer’s governance measures. However, these studies do not differentiate between the role of both the exporter’s and the importer’s governance indicators.

Yu (2010) investigates the causal effect of democracy and institutional quality on bilateral trade. A more democratic exporter should have better institutions and hence sound consumer rights, food and product regulations and legal enforcement. All of these factors should reduce trade costs and improve product quality and the reputation of a country’s exports. Moreover, democratisation in an importer country has the potential to reduce trade barriers and increase imports, but the outcome depends on the type of product(s) traded. A country may also become more protective if it has a comparative advantage in labour-intensive goods. The main results indicate that an exporter and an importer with a higher level of democracy are generally associated with higher bilateral trade, whereas only the exporters’ level of institutional quality is associated with higher exports, when controlling for the level of democracy.

Dutt and Traca (2010) and Horsewood and Voicu (2012) investigate the role of corruption on bilateral trade. These authors find that corruption hinders trade, although the difference between the ethical standards of the importing and exporting country has a negative impact on international transactions. Therefore, one must account for the business cultures of both the exporter and the importer. Specifically, countries with a similar ethical business environment will tend to trade more with each other, suggesting that a shared understanding of what is considered an acceptable practice is an important factor in cross-border transactions (Horsewood & Voicu, 2012).

An additional indicator of governance has been used in Anderson and Marcouiller (2002), who used the 1997 World Economic Forum’s Executive Survey, which was completed by more than 3,000 participants distributed across 58 countries. The authors found that by acting as a hidden tax on trade, insecurity and inadequate institutions constrained trade as much as tariffs do.
More recently, Berden et al. (2014) take into account the governance indicators of importers, but not those of exporters. Berden et al. (2014) used the WGIs to estimate the effects of governance on trade and foreign direct investment (FDI). Their data are restricted to the period from 1997 to 2004 and to 28 OECD countries as source countries and 124 potential destination countries, mainly due to the lack of FDI data. They point to the problem of collinearity among the single indicators and for this reason add each of them sequentially. Berden et al. (2014) use the WGIs and group them into three main components: the process by which governments are selected, monitored and replaced (this indicator includes voice and accountability and political stability), the capacity of the government to effectively formulate and implement sound policies (measured by government effectiveness and regulatory quality) and the respect of citizens and the state for institutions that govern economic and social interactions (comprising rule of law and control of corruption). According to these authors, the first category of indicators in the importing country should have a negative effect on trade flows, whereas the other two should positively affect exports. Their main results concerning trade flows show that while political voice and accountability are negatively related to trade levels, a positive and statistically significant effect is obtained for the other five WGI variables individually.

Finally, Bojnec et al. (2014) focused on agro-food exports from BRIC countries (i.e., Brazil, Russia, India and China) and find that better governance in exporting and importing countries fosters exports.

Following the above-mentioned studies, we hypothesise that better governance reduces trade costs and enhances exports. The first channel is through the facilitation of contracting and long-term agreements between companies located in countries with better governance, and through the better understanding of norms (contracting, cultural or social) between the parties (Bojnec et al., 2014; Horsewood & Voicu, 2012). The second channel works through investments and productivity improvements in countries with better governance (Bojnec et al., 2014). Finally, the third channel is through decreasing uncertainty as well as increasing transparency, comparability and trust (Bojnec et al., 2014; Márquez-Ramos, 2011; Yu, 2010). All these channels might contribute to reduced trade costs through transaction, adjustment and information costs, hence increasing exports. Figure 1 illustrates these three channels.

In general, there is robust evidence indicating that democracy and good institutions foster trade. Nevertheless, there is limited evidence that goes beyond democracy and focuses on individual indicators of governance that capture different dimensions of the institutional process and its effect on trade flows. Berden et al. (2014) evaluates a short period of time (1998–2004) and focuses mainly on OECD exporters, while Bojnec et al. (2014) focus on agro-food exports from BRIC countries. We now turn to the literature exploring the relationship between exports and governance in developing countries, and more specifically, in MENA countries.

**FIGURE 1** Governance and exports: Transmission channels
*Source: Authors elaboration. [Colour figure can be viewed at wileyonlinelibrary.com]*
2.2 | Governance and exports in MENA countries

The existing literature finds that institutions and governance matter for economic performance and trade and that the findings might differ across countries. It is therefore worth analysing specific world regions and MENA countries in particular. Weak governance has been prevalent in the MENA region as it suffers from poor functioning public administration and deficiencies in political rights, rule of law and civil liberties.

Concerning the literature that investigates the effect of governance on trade in specific regions or with regard to specific levels of development, there are two related studies that focus on developing countries (Milner & Kubota, 2005 and Yu, 2010) and two other studies that focus on MENA countries (Ali & Mdhillat, 2015; and Méon & Sekkat, 2004).

Milner and Kubota (2005) find that the emergence of democracy has a positive and statistically significant effect on trade openness in developing countries; meanwhile, Yu (2010) obtains similar findings, with the exception of the export of labour-intensive goods from least developed countries to developed countries. In this specific case, the author finds that an importer’s level of democracy has a negative effect on exports. The theoretical explanation for this finding is based on the Stolper–Samuelson effect.

Focusing on MENA countries, Méon and Sekkat (2004) examine whether ill-functioning institutions prevent these countries from greater participation in the world economy. These authors examine the effect of country risk on both export performance and FDI attractiveness in the 1990s using country-level data for openness and applying panel data methods. The findings indicate that deteriorating institutional quality is generally associated with low performance in terms of manufactured exports and investment attractiveness.

More recently, Ali and Mdhillat (2015) confirm the negative effect of corrupt behaviour on international trade found by Horsewood and Voicu (2012) for Eastern European countries. They find that corruption hinders trade within the European Union, but it has a more pronounced impact in MENA countries. Additionally, these authors also find that similarities in the ethical business environment between trading partners increase the volume of trade.

Also focusing on MENA countries, the present research analyses if better governance and similarities in the quality of governance, have an impact on bilateral trade flows. We compare the outcomes of all exporters with those from MENA exporters, using a longer period than Méon and Sekkat (2004) and Ali and Mdhillat (2015) and a larger sample of countries. Moreover, we consider a broad spectrum of governance indicators than this last paper, which only relies on corruption.

3 | MAIN HYPOTHESES AND MODEL SPECIFICATION

Similar to a wide range of recent empirical studies that investigate the determinants of bilateral trade flows (Head & Mayer, 2014), we use the gravity model of trade. Following the methodological choices in most of the studies revised in the previous section that used this framework, we augment a gravity model for aggregated exports with governance indicators, to determine the role of governance in export flows. The main reason for the selection of the gravity framework is that the model provides a good statistical fit for most data sets and could be extended with policy variables.¹

We hypothesise that single governance indicators could have a differential effect on trade and that it is not only governance in the importing country that matters for exporters (as considered in

¹For a review of the literature using gravity models applied to trade flows, see Anderson (2010) and Martínez-Zarzoso (2013).
Berden et al., 2014), but also governance in the exporting country. Therefore, the gravity model is augmented with governance indicators in the exporting and the importing country, separately.

In addition, we also hypothesise that similarities in governance structures, in particular concerning regulatory quality, rule of law and the control of corruption, could also influence exports (Horsewood & Voicu, 2012; Levchenko, 2007); hence, similarity measures will be added as additional regressors in the gravity model.

Finally, concerning the direction of the effects, Berden et al. (2014) find that voice and accountability and political stability in an importer country have a negative effect on aggregate exports. However, we believe that the effect might depend on the type of products traded (see Bojnec et al., 2014 and Yu, 2010) in which case it is expected to be ambiguous in the analysis of the determinants of aggregated export flows.

The gravity model has been widely used to analyse the impact of various factors on trade such as the effect of trade facilitation measures, regional trade agreements and development aid (e.g., Márquez-Ramos, Martínez-Zarzoso, & Suárez-Burguet, 2012; Martínez-Zarzoso, Nowak-Lehmann, & Klasen, 2017; Martínez-Zarzoso, Nowak-Lehmann, & Horsewood, 2009). In its basic form, this model assumes that trade between countries is directly related to a country’s economic size and inversely related to the distance between them. Exports from country $i$ to country $j$, $X_{ij}$, are explained by the countries’ economic sizes (determined by their GDPs), direct geographical distances and a set of dummies incorporating common characteristics to specific flows such as a common language, a common border or colonial relationships. The specification of the gravity model of trade in its original multiplicative form for a single year is given by:

$$X_{ij} = \beta_0 \text{GDP}_i \beta_1 \text{GDP}_j \beta_2 \text{DIST}_{ij} A_{ij} u_{ij},$$

where GDP$_i$ (GDP$_j$) indicates the GDP of an exporter (importer), DIST$_{ij}$ measures the distance between the two countries’ capitals (or economic centres). A high level of income in the exporting country indicates a high level of production, which increases the availability of goods for export. Therefore, $\beta_1$ is expected to be positive. The coefficient of $Y_j$, $\beta_2$, is also expected to be positive since a high level of income in the importing country suggests higher imports. The distance coefficient is expected to be negative since it is a proxy of all possible trade cost sources. $A_{ij}$ represents any other factors aiding or preventing trade between pairs of countries and $u_{ij}$ is the error term. Usually, $A_{ij}$ includes dummy variables for trading partners sharing a common language, colonial ties and a common border as well as trading bloc dummy variables that evaluate the effects of preferential trade agreements. The coefficients of all these bilateral variables are expected to be positive.

When the gravity model of trade is estimated using panel data, the time dimension is incorporated into the model. In this setting, there are a number of econometric issues that have to be taken into account in order to obtain unbiased estimates of the model parameters.

For estimation purposes, Equation (1) in log-linear form augmented with governance indicators and with the time dimension added becomes:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln \text{GDP}_it + \beta_2 \text{GDP}_jt$$
$$+ \beta_3 (\ln \text{DIST}_{ijt}) + \beta_4 (\text{CONTIG}_{ijt}) + \beta_5 (\text{COMLANG}_{ijt})$$
$$+ \beta_6 (\text{COLONY}_{ijt}) + \beta_7 \text{RTA}_{ijt} + \beta_8 \text{WTO}_{ijt}$$
$$+ \beta_9 \text{VA}_{it} + \beta_{10} \text{PS}_{it} + \beta_{11} \text{GE}_{it} + \beta_{12} \text{RQ}_{it} + \beta_{13} \text{RL}_{it} + \beta_{14} \text{CC}_{it}$$
$$+ \beta_{15} \text{VA}_{jt} + \beta_{16} \text{PS}_{jt} + \beta_{17} \text{GE}_{jt} + \beta_{18} \text{RQ}_{jt} + \beta_{19} \text{RL}_{jt} + \beta_{20} \text{CC}_{jt} + \delta_t + \epsilon_{ijt},$$

(2)
where the variables \( \ln \text{GDP}_i \) and \( \ln \text{GDP}_j \) are defined above; \( \text{DIST}_{ij} \) is the bilateral distance between the economic centres of \( i \) and \( j \); as previously defined, \( \text{CONTIG}_{ij} \) is a dummy variable assuming a value of 1 if the two countries share a common land border (0 otherwise); \( \text{COMLANG}_{ij} \) is a dummy variable that takes a value of 1 if the two countries share a common language; \( \text{COLONY}_{ij} \) is a dummy variable that takes the value of 1 when countries \( i \) and \( j \) have ever had a colonial relationship (0 otherwise); \( \text{RTA}_{ij} \) is a variable that takes the value of 1 if countries \( i \) and \( j \) belong to the same regional integration agreement; \( \text{WTO}_{ij} \) is a variable that takes the value of 1 if countries \( i \) and \( j \) belong to the World Trade Organization in year \( t \). The rest of the variables are the six individual measures included in the Worldwide Governance Indicators from the World Bank: Voice and Accountability (VA), Political Stability (PS), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL) and the Control of Corruption (CC). Each governance variable is specified in the model (2) with the subscripts \( it \) or \( jt \) denoting that they vary by exporter-and-time or importer-and-time. As in Berden et al. (2014), we standardise the WGI variables to range between 0 and 100 to aid the interpretation of the results.

According to Anderson and van Wincoop (2003), Feenstra (2004) and Baier and Bergstrand (2007) among others, the traditional gravity model as specified in (2) is atheoretical because it does not account for the theoretically motivated multilateral resistance terms (MRT), which refer to exporter and importer price indices with respect to all trading partners and represent the general equilibrium effects that imply that trade between any given pair of countries also depends on the prices in the rest of the potential trading partners of the given pair of countries. Some authors estimate Equation (2) by adding bilateral or country-pair (“pair”) dummy variables to account for MRT. In this case, the coefficients of the time-invariant bilateral variables that are in the specification (2) cannot be directly estimated.\(^2\) The model becomes:

\[
\ln X_{ijt} = \beta_0 + \beta_1 \ln \text{GDP}_{it} + \beta_2 \ln \text{GDP}_{jt} + \beta_3 \text{RTA}_{ijt} + \beta_4 \text{WTO}_{ijt} + \beta_5 \text{VA}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{GE}_{it} + \beta_8 \text{RQ}_{it} + \beta_9 \text{RL}_{it} + \beta_{10} \text{CC}_{it} + \beta_{11} \text{VA}_{jt} + \beta_{12} \text{PS}_{jt} + \beta_{13} \text{GE}_{jt} + \beta_{14} \text{RQ}_{jt} + \beta_{15} \text{RL}_{jt} + \beta_{16} \text{CC}_{jt} + \gamma_{ij} + \delta_t + \epsilon_{ijt},
\]

where \( \gamma_{ij} \) is a country-pair fixed effect that captures all time-invariant bilateral factors influencing trade flows, which absorb all effects that are country-pair-specific, namely distance, common border, language and colonial links. Thus, these country-pair-specific variables do not appear in Equation (3). However, a number of authors (e.g., Baier & Bergstrand, 2007) claim that in a panel data setting, multilateral resistance is time-varying because the factors that affect international prices change over time and recommend adding time-variant MRT to the gravity model. We could think of adding origin-and-time and destination-and-time dummy variables that vary every 5 years and account for MRT (e.g., in the spirit of Gylfason et al., 2015 and Florensa, Márquez-Ramos, Martínez-Zarzoso, & Recalde, 2015). The main reason for this choice is that the governance indicators vary by country and year, and in order to account for their effects on trade, we would like to retain its short-run variability, while controlling for other factors that are more persistent such as tastes, cultural factors and business cycles.

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\(^2\)One line of research using a gravity model of trade deals with the difficulty of obtaining unbiased coefficients for the effect of regional integration on trade flows (Baier & Bergstrand, 2007; Baier, Bergstrand, & Feng, 2014). If regional integration variables correlate with the error term of the gravity equation, there is an omitted variable bias due to the (unknown) MRT (Anderson & van Wincoop, 2003). Baier and Bergstrand (2007) refer to an endogeneity problem that is difficult to solve by using instrumental variables, given the difficulty of finding instruments that are correlated with bilateral trade but not with RTA dummy variables. For this reason, they propose using pair dummy variables to mitigate endogeneity. Similarly, an endogeneity problem might arise when the target variable is institutional quality, using fixed effects is a way to deal with omitted variable biases.
Therefore, we account for the so-called MRT and also for unobserved heterogeneity that is attached to each bilateral trade flow, extending specification (2) with origin-and-time and destination-and-time and with pair-specific dummy variables:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 RTA_{ijt} + \beta_4 WTO_{ijt} + \beta_5 VA_{it} + \beta_6 PS_{it} + \beta_7 GE_{it} + \beta_8 RQ_{it} + \beta_9 RL_{it} + \beta_{10} CC_{it} + \beta_{11} VA_{jt} + \beta_{12} PS_{jt} + \beta_{13} GE_{jt} + \beta_{14} RQ_{jt} + \beta_{15} RL_{jt} + \beta_{16} CC_{jt} + \gamma_{ij} + \pi_{i,t,5} + \tau_{j,t,5} + \delta_t + \epsilon_{ijt},$$

(4)

where the gravity and governance variables, and $\gamma_{ij}$ have been defined above. $\pi_{i,t,5}$ and $\tau_{j,t,5}$ denote origin-and-time and destination-and-time dummy variables that vary every 5 years and account for MRT.

Next, in the following model, we add the governance variables as the sum of the indicators for a bilateral trade flow extending specification (2) with origin-and-time and destination-and-time dummy variables:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 RTA_{ijt} + \beta_4 WTO_{ijt} + \beta_5 VA_{it} + \beta_6 PS_{it} + \beta_7 GE_{it} + \beta_8 RQ_{it} + \beta_9 RL_{it} + \beta_{10} CC_{it} + \gamma_{ij} + \pi_{i,t,5} + \tau_{j,t,5} + \epsilon_{ijt},$$

(5)

where the gravity variables, $\gamma_{ij}$ and $\pi_{i,t,5}$ and $\tau_{j,t,5}$, have been defined above. The right-hand-side (RHS) variables of interest now have exporter–importer–time variability and are computed as the sum of each corresponding WGI for an exporter and an importer in year $t$. This will also help to avoid collinearity issues with the MRT. The main drawback of this specification is that we will not be able to obtain a separate effect for exporters and importers.

Finally, we consider similarity measures of governance between the origin and the destination of trade flows. Hence, we investigate whether similarity in governance indicators makes a difference. To do so, we use a simple method to construct indicators of similarity relying on “fuzzy metrics.” Fuzzy metrics allow us to model the concept of similarity across origins and destinations. Therefore, in the spirit of Alamá-Sabater, Heid, Jiménez-Fernández, and Márquez-Ramos (2016), we apply the following equation to construct fuzzy variables from the WGI indicators:

$$\text{fuzzyWGI}_{ijt} = \frac{\min(WGI_{it}, WGI_{jt}) + 1}{\max(WGI_{it}, WGI_{jt}) + 1},$$

(6)

where WGI denotes the corresponding WGI indicator. Fuzzy-WGI lies between 0 and 1 and is maximised if both $i$ and $j$ countries have the same level of governance in year $t$. For diverging levels of governance between the two countries, the indicator approaches zero. Then, we augment specification (5) with these similarity measures for each of the six WGI considered. The corresponding gravity model is given by:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 RTA_{ijt} + \beta_4 WTO_{ijt} + \beta_5 VA_{it} + \beta_6 PS_{it} + \beta_7 GE_{it} + \beta_8 RQ_{it} + \beta_9 RL_{it} + \beta_{10} CC_{it} + \beta_{11} VA_{jt} + \beta_{12} PS_{jt} + \beta_{13} GE_{jt} + \beta_{14} RQ_{jt} + \beta_{15} RL_{jt} + \beta_{16} CC_{jt} + \gamma_{ij} + \pi_{i,t,5} + \tau_{j,t,5} + \epsilon_{ijt},$$

(7)
where fuzzy denotes that the corresponding WGI variable has been transformed according to Equation (6).

4 | DATA AND VARIABLES

The sample of exporting countries considered in our research is composed of 19 MENA countries, as defined by the World Bank. As partners, we consider 189 countries (see Table A1 in the Appendix) and the period under study runs from 1996 to 2013. For comparative purposes, we also estimate the models for all trade flows among the 189 countries (the entire sample).

Although we have opted to analyse the role of governance in aggregated trade flows (in line with most previous related research), it is worth mentioning that sectoral disaggregation of trade statistics has also been used in the related literature to explore the link between governance and international trade (see Bojnec et al., 2014; Yu, 2010).

Our methodological choice involves estimating specifications in Section 3 using panel techniques (fixed effects). This is of course not free of shortcomings. When country-pair fixed effects are used to capture all time-invariant bilateral factors influencing trade flows, and exporter-time and importer-time fixed effects are used to capture MRT, a major drawback is the demolition of the gravity structure (see Anderson, 2010). Also, as Dutt and Traca (2010) point out “adding a plethora of dummies entails eliminating much variation in the data, with a consequent, unwarranted loss in statistical significance” (Dutt & Traca, 2010, p. 846). Adding origin-and-time and destination-and-time dummies that vary every 5 years instead of every year, partially offsets this problem.

Table 1 presents the descriptive statistics for the variables of interest included in the analysis, that is, governance indicators. The figures show that exporter countries, that is, MENA countries, present lower values in governance indicators, on average, than the sample of all importers. According to Table 1, it is in the category voice and accountability where MENA countries (i.e., exporters) seem to have the greatest drawback in WGI: while the average in the sample of MENA countries (as exporters) in this indicator equals 29.56, it equals 55.05 for the sample of 189 importers. Additionally, the maximum value of this indicator for MENA countries is 52.45, this (0–100) standardised value is much lower than the rest of the governance indicators in the region over this time period.

The WGI first constructed by Kaufmann, Kraay, and Mastruzzi (2007) for the World Bank are normalised onto a 0–100 scale (as in Berden et al., 2014). The six aggregate indicators are based on 31 underlying data sources reporting the governance perceptions of a large number of survey respondents and expert assessments worldwide. Details on the underlying data sources, the aggregation method and the interpretation of the indicators can be found in Kaufmann, Kraay, and Mastruzzi (2010). Each of these indicators represents a different dimension of governance and is defined as follows:

Voice and Accountability measures the extent to which a country’s citizens are able to participate in selecting their government as well as the freedom of expression of association and the media. Of the six WGI, this variable best captures most individuals’ notion of how a democratic institution that fosters voice and accountability affects pluralism.

Political Stability measures perceptions of the likelihood that the government will not be destabilised or overthrown by unconstitutional or violent means.

3MENA countries are as follows: Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, the United Arab Emirates and Yemen.
Government Effectiveness measures the quality of public services, the civil service (and its degree of independence), the policy formation and implementation process and the government’s overall commitment to implementing policies.

Regulatory Quality indicates the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

Rule of Law measures the extent to which agents have confidence in and abide by the rules of society, and with particular emphasis, the quality of contract enforcement, the police and the courts.
**Control of Corruption** measures the extent to which public power is not exercised for private gain, including both petty and grand forms of corruption as well as the extent of “capture” by elites and private interests.

Berden et al. (2014) grouped the above-described indicators into three different concepts. The first deals with the “process by which governments are selected, monitored and replaced,” and it is measured by two indicators: (i) the voice and accountability of a country’s citizens; and (ii) political stability. According to these authors, holding constant the influences of other measures of governance, the coefficients for importers associated with this concept are expected to be negative. The second category of the WGI refers to factors influencing the “capacity of the government to effectively formulate and implement sound policies”; the two WGI associated with this category are: (iii) the government’s effectiveness and (iv) regulatory quality. Both are expected to be positively associated with trade flows. Finally, the third category refers to factors associated with “respect of citizens and the state for institutions that govern economic and social interactions”; the two WGI in this category are (v) rule of law and (vi) the control of corruption. Both are also expected to be positively associated with trade flows. On the consequences of the MENA region’s governance indicators in terms of exports, institutions can either directly affect the willingness of agents to trade abroad or affect economic variables that may in turn lower the propensity of agents to trade (Méon & Sekkat, 2004). On the one hand, an improvement of the governance indicators in MENA countries may lead to higher exports arising from the MENA region due to a better business environment that could facilitate doing business abroad. On the other hand, an improvement in the governance indicators might affect comparative and competitive advantages, as well as existing trade relationships, having an ambiguous effect on exports arising from MENA countries. Therefore, it is an empirical question whether improved governance indicators in the region lead to higher exports from MENA countries.

5 | **ESTIMATION RESULTS**

5.1 | **Main results**

Table 2 shows the results obtained from estimating specifications (2) and (3) of the gravity model of trade. The RHS variables of interest are the WGI variables for the exporting and importing countries. Columns (1–2) present results for all (189) countries obtained from estimating the traditional gravity model with time fixed effects (Equation 2) and the model adding bilateral fixed effects (Equation 3), while columns (3) and (4) present estimations of the same two specifications for MENA exporters.

The first column of Table 2 shows that an increase in both exporter’s GDP and importer’s GDP increases trade flows and the coefficients are close to the unitary theoretically expected magnitude; distance has the expected negative and significant effect on exports, while common language, common border and colonial links positively affect exports. Also, the RTA and WTO

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4Berden et al. (2014, p. 362).
5In particular, they argue that greater pluralism in an importing country is likely to increase resistance to international trade as larger host country pluralism is like a tax, equivalent to an ad valorem tariff. Additionally, it is possible that political stability could increase both the probability of and level of FDI. Consequently, if political stability lowers the cost of FDI, and FDI and trade are substitutes in relation to relative investment and trade costs, political stability could have a negative effect on trade.
6A model with interactions between a MENA dummy variable and the target variables provides similar outcomes. A separate estimation for MENA countries is preferred given that elasticities for other variables also differ between MENA and the average exporter.
| TABLE 2 | Gravity model estimates for governance indicators |
|----------------|-----------------------------------------------|
| **Dep. var:** ln \( X_{ijt} \) | **All countries** | **MENA exporters** |
| **Single WGI variables** | **(1) Baseline** | **(2) Pair FE** | **(3) Baseline** | **(4) Pair FE** |
| ln GDP_{it} | 1.254*** [0.00675] | 0.561*** [0.0256] | 0.873*** [0.0453] | 0.169* [0.0919] |
| ln GDP_{jt} | 0.849*** [0.00624] | 0.688*** [0.0199] | 0.926*** [0.0231] | 0.548*** [0.0678] |
| ln DIST_{ij} | -1.205*** [0.0191] | | -1.219*** [0.0628] | |
| CONTIG_{ij} | 1.102*** [0.0908] | 0.165 [0.284] | |
| COMLANG_{ij} | 0.735*** [0.0395] | 1.384*** [0.133] | |
| COLONY_{ij} | 0.806*** [0.0563] | 0.562*** [0.131] | |
| RTA | 0.770*** [0.0381] | 0.0508** [0.0227] | 0.283** [0.117] | 0.107 [0.0800] |
| WTO | 0.248*** [0.0309] | 0.217*** [0.0252] | 0.665*** [0.0883] | 0.214** [0.0879] |
| VStd_{it} | 0.00331*** [0.000593] | -0.00120 [0.00104] | 0.00286 [0.00415] | -0.00751** [0.00330] |
| PStd_{it} | 0.00779*** [0.000639] | -0.00121* [0.000104] | 0.0171*** [0.00251] | 0.00302 [0.00285] |
| GStd_{it} | 0.00856*** [0.000730] | 0.0111*** [0.00115] | 0.0271*** [0.00396] | 0.0166*** [0.00528] |
| RQStd_{it} | 0.00764*** [0.000748] | 0.00831*** [0.00113] | 0.0170*** [0.00337] | 0.0157*** [0.00406] |
| RLStd_{it} | 0.00601*** [0.000648] | 0.00445*** [0.00130] | 0.0158*** [0.00369] | -0.0195*** [0.00433] |
| CCStd_{it} | 0.00442*** [0.000584] | 0.00489*** [0.000909] | 0.00850*** [0.00325] | 0.0209*** [0.00268] |
| VStd_{jt} | 0.00496*** [0.000560] | 0.00485*** [0.000871] | -0.00885*** [0.00193] | 0.00939*** [0.00289] |
| PStd_{jt} | 0.00357*** [0.000605] | 0.000195 [0.000607] | -0.00876*** [0.00198] | 0.00402* [0.00208] |
| GStd_{jt} | 0.00551*** [0.000713] | 0.00426*** [0.00103] | -0.00703*** [0.00247] | 0.00596 [0.00379] |
| RQStd_{jt} | 0.00528*** [0.000729] | 0.00456*** [0.000943] | -0.0105*** [0.00251] | 0.00608 [0.00337] |

(Continues)
Table 2 (Continued)

| Dep. var: ln $X_{ijt}$ | All countries | MENA exporters |
|------------------------|---------------|---------------|
| Single WGI variables  | (1) Baseline  | (2) Pair FE   |
|                        | (3) Baseline  | (4) Pair FE   |
| RLstd$_{jt}$           | 0.00513***   | 0.00493***    | --0.00424*  | 0.00958**  |
|                        | [0.000637]   | [0.00109]     | [0.00220]   | [0.00394]  |
| CCstd$_{jt}$           | 0.00434***   | 0.00346***    | --0.00579***| 0.00520*   |
|                        | [0.000597]   | [0.000834]    | [0.00209]   | [0.00285]  |
| Bilateral FE           | No            | Yes           | No           | Yes         |
| Time FE                | Yes            | Yes           | Yes          | Yes         |
| Observations           | 245,375       | 245,375       | 23,672       | 23,672      |
| $R$-squared            | 0.65          | 0.163         | 0.477        | 0.195       |

Notes: Robust standard errors in brackets. WGI included independently in the model. Governance indicators include the following: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100).

***$p < .01$, **$p < .05$, *$p < .1$.

The results in columns (1) and (3) are shown for comparative purposes and to show the coefficients of the traditional gravity variables for MENA countries and for the whole sample.

Membership dummies present the expected positive effect on exports. The results concerning these gravity variables differ when the sample of exporters is restricted to MENA countries, as shown in column (3) of Table 2. Income elasticities of MENA exporters are considerably lower than the elasticity of the average exporter and common border is not statistically significant, reflecting the fact that MENA countries do not trade more with neighbouring countries than with others. Concerning the common language effect, it is considerably higher than for the whole sample, whereas a colonial relationship shows a lower effect for MENA exporters.

With regard to WGI variables in the traditional gravity model specification estimated for all trading partners, the coefficients obtained in column (1) are all positive and significant for both exporter and importer countries; however, we claim that these estimates are biased due to the exclusion of MRT in the model. The same bias affects the estimates in column (3) for MENA exporters. In this column, the coefficients for the importers’ WGI indicators are all negative and significant, which is unexpected.

Results in column (2) of Table 2 show that after controlling for bilateral time-invariant heterogeneity (Equation 3), the results differ from column (1) concerning voice and accountability and political stability, the former is not significant for the exporter, and the latter is negative and statistically significant for the exporter but not statistically significant for the importer.

When the sample is restricted to MENA exporters, the main difference is that voice and accountability and rule of law in exporter countries show a negative and statistically significant effect on exports, while political stability in MENA exporters is not statistically significant (column (4)). For importers, the coefficients associated with voice and accountability, political stability, rule of law and the control of corruption are positive and statistically significant.

We now turn to the estimation of an additional specifications. Only results related to governance indicators are presented in the main text; full results are presented in the Appendix.
Table 3 shows the results when the gravity model is estimated adding exporter-and-time and importer-and-time dummy variables that vary every 5 years (Equation (4)). The results for all countries (in column (1)) indicate that higher levels of political stability, rule of law and the control of corruption in the exporting countries are associated with higher exports. Higher values of voice and accountability, government effectiveness, regulatory quality, rule of law and the control of corruption in importing countries are also positively associated with exports.

When the sample is restricted to MENA exporters (column (2) in Table 3), it seems surprising that the significance found for the WGI s in importing countries vanishes, whereas voice and accountability, political stability, government effectiveness, rule of law and the control of corruption in exporting countries are also positively associated with exports.

| Dep.var: ln $X_{ijt}$ | All countries | MENA | Intra-MENA |
|------------------------|---------------|------|------------|
| Ind. variables: single WGI |               |      |            |
| VAstd$_{it}$           | $-0.00180$    | 0.0142*** | 0.00762    |
|                        | [0.00140]     | [0.00469] | [0.00857]  |
| PSstd$_{it}$           | 0.00208***    | 0.00944*** | 0.000246   |
|                        | [0.000778]    | [0.00256]  | [0.00534]  |
| GEstd$_{it}$           | $-0.000514$   | 0.0179*** | 0.0253***  |
|                        | [0.00138]     | [0.00578]  | [0.0108]   |
| RQstd$_{it}$           | 0.00107       | 0.000193  | 0.00679    |
|                        | [0.00123]     | [0.00431]  | [0.00837]  |
| RLstd$_{it}$           | 0.00446***    | 0.0185*** | 0.0396***  |
|                        | [0.00158]     | [0.00501]  | [0.00950]  |
| CCstd$_{it}$           | 0.00311***    | 0.0218*** | 0.0224***  |
|                        | [0.00102]     | [0.00312]  | [0.00570]  |
| VAnstd$_{jt}$          | 0.00339***    | $-0.00021$ | 0.0118     |
|                        | [0.00108]     | [0.00405]  | [0.00728]  |
| PSstd$_{jt}$           | 0.000923      | $-0.0019$ | $-0.00292$ |
|                        | [0.000698]    | [0.00259]  | [0.00488]  |
| GEstd$_{jt}$           | 0.00257**     | 0.00339   | 0.00165    |
|                        | [0.00118]     | [0.00495]  | [0.00888]  |
| RQstd$_{jt}$           | 0.00249**     | 0.000137  | $-0.0100$  |
|                        | [0.00107]     | [0.00418]  | [0.00687]  |
| RLstd$_{jt}$           | 0.00422***    | $-0.00181$ | $-0.0180**$ |
|                        | [0.00129]     | [0.00510]  | [0.00841]  |
| CCstd$_{jt}$           | 0.00178*      | 0.00131   | 0.00204    |
|                        | [0.000950]    | [0.00357]  | [0.00559]  |

Notes: Robust standard errors in brackets.
WGI included independently in the model. Governance indicators include the following: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100). Exporter and time and importer and time FE and pair FE included. Full results are presented in the Appendix in Tables A5 (for all countries); A6 (MENA exporters) and A7 (intra-MENA trade).

***$p < .01$, **$p < .05$, *$p < .1$. 

Table 3 shows the results when the gravity model is estimated adding exporter-and-time and importer-and-time dummy variables that vary every 5 years (Equation (4)). The results for all countries (in column (1)) indicate that higher levels of political stability, rule of law and the control of corruption in the exporting countries are associated with higher exports. Higher values of voice and accountability, government effectiveness, regulatory quality, rule of law and the control of corruption in importing countries are also positively associated with exports.

When the sample is restricted to MENA exporters (column (2) in Table 3), it seems surprising that the significance found for the WGI s in importing countries vanishes, whereas voice and accountability, political stability, government effectiveness, rule of law and the control of corruption in exporting countries are also positively associated with exports.
corruption in MENA exporters are associated with higher exports and the corresponding coefficients are higher than for the sample with all exporters. For instance, an increase in the index of voice and accountability of 1 percentage point is associated with an increase in exports of 1.42%. Considering that the average for this item in MENA countries is 29, an increase in the index of 5 units (average value for Tunisia = 34) would increase MENA exports by around 7% for the average exporter.

When the model is estimated including only intra-MENA trade flows (column (3) in Table 3, full results in Table A7), only government effectiveness, rule of law and the control of corruption in exporter countries are positively associated with exports, whereas MENA countries export more to MENA importers with lower scores in rule of law.

Table 4 shows the outcomes of regressing export flows on the sum of the exporter \(i\) and importer \(j\) governance indicators. In column (1), results are shown for all exporters and in column (3) for MENA exporters, respectively. Results show that whereas higher levels of voice and accountability are associated with lower exports, the higher the indicators of political stability, government effectiveness, regulatory quality and rule of law in trading partners, the higher the trade flows among them. The results are similar for MENA exporters with the only exception of regulatory quality that is not statistically significant, whereas the control of corruption becomes statistically significant and is positively related to MENA exports.

Finally, we turn to the importance of analysing the role of similarity in governance indicators across countries. As stated by Horsewood and Voicu (2012, p. 5): “A nation’s business culture could be a deterrent to international trade and it may be that similarities of ethical standards between countries are an important issue. An international transaction will take place if both the buyer and seller believe the side payment to a government official or a personal kickback, is perfectly acceptable. Alternatively, if either party comes from a country where backhanders are not the norm, then there is a cultural barrier preventing the exchange of goods and services.” Therefore, we take the similarity of governance across exporters and importers into account (Equation (6)), since it could be that the difference between governance indicators in these two types of economies (exporter \(i\) and importer \(j\)) discourages bilateral trade between them. We add governance-similarity indicators as fuzzy metrics, aiming to analyse whether similarities in individual WGIs explain export flows from MENA countries, together with governance indicators that are computed as the sum of each corresponding WGI for an exporter and an importer in year \(t\). Therefore, both the “combined” governance and the “similarity” in governance levels across trading partners are incorporated.

Columns (2) and (4) in Table 4 display the results of adding the fuzzy metrics for the WGIs for the whole sample and for the sample of MENA exporters, respectively. In this case, whereas four WGIs are statistically significant for the whole sample, namely similarities in voice and accountability, political stability, regulatory quality and rule of law, only two of them stay significant for MENA exporters: regulatory quality and rule of law. This outcome could be interpreted as indicating that more similarities in the capacity of the government to effectively formulate and implement sound policies between two trading countries are associated with higher trade flows between them.

The interpretation of the marginal effects when including (fuzzy) similarity measures of governance between trading partners should provide a more accurate estimation of the effect of governance on MENA exports. For example, although results in column (4) of Table 4 show that the “combined” effect of regulatory quality and rule of law indicators (computed as the sum of the corresponding WGI indicator for trading partners) has a non-significant effect on MENA exports, we find that a higher similarity in regulatory quality and rule of law between trading partners increases MENA exports.
**TABLE 4** Gravity model with time-variant MTR and pair FE. Adding fuzzy similarity measures

| Dep. var: ln $X_{ijt}$ | All countries | MENA exporters |
|------------------------|---------------|----------------|
|                        | (1)           | (2)            | (3)           | (4)            |
| Ind. variables         | Gov$_{ij}$    | Gov$_{ij,i-j}$ | Gov$_{ij}$    | Gov$_{ij,i-j}$ |
| RTA                    | 0.104***      | 0.102***       | 0.282***      | 0.282***       |
|                        | [0.0225]      | [0.0225]       | [0.0749]      | [0.0749]       |
| WTO                    | 0.212***      | 0.212***       | 0.268***      | 0.268***       |
|                        | [0.0289]      | [0.0289]       | [0.0920]      | [0.0920]       |
| VAstd$_{ijt}$          | $-0.00897^{***}$ | $-0.00993^{***}$ | $-0.00802^{***}$ | $-0.00786^{**}$ |
|                        | [0.000794]    | [0.000848]     | [0.00300]     | [0.00309]      |
| PSstd$_{ijt}$          | 0.00714***    | 0.00307***     | 0.0107***     | 0.01812        |
|                        | [0.000473]    | [0.000777]     | [0.00153]     | [0.00279]      |
| GEstd$_{ijt}$          | 0.00153*      | 0.00558***     | 0.00660*      | 0.0129**       |
|                        | [0.000840]    | [0.00129]      | [0.00363]     | [0.00518]      |
| RQstd$_{ijt}$          | 0.00491***    | 0.00501***     | 0.00203       | 0.00649        |
|                        | [0.000718]    | [0.00122]      | [0.00253]     | [0.00455]      |
| RLstd$_{ijt}$          | 0.0181***     | 0.00588***     | 0.0235***     | 0.000531       |
|                        | [0.000902]    | [0.00143]      | [0.00302]     | [0.00566]      |
| CCstd$_{ijt}$          | 4.04E$-05$    | 0.00142        | 0.00900***    | 0.00474        |
|                        | [0.000666]    | [0.00100]      | [0.00226]     | [0.00356]      |
| fuzzyVA$_{ijt}$        | 0.202***      | $-0.0457$      | [0.171]       |
|                        | [0.0605]      |               |              |
| fuzzyPS$_{ijt}$        | 0.124***      | 0.163          | [0.154]       |
|                        | [0.0476]      |               |              |
| fuzzyGE$_{ijt}$        | 0.0878        | 0.0343         | [0.237]       |
|                        | [0.0692]      |               |              |
| fuzzyRQ$_{ijt}$        | 0.311***      | 0.557**        | [0.227]       |
|                        | [0.0688]      |               |              |
| fuzzyRL$_{ijt}$        | 0.255***      | 0.590**        | [0.239]       |
|                        | [0.0722]      |               |              |
| fuzzyCC$_{ijt}$        | 0.0729        | 0.219          | [0.139]       |
|                        | [0.0459]      |               |              |
| Bilateral FE           | Yes           | Yes            | Yes           | Yes            |
| MRT (i,5y,j,5y)        | Yes           | Yes            | Yes           | Yes            |
| Observations           | 252,429       | 252,429        | 24,619        | 24,619         |

(Continues)
5.2 | Robustness checks

As pointed out by Bojnec et al. (2014), there are important econometric issues arising from log-linearisation of the gravity equation and the heteroscedastic nature of trade data. Therefore, as a first robustness check, Equation (3) has been estimated using zero trade flows and controlling for heteroscedasticity by estimating the model using a pseudo poisson maximum likelihood (PPML) estimation technique with bilateral fixed effects as proposed by several authors (see Head & Mayer, 2014). The results are shown in Table A2 in the Appendix. The results concerning the WGI variables remain similar to those found in Table 2, column (2), with a comparable log-log specification.

This paper has illustrated the role of governance in exports for MENA countries. It is worth highlighting, however, that several MENA countries experienced the Arab Spring and were accompanied, in some cases, by changes in leadership and power vacuums. This increased uncertainty might have affected the extent to which weak governance, as a trade cost, affects trade (see Ianchovichina, 2016). In addition, the Arab Spring put an end to plans for deepening intraregional trade ties (Ianchovichina, 2016). Therefore, as a second robustness check, the gravity model was estimated using intra-MENA trade flows, including a dummy variable for the Arab Spring (see Table A3 in the Appendix), which was also interacted with the WGI for the exporters and importers (see Table A4 in the Appendix). The interaction term is statistically significant for three of the six WGI indicators, showing that after the Arab Spring, the sign of the coefficient of the voice and accountability indicator changed from negative to positive, whereas the magnitude of the effect of political stability and rule of law indicators on exports has decreased. The fact that similarities in voice and accountability between MENA exporters and their trading partners have a positive effect on trade only after the Arab Spring indicates that there has been a change in the relationship between trade flows and governance attributable to the change in MENA countries citizens’ ideas about how they can express preferences, secure their rights and make demands on the state in order to achieve better development outcomes. This result has to be interpreted with caution since we are not able to control for the duration of the Arab Spring in each country. The extent and effects of the Arab Spring was extremely variable, and in many countries, it arguably did not have a significant effect as protests where quickly silenced, for example, Saudi Arabia, Bahrain, Oman, the UAE and Qatar.

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8It is worth mentioning that in this case, the interactions are only significant at the 10% level; therefore, changes due to the Arab Spring in these indicators are not very significant.
This research evaluates the importance of governance for promoting trade and the integration of MENA exporters into the global economy. The analysis of MENA countries provides an interesting case study concerning countries with weak institutions at different levels, namely the malfunctioning of public administration, deficiencies in political rights, rule of law and civil liberties and the proliferation of inefficient and/or ineffective laws and regulations.

The main results indicate that the level of governance in the respective exporter and importer country matters for bilateral export flows in general, and for MENA countries in particular. Interestingly, we find that MENA countries trade more with countries that have similar levels of regulatory quality and rule of law. When MENA exports are sent to other MENA countries, an increase in an exporter’s government effectiveness, rule of law and the control of corruption increases MENA exports. The results also indicate that after the Arab Spring, the importance of voice and accountability—as a determinant of MENA exports—has increased, whereas the importance of political stability and rule of law has decreased. Results might be generalised to countries that experience important changes in governance, either towards better or poorer governance, as trade flows might have been affected.

The main economic policy implications are the prerequisites for a good business environment at the country level, which include the protection of property rights, a well-established rule of law, efficient bureaucracy and a corruption-free government. An improvement in the governance of MENA countries is therefore essential to develop a favourable business climate and to enter a path of economic development and integration into the world economy. Moreover, the results indicate that having similar levels of regulatory quality and rule of law favours the exports of MENA countries; hence, policymakers might want to consider trade policies that liberalise trade, which might be more efficient among trading partners with similar governance standards.

A limitation of our study is that we have focused on aggregated trade statistics and we have not been able to provide evidence for different sectors. We therefore recommend that future research considers governance as a determinant of trade flows disaggregated by sector, distinguishing between labour-intensive and capital-intensive product groups. Moreover, it might be worth exploring more how the Arab Spring played out differently over time amongst MENA countries. It could be argued that in some countries like Saudi Arabia it almost did not even happen in 2011, but that it paved the way for what we are now seeing as evidenced by changes in Saudi policies as implemented by the crown prince in 2016–17.

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REFERENCES

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. American Economic Review, 91(5), 1369–1401. https://doi.org/10.1257/aer.91.5.1369
Acemoglu, D., Johnson, S., & Robinson, J. A. (2002). Reversal of fortune: Geography and institutions in the making of the modern world income distribution. Quarterly Journal of Economics, 107(4), 1231–1294. https://doi.org/10.1162/00355302320935025

Acemoglu, D., Johnson, S., Robinson, J., & Thaicharoen, Y. (2003). Institutional causes, macroeconomic symptoms: Volatility, crises and growth. Journal of Monetary Economics, 50(1), 49–123. https://doi.org/10.1016/S0304-3932(02)00208-8

Acemoglu, D., & Yared, P. (2010). Political limits to globalization. American Economic Review Papers and Proceedings, 100(2), 83–88. https://doi.org/10.1257/aer.100.2.83

Alam, A. (2015). Politics dedicated to explain the politics behind the crisis of Catalonia. 26 October 2017. The University of Adelaide, Australia.

Cao, B. (2017). Lesson dedicated to explain the politics behind the crisis of Catalonia. 26 October 2017. The University of Adelaide, Australia.

Botero, J. C., Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of labour. Agricultural Economic Review, 56(6), 379–394. https://doi.org/10.10110/CAER-02-2013-0034

Botero, J. C., Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. Journal of International Economics, 93(2), 339–350. https://doi.org/10.1016/j.jinteco.2014.03.005

Berden, K., Bergstrand, J. H., & Etten, E. (2014). Governance and globalisation. The World Economy, 37(3), 353–386. https://doi.org/10.1111/twec.12135

Bojncic, S., Ferto, I., & Fogarasi, J. (2014). Quality of institutions and the BRIC countries agro-food exports. Review of Economics and Statistics, 96(4), 107–120. https://doi.org/10.1162/rest_a_00034

Dooley, E., & Martínez-Zarzoso, I. (2011). Productivity, trade and institutional quality: A panel analysis. Southern Economic Journal, 77(3), 726–752. https://doi.org/10.1080/00343404.2013.770141

Dutt, P., & Traca, D. (2010). Corruption and bilateral trade flows: Extortion or evasion? Review of Economics and Statistics, 92(4), 843–860. https://doi.org/10.1162/rest_a_00034

Easterly, W. (2001). The middle class consensus and economic development. Journal of Economic Growth, 6(4), 317–335. https://doi.org/10.1080/0335502753399436

EU Observer (2017). Catalan separatists under pressure from business. By Eric Maurice, Brussels, 6 October 2017. Retrieved from https://euobserver.com/beyond-brussels/139308

Feenstra, R. (2004). Advanced international trade. Theory and evidence. Princeton, NJ: Princeton University Press.

Florensa, L. M., Márquez-Ramos, L., Martínez-Zarzoso, I., & Recalde, M. L. (2015). Regional versus global production networks: Where does Latin America stand? Applied Economics, 47(37), 3938–3956. https://doi.org/10.1080/00036846.2015.1023938

Gylfason, T., Martínez-Zarzoso, I., & Wijkman, P. M. (2015). Free trade agreements, institutions and the exports of Eastern Partnership countries. Journal of Common Market Studies, 53(6), 1214–1229. https://doi.org/10.1111/jcms.12275
Hall, R. E., & Jones, C. I. (1999). Why do some countries produce so much output per worker than others? *Quarterly Journal of Economics, 114*(1), 83–116. https://doi.org/10.1162/003355399555954

Handley, K., & Limão, N. (2017). Policy uncertainty, trade and welfare: Theory and evidence for China and the US. *American Economic Review, 107*(9), 2731–2783. https://doi.org/10.1257/aer.20141419

Head, K., & Mayer, T. (2014). Gravity equations: Workhorse, toolkit, and cookbook. In G. Gopinath, E. Helpman, R. E. Hall, & C. I. Jones (Eds.), *Why do some countries produce so much output per worker than others?*. Amsterdam, the Netherlands: Elsevier-North Holland.

Horsewood, N., & Voicu, A. M. (2012). Does corruption hinder trade for the new EU members?. *Economics: The Open-Access, Open-Assessment E-Journal, 6*(47), 1–28.

Ianchovichina, E. (2016). Economic costs of post-Arab-spring civil wars in the Middle East and North Africa. *IEMeD-ObS: Observatori de Polítiques Euromediterrànies. Mediterranean Yearbook 2016. Panorama: Strategic Sectors | Economy and Territory. 250–254. Available at: http://www.iemed.org/publicacions/historic-de-publicacions/anuari-de-la-mediterrania/sumaris/iedmmediterranean-yearbook-2016

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2007). *Governance matters VI: Aggregate and individual governance indicators, 1996–2006* (World Bank Policy Research Working Paper No. 4280). Washington, DC: World Bank. Retrieved from https://openknowledge.worldbank.org/handle/10986/7473

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). *The worldwide governance indicators: A summary of methodology, data and analytical issues* (World Bank Policy Research Working Paper No. 5430). Washington, DC: World Bank. Retrieved from World Bank website: http://documents.worldbank.org/curated/en/630421468336563314/pdf/WPS55430.pdf

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *Journal of Political Economy, 106*(6), 1113–1155. https://doi.org/10.1086/250042

Levchenko, A. A. (2007). Institutional quality and international trade. *Review of Economic Studies, 74*(3), 791–819. https://doi.org/10.1111/j.1467-937X.2007.00435.x

Márquez-Ramos, L. (2011). European accounting harmonization: Consequences of IFRS adoption on trade in goods and foreign direct investment. *Emerging Markets Finance and Trade, 47*(4), 42–57. https://doi.org/10.2753/REE1540-496X4705S403

Márquez-Ramos, L., Florensa, L. M., & Recalde, M. L. (2017). Understanding the determinants of economic integration in Latin America. *Journal of Economic Integration, 32*(3), 558–585. https://doi.org/10.1111/jei.2017.32.3.558

Márquez-Ramos, L., Martínez-Zarzoso, I., & Suárez-Burguet, C. (2011). Determinants of deep integration: Examining socio-political factors. *Open Economies Review, 22*, 479–500. https://doi.org/10.1007/s11079-009-9132-x

Márquez-Ramos, L., Martínez-Zarzoso, I., & Suárez-Burguet, C. (2012). Trade policy versus trade facilitation: An application using “good old” OLS. *Economics: The Open-Access, Open-Assessment E-Journal, 6*, 1. https://doi.org/10.5018/economics-ejournal.ja.2012-11

Martínez-Zarzoso, I. (2013). The log of gravity revisited. *Applied Economics, 45*(3), 311–327. https://doi.org/10.1080/00036846.2011.599786

Martínez-Zarzoso, I., Nowak-Lehmann, D. F., & Horsewood, N. (2009). Are regional trading agreements beneficial? Static and dynamic panel gravity models. *North American Journal of Economics and Finance, 20*, 46–65. https://doi.org/10.1016/j.najef.2008.10.001

Martínez-Zarzoso, I., Nowak-Lehmann, D. F., & Klasen, S. (2017). Aid and its impact on the donor’s export industry—the Dutch case. *European Journal of Development Research, 29*(4), 769–786. https://doi.org/10.1057/s41287-016-0060-5

Méon, P. G., & Sekkat, K. (2004). Does the quality of institutions limit the MENA’s integration in the world economy? *The World Economy, 27*(9), 1475–1498. https://doi.org/10.1111/j.0378-5920.2004.00661.x

Milner, H., & Kubota, K. (2005). Why the move to free trade? Democracy and trade policy in the developing countries. *International Organizations, 59*, 107–143.

Milner, H. V., & Mukherjee, B. (2009). Democratization and economic globalization. *Annual Review of Political Science, 12*, 163–181. https://doi.org/10.1146/annurev.polisci.12.110507.114722

Morrow, J. D., Siverson, R. M., & Tabares, T. (1998). The political determinants of international trade: The major powers, 1907–1990. *American Political Science Review, 92*, 649–661. https://doi.org/10.2307/2585487
Nunn, N., & Trefler, D. (2014). Domestic institutions as a source of comparative advantage. In G. Gopinath, E. Helpman, & K. Rogoff (Eds.), *Handbook of international economics 4* (pp. 263–315). Amsterdam, the Netherlands: Elsevier-North Holland.

Wikipedia (2016). *Arab spring*. Retrieved from https://en.wikipedia.org/wiki/Arab_Spring

Yu, M. (2010). Trade, democracy, and the gravity equation. *Journal of Development Economics, 91*(2), 289–300. https://doi.org/10.1016/j.jdeveco.2009.07.004

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**APPENDIX**

**TABLE A1** List of countries

| Afghanistan | The Dominican Republic | Libya | Singapore |
|-------------|------------------------|-------|-----------|
| Albania     | Ecuador                | Lithuania | Slovakia |
| Algeria     | Egypt                  | Madagascar | Slovenia |
| Angola      | El Salvador            | Malawi | The Solomon Islands |
| Antigua and Barbuda | Equatorial Guinea | Malaysia | Somalia |
| Argentina   | Eritrea                | The Maldives | South Africa |
| Armenia     | Estonia                | Mali | Spain |
| Australia   | Ethiopia               | Malta | Sri Lanka |
| Austria     | Fs Micronesia          | The Marshall Islands | Sudan |
| Azerbaijan  | The Faeroe Islands     | Mauritania | Suriname |
| The Bahamas | Fiji                   | Mauritius | Swaziland |
| Bahrain     | Finland                | Mexico | Sweden |
| Bangladesh  | France                 | Mongolia | Switzerland |
| Barbados    | French Polynesia       | Morocco | Syria |
| Belarus     | Gabon                  | Mozambique | Macedonia |
| Belgium     | The Gambia             | Myanmar | Tajikistan |
| Belize      | Georgia                | Namibia | Thailand |
| Benin       | Germany                | Nepal | Togo |
| Bermuda     | Ghana                  | the Netherlands | Tonga |
| Bhutan      | Greece                 | New Caledonia | Trinidad and Tobago |
| Bolivia     | Greenland              | New Zealand | Tunisia |
| Bosnia Herzegovina | Grenada             | Nicaragua | Turkey |
| Botswana    | Guatemala              | Niger | Turkmenistan |

(Continues)
| Country                        | Country            | Country       | Country              |
|-------------------------------|--------------------|---------------|----------------------|
| Brazil                        | Guinea             | Nigeria       | Turks and Caicos     |
| Brunei Darussalam             | Guinea-Bissau      | Norway        | Tuvalu               |
| Bulgaria                      | Guyana             | Oman          | USA                  |
| Burkina Faso                  | Haiti              | Pakistan      | Uganda               |
| Burundi                       | Honduras           | Palau         | Ukraine              |
| Cambodia                      | Hungary            | Panama        | United Arab Emirates |
| Cameroon                      | Iceland            | Papua New Guinea | UK                |
| Canada                        | India              | Paraguay      | Tanzania             |
| Cape Verde                    | Indonesia          | Peru          | Uruguay              |
| The Cayman Islands            | Iran               | The Philippines | Uzbekistan |
| The Central African Republic  | Iraq               | Poland        | Vanuatu              |
| Chad                          | Ireland            | Portugal      | Venezuela            |
| Chile                         | Israel             | Qatar         | Vietnam              |
| China                         | Italy              | South Korea   | Yemen                |
| Colombia                      | Jamaica            | Moldova       | Zambia               |
| The Comoros                   | Japan              | Russia        | Zimbabwe             |
| The DR Congo                  | Jordan             | Rwanda         |                      |
| Costa Rica                    | Kazakhstan         | Saint Kitts and Nevis |          |
| Croatia                       | Kenya              | Saint Lucia   |                      |
| Cuba                         | Kiribati           | Saint Vincent and the Grenadines |          |
| Cyprus                        | Kuwait             | Samoa         |                      |
| Czech Republic                | Kyrgyzstan         | San Marino    |                      |
| Ivory Coast                   | Lao                | Sao Tome and Principe |          |
| North Korea                   | Latvia             | Saudi Arabia  |                      |
| Denmark                       | Lebanon            | Senegal       |                      |
| Djibouti                      | Lesotho            | The Seychelles |                      |
| Dominica                      | Liberia            | Sierra Leone  |                      |
| Variables          | (1)          | (2)          | (3)          | (4)          | (5)          | (6)          |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ln GDP<sub>i</sub> | 0.590***     | 0.597***     | 0.589***     | 0.590***     | 0.581***     | 0.592***     |
|                    | [0.0311]     | [0.0307]     | [0.0312]     | [0.0314]     | [0.0315]     | [0.0311]     |
| ln GDP<sub>j</sub> | 0.634***     | 0.645***     | 0.628***     | 0.626***     | 0.637***     | 0.633***     |
|                    | [0.0315]     | [0.0340]     | [0.0330]     | [0.0323]     | [0.0338]     | [0.0320]     |
| RTA                | 0.0646**     | 0.0612**     | 0.0539*      | 0.0619**     | 0.0647**     | 0.0614**     |
|                    | [0.0289]     | [0.0309]     | [0.0291]     | [0.0288]     | [0.0296]     | [0.0292]     |
| WTO                | 0.250***     | 0.231***     | 0.232***     | 0.245***     | 0.242***     | 0.245***     |
|                    | [0.0340]     | [0.0345]     | [0.0322]     | [0.0332]     | [0.0328]     | [0.0330]     |
| VAstd<sub>i</sub>  | 1.77e-05     |              |              |              |              |              |
|                    | [0.00218]    |              |              |              |              |              |
| VAstd<sub>j</sub>  | 0.00399**    |              |              |              |              |              |
|                    | [0.00178]    |              |              |              |              |              |
| PSstd<sub>i</sub>  |              | 0.00327***   |              |              |              |              |
|                    |              | [0.00979]    |              |              |              |              |
| PSstd<sub>j</sub>  |              | 0.00106      |              |              |              |              |
|                    |              | [0.000842]   |              |              |              |              |
| GEstd<sub>i</sub>  |              |              | 0.00111     |              |              |              |
|                    |              |              | [0.00189]   |              |              |              |
| GEstd<sub>j</sub>  |              |              | 0.00430***  |              |              |              |
|                    |              |              | [0.00156]   |              |              |              |
| RQstd<sub>i</sub>  |              |              |              | 0.00257     |              |              |
|                    |              |              |              | [0.00217]   |              |              |
| RQstd<sub>j</sub>  |              |              |              | 0.00684***  |              |              |
|                    |              |              |              | [0.00181]   |              |              |
| RLstd<sub>i</sub>  |              |              |              |              | 0.00496**   |              |
|                    |              |              |              |              | [0.00241]   |              |
| RLstd<sub>j</sub>  |              |              |              |              | 0.00135     |              |
|                    |              |              |              |              | [0.00162]   |              |
| CCstd<sub>i</sub>  |              |              |              |              |              | −0.000663   |
|                    |              |              |              |              |              | [0.00157]   |
| CCstd<sub>j</sub>  |              |              |              |              |              | 0.00371**   |
|                    |              |              |              |              |              | [0.00151]   |
| Pair FE            | Yes          | Yes          | Yes          | Yes          | Yes          | Yes          |
| Year FE            | Yes          | Yes          | Yes          | Yes          | Yes          | Yes          |
| Observations       | 356,573      | 327,133      | 353,384      | 353,630      | 356,573      | 353,384      |
| Number of pairs    | 24,262       | 24,082       | 24,159       | 24,163       | 24,262       | 24,159       |

Notes: Robust standard errors in brackets. Governance indicators include the following: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100).

***p < .01, **p < .05, *p < .1.
### TABLE A3 Starting dates for the Arab spring, by MENA country

| Country              | Date started   |
|----------------------|----------------|
| Tunisia              | 18 December 2010 |
| Algeria              | 29 December 2010 |
| Jordan               | 14 January 2011 |
| Oman                 | 17 January 2011 |
| Egypt                | 25 January 2011 |
| Syria                | 26 January 2011 |
| Yemen                | 27 January 2011 |
| Djibouti             | 28 January 2011 |
| Somalia              | 28 January 2011 |
| Sudan                | 30 January 2011 |
| Palestinian Authority| 10 February 2011|
| Iraq                 | 12 February 2011|
| Bahrain              | 14 February 2011|
| Libya                | 17 February 2011|
| Kuwait               | 19 February 2011|
| Morocco              | 20 February 2011|
| Mauritania           | 25 February 2011|
| Lebanon              | 27 February 2011|
| Saudi Arabia         | 11 March 2011   |
| Iranian Khuzestan    | 15 April 2011   |
| Borders of Israel    | 15 May 2011     |

*Source: Wikipedia (2016).*
| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------|-----|-----|-----|-----|-----|-----|
| RTA       | 0.279*** | 0.297*** | 0.300*** | 0.295*** | 0.265*** | 0.297*** |
|           | [0.0749] | [0.0769] | [0.0750] | [0.0748] | [0.0746] | [0.0746] |
| WTO       | 0.268*** | 0.294*** | 0.281*** | 0.271*** | 0.263*** | 0.271*** |
|           | [0.0920] | [0.0938] | [0.0930] | [0.0921] | [0.0926] | [0.0923] |
| dumAS     | −0.909 | 0.346 | −0.508 | −0.169 | 0.888 | −0.198 |
|           | [0.896] | [0.945] | [0.901] | [0.952] | [0.915] | [0.881] |
| VAs, dumAS, AS | 0.0167** | 0.0114*** | −0.00703* | 0.00563 | 0.00740 | 0.00859 |
|           | [0.00324] | [0.00733] | [0.00163] | [0.00418] | [0.00397] | [0.00859] |
| PS, VAs, dumAS, AS | −0.00963*** | 0.00207 | −0.00667 | 0.00249*** | 0.00867*** | 0.00737 |
|           | [0.00324] | [0.00261] | [0.00912] | [0.00312] | [0.00234] | [0.00927] |
| Pair FE   | Yes | Yes | Yes | Yes | Yes | Yes |
| i year 5, year 5 FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 24,619 | 22,709 | 24,594 | 24,596 | 24,619 | 24,594 |
| R-squared | 0.249 | 0.260 | 0.249 | 0.249 | 0.251 | 0.250 |
| Number of pairid | 2,804 | 2,786 | 2,793 | 2,793 | 2,804 | 2,793 |

Notes: Robust standard errors in brackets.
Where AS is a dummy variable that takes the value of one after the Arab Spring started (See Table A3), zero before. AS is interacted with each governance indicator: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100).

***p < .01, **p < .05, *p < .1.
### TABLE A5  Gravity model estimates for governance indicators with time-variant MRT and country-pair FE: All countries

| Variables | All countries | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------|---------------|-----|-----|-----|-----|-----|-----|
| $\ln GDP_{it}$ |               | 0.580*** | 0.555*** | 0.575*** | 0.573*** | 0.554*** | 0.572*** |
|           |               | [0.0265] | [0.0274] | [0.0264] | [0.0265] | [0.0269] | [0.0264] |
| $\ln GDP_{jt}$ |               | 0.668*** | 0.666*** | 0.670*** | 0.669*** | 0.660*** | 0.678*** |
|           |               | [0.0243] | [0.0251] | [0.0241] | [0.0241] | [0.0242] | [0.0241] |
| RTA       |               | 0.0358  | 0.0417*  | 0.0339  | 0.0343  | 0.0365  | 0.0357  |
|           |               | [0.0227] | [0.0232] | [0.0227] | [0.0227] | [0.0227] | [0.0227] |
| WTO       |               | 0.0466  | 0.0558*  | 0.0484* | 0.0462  | 0.0440  | 0.0474  |
|           |               | [0.0291] | [0.0300] | [0.0291] | [0.0291] | [0.0291] | [0.0291] |
| VStd$_{it}$ |               | −0.00180 |          |          |          |          |          |
|           |               | [0.00140] |          |          |          |          |          |
| VStd$_{jt}$ |               | 0.00339*** |          |          |          |          |          |
|           |               | [0.00108] |          |          |          |          |          |
| PStd$_{it}$ |               |          | 0.00208*** |          |          |          |          |
|           |               | [0.000778] |          |          |          |          |          |
| PStd$_{jt}$ |               | 0.000923 |          |          |          |          |          |
|           |               | [0.000698] |          |          |          |          |          |
| GEStd$_{it}$ |              |          |          | −0.000514 |          |          |          |
|           |               |          |          | [0.00138] |          |          |          |
| GEStd$_{jt}$ |              |          |          | 0.00257** |          |          |          |
|           |               |          |          | [0.00118] |          |          |          |
| RQStd$_{it}$ |              |          |          |          | 0.00107 |          |          |
|           |               |          |          |          | [0.00123] |          |          |
| RQStd$_{jt}$ |              |          |          |          | 0.00249** |          |          |
|           |               |          |          |          | [0.00107] |          |          |
| RLStd$_{it}$ |              |          |          |          |          | 0.00446*** |          |
|           |               |          |          |          |          | [0.00158] |          |
| RLStd$_{jt}$ |              |          |          |          |          | 0.00422*** |          |
|           |               |          |          |          |          | [0.00129] |          |
| CCStd$_{it}$ |              |          |          |          |          |          | 0.00311*** |
|           |               |          |          |          |          | [0.00102] |          |
| CCStd$_{jt}$ |              |          |          |          |          | 0.00178* |          |
|           |               |          |          |          |          |          | (Continues) |
**Table A5** (Continued)

| Dep. var: ln X | All countries | (1) | (2) | (3) | (4) | (5) | (6) |
|----------------|---------------|-----|-----|-----|-----|-----|-----|
| Pair FE        | Yes           | Yes | Yes | Yes | Yes | Yes | Yes |
| i year5, j     | Yes           | Yes | Yes | Yes | Yes | Yes | Yes |
| year5 FE       |               |     |     |     |     |     |     |
| Observations   | 245,375       | 226,577 | 244,365 | 244,435 | 245,375 | 244,365 |
| R-squared      | 0.215         | 0.225 | 0.215 | 0.215 | 0.215 | 0.215 |
| Number of pair |
| paired         | 24,316        | 24,136 | 24,214 | 24,218 | 24,316 | 24,214 |

**Notes:** Robust standard errors in brackets.
WGI included independently in the model. Governance indicators include the following: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100).

***p < .01, **p < .05, *p < .1.

**Table A6** Gravity model estimates for governance indicators with time-variant MRT and country-pair FE: MENA exporters

| Dep. var: ln X | MENA exporters | (1) | (2) | (3) | (4) | (5) | (6) |
|----------------|----------------|-----|-----|-----|-----|-----|-----|
| ln GDP<sub>i</sub> | 0.927*** | 0.759*** | 0.905*** | 0.897*** | 0.844*** | 0.855*** |
| [0.0906]          | [0.0942]     | [0.0882] | [0.0886] | [0.0884] | [0.0879] |
| ln GDP<sub>j</sub> | 0.528*** | 0.613*** | 0.534*** | 0.529*** | 0.509*** | 0.623*** |
| [0.0852]          | [0.0889]     | [0.0848] | [0.0852] | [0.0872] | [0.0852] |
| RTA              | 0.133*      | 0.142* | 0.141* | 0.130* | 0.123* | 0.139* |
| [0.0750]          | [0.0770]     | [0.0748] | [0.0752] | [0.0747] | [0.0745] |
| WTO              | 0.0384      | 0.0765 | 0.0731 | 0.0507 | 0.0638 | 0.0234 |
| [0.0934]          | [0.0949]     | [0.0937] | [0.0930] | [0.0930] | [0.0930] |
| VAsdt<sub>i</sub> | 0.0142***  |          |          |          |          |          |
| [0.00469]         |             |          |          |          |          |          |
| VAsdt<sub>j</sub> | –0.000210  |          |          |          |          |          |
| [0.00405]         |             |          |          |          |          |          |
| PSstd<sub>i</sub> | 0.00944*** |          |          |          |          |          |
| [0.00256]         |             |          |          |          |          |          |
| PSstd<sub>j</sub> | –0.00190   |          |          |          |          |          |
| [0.00259]         |             |          |          |          |          |          |
| GEstd<sub>i</sub> | 0.0179***  |          |          |          |          |          |
| [0.00578]         |             |          |          |          |          |          |
| GEstd<sub>j</sub> | 0.00339    |          |          |          |          |          |
| [0.00495]         |             |          |          |          |          |          |
| RQstd<sub>i</sub> | 0.000193   |          |          |          |          |          |
| (Continues)
| TABLE A6  (Continued) |
|------------------------|
| Dep. var: ln X | (1) | (2) | (3) | (4) | (5) | (6) |
| RQstd_{jt} | 0.000137 | 0.00431 |
| RLstd_{jt} | 0.0185*** | 0.00501 |
| RLstd_{jt}/C0 | −0.00181 | 0.00510 |
| CCstd_{jt} | 0.0218*** | 0.00312 |
| CCstd_{jt}/C0 | 0.00131 | 0.00357 |
| Pair FE | Yes | Yes | Yes | Yes | Yes | Yes |
| ijt5,jjt5 | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 23,672 | 21,768 | 23,654 | 23,656 | 23,672 | 23,654 |
| R-squared | 0.267 | 0.275 | 0.267 | 0.267 | 0.267 | 0.269 |
| Number of pairid | 2,744 | 2,719 | 2,734 | 2,734 | 2,744 | 2,734 |

Notes: Robust standard errors in brackets. WGI included independently in the model. Governance indicators include the following: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100).

***p < .01, **p < .05, *p < .1.

| TABLE A7  Gravity model estimates for governance indicators with time-variant MRT and country-pair FE: Intra-MENA trade |
|------------------------|
| Intra-MENA trade |
|------------------------|
| Variables |
| ln GDP_{jt} | 0.694*** | 0.571*** | 0.643*** | 0.616*** | 0.564*** | 0.598*** |
| [0.155] | [0.180] | [0.155] | [0.159] | [0.154] | [0.156] |
| ln GDP_{jt} | 0.634*** | 0.719*** | 0.674*** | 0.695*** | 0.647*** | 0.762*** |
| [0.139] | [0.158] | [0.137] | [0.140] | [0.142] | [0.140] |
| RTA | 0.217** | 0.167* | 0.227** | 0.192* | 0.192** | 0.156* |
| [0.0965] | [0.0986] | [0.0964] | [0.0983] | [0.0947] | [0.0944] |
| WTO | −0.00883 | 0.0242 | 0.0150 | 0.00289 | 0.00239 | −0.0248 |
| [0.115] | [0.115] | [0.116] | [0.116] | [0.118] | [0.115] |
| VAsstd_{jt} | 0.00762 | 0.00857 |
| [0.00728] |
| PSstd_{jt} | 0.000246 | 0.00534 |
| PSstd_{jt} | −0.00292 |

(Continues)
### Table A7 (Continued)

|                     | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     |
|---------------------|---------|---------|---------|---------|---------|---------|
| **Pair FE**         | Yes     | Yes     | Yes     | Yes     | Yes     | Yes     |
| **i*, year5, j*, year5 FE** | Yes     | Yes     | Yes     | Yes     | Yes     | Yes     |
| **Observations**    | 3,441   | 3,168   | 3,441   | 3,441   | 3,441   | 3,441   |
| **R-squared**       | 0.442   | 0.445   | 0.443   | 0.442   | 0.446   | 0.445   |
| **Number of pairid**| 329     | 325     | 329     | 329     | 329     | 329     |

**Notes:** Robust standard errors in brackets. WGI included independently in the model. Governance indicators: VA, Voice and Accountability; PS, Political Stability; GE, Government Effectiveness; RQ, Regulatory Quality; RL, Rule of Law and CC, Control of Corruption; std indicates standardised values (0–100).

***p < .01, **p < .05, *p < .1.
| Authors                  | Data sample                                                                 | Method                                                                 | Governance indicators                                                                 | Main results                                                                 |
|-------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Morrow et al. (1998)    | Trade among the US, Great Britain, France, Germany, Russia and Italy          | Cross-sectional time series. Gravity model with incomes, populations and distance variables | Conflict, interests, joint democracy and the presence of an alliance                    | Trade among countries increases due to joint democracy and common interests   |
| Anderson and Marcouiller (2002) | 48 importing countries Data for 1996                                          | Structural model Relative import demand is a function of the relative levels of income, income per capita, institutional quality, a shared border, a shared language, distance, tariffs if applicable and traded goods price index | World Economic Forum indicators: Government economic policies are impartial and transparent and if the legal system in the country is effective in enforcing commercial contracts | A 10% rise in a country’s index of transparency and impartiality leads to a 5% increase in its import volumes, other things equal |
| Acemoglu and Yared (2010) | Time period: 1988–2005                                                        | Change in bilateral trade as a function of a home country’s GDP on the change in the interaction of log military spending for the two countries and a full set of country dummies | Military spending as a proxy for nationalism and militarism                            | Nationalist sentiment and militarism are negatively associated with international trade |
| Yu (2010)               | 157 countries by choosing SITC 1-digit level directional import data for regressions Time period: 1962–98 | Log industrial bilateral imports (labour-intensive and capital-intensive categories) estimate separate regressions (the model is in line with comparative advantages) | Use the Polity IV data set, which includes annual composite indicators measuring institutionalised autocracy and institutionalised democracy | Democratisation significantly increases trade. After controlling for the endogeneity of democracy, democratisation contributes 3%–4% overall to bilateral trade growth |

(Continues)
| Authors                     | Data sample                                                                 | Method                                                                 | Governance indicators                                                                 | Main results                                                                                           |
|-----------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Dutt and Traca (2010)       | 128 exporters and 126 importers Time period: 1982–2000                      | Estimate a corruption-augmented gravity model                          | International Country Risk Guide (ICRG) survey-based index of corruption                | Reducing the scope for corruption reduces the impediments to trade in the majority of cases. However, the effect of corruption is ambiguous and depends upon the level of trade protection in the economy. |
| Horsewood and Voicu (2012)  | OECD economies, new EU members and developing nations for the 2000s         | Gravity model of trade augmented with governance indicators for both the exporter and the importer | Corruption perception index                                                              | Corruption hinders trade and the difference between the ethical standards of the importing and exporting country has a negative impact on international transactions |
| Berden et al. (2014)        | 28 OECD countries as source countries and 124 potential destination countries Time period: 1998–2004 | Estimate the effects of governance on trade and foreign direct investment. Each governance indicator is added sequentially in a state-of-the-art gravity model | World Bank Governance Indicators (WGI)                                                    | Voice and accountability is negatively related to trade, positive and statistically significant effect for the other five WGI indicators |
| Bojnec et al. (2014)        | Agro-food exports from BRIC countries (Brazil, Russia, India, China) Sectoral disaggregation (three-digit level BEC classification) Time period: 1998–2009 | Estimate a gravity model augmented with governance indicators          | Two dimensions of institutional quality: legal structure and security of property rights (IQ1) and freedom to trade internationally (IQ2) | Agro-food exports from the BRIC countries are positively associated with the quality of legal structure, security of property rights and freedom to trade internationally in exporting and importing countries |
| Ali and Mdhillat (2015)     | 37 countries representing two regions: MENA (15 countries) and the EU (22 countries) Time period: 2002–12 | Augmented gravity trade model with two measures of corruption for both the exporter and the importer | Two measures of corruption: the corruption perception index (CPI) and control of corruption index (COC) | Corruption negatively influences trade flows; control of corruption improves trade potential in MENA countries |

(Continues)
| Authors          | Data sample                                                                 | Method                                                                 | Governance indicators                  | Main results                                                                 |
|------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------|
| Gylfason et al.  | Bilateral exports for 60 exporters and 150 importers. Time period: 1995–2012| Gravity model in the first step to estimate time-variant fixed effects (TFE) and panel data model in the second step regressing the TFE on corruption and polity2 | Corruption and polity2 used as indicators for institutional quality          | Corruption and low levels of democracy negatively influence trade flows      |

Note: Studies in chronological order.