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An Investigation of Institutional Quality Conditions and the Export of Intermediate Goods by Developing Countries

Gholamreza Rezaee¹, Farzad Karimi^{2*}**Abstract**

The present study aimed to investigate the effects of institutional quality on the export of intermediate goods³ by developing countries according to good, moderate, and bad institutional quality conditions. The institutional variable included the World Bank's average good governance index. The estimation of the model was carried out using panel data for 1997-2018 on a sample of 131 developing countries by the application of the Estimated Generalized Least Squares (EGLS) method. The findings showed that institutional quality only influenced the mutual exports of the pairs of developing countries that had rather similar institutional quality conditions. Thus, the governments of developing countries having moderate governance conditions need to prioritize development and extensive reforms concerning institutional development to increase their exports of intermediate goods.

Keywords: *Export, Good governance, Developing countries, Intermediate goods*

Introduction

A significant portion of the relevant literature shows that the institution is one of the most important drivers in the economic growth of developing countries (Acemoglu, Johnson, & Robinson, 2005; Rodríguez-Pose & Storper, 2006). Moreover, some studies have been able to determine the direct impacts of national institutions on international trade (de Groot et al., 2004; Dutt & Traca, 2010; de Jong & Bogmans, 2011; Francois & Manchin, 2013; Gil-Pareja et al., 2017; Álvarez et al., 2018). The majority of the studies show that good institutional environments facilitate bilateral trade. The high institutional quality reflects pluralistic and integrated political institutions that facilitate business cooperation among developing countries, bring about more in-

depth international cooperation, and reduce uncertainties typically accompanying business endeavors (Handley & Limão, 2017; Bown & Keynes, 2017).

There is also limited empirical evidence that shows similarities in the governance of various countries (both exporters and importers) strengthen the flow of bilateral trade. Indeed, institutional disagreements impose considerable costs on doing trade. Thus, the probability of trade will decrease when differences between countries making up a pair become more highlighted (Levchenko, 2007; Baron & Garrett, 2017; Inmaculada & Dela-Dem, 2018). The question is whether the quality conditions of the governance of exporting developing countries (the country of origin) and their

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business partners (destination countries) influence the flow of bilateral trade. In other words, it should be investigated if the relationship between the institutional quality conditions of exports depends on the institutional quality conditions of various countries. So far, very few studies have been conducted to investigate the effects of institutional quality on the mutual exports of developing countries in terms of intermediate goods by considering institutional quality conditions.

The article is composed of three main parts: the first part offers a review of the related literature, including theoretical foundations and studies conducted inside and outside the country. The second part presents the research methodology and, indeed, the proposed framework to estimate the coefficients of the institutional variable. The third section provides the results of model estimation and analysis. The most significant findings and suggestions for future studies are provided in the final section.

According to the principle of relative advantage propagated by the classic and neoclassic theories, making bilateral trade between countries depends on the variations of the relative production costs of origin and destination countries. Such variations are related to the productivity level of industries in various countries (Ricardo's model for international trade) or the potential for relative access to production factors between countries (the Heckscher–Ohlin model) (Gertler, 2006). Indeed, the principle of relative advantage based on the classic view mostly emphasizes the agent factors as the most remarkable components of growth in the allocation of resources within market function conditions. International trade is made up of several countries that typically have different institutional environments. The existing literature indicates the fact that countries with high-quality institutions are

more likely to develop bilateral trade with other countries.

The more recent view advanced by the leaders of neo-structuralism like Lin (2011) and Rodrik (2011) has not only emphasized the role of observing the principle of relative advantage in developing bilateral trade between countries, but it has pointed to the active role of governments in the form of providing hard and soft software like the development of institutions (Mirjalili, 2018). A larger portion of the literature on development has been devoted to investigating the role of institutions on economic performance. For instance, Acemoglu et al. (2001), Efendic et al. (2011); Boubakri et al. (2015), and Go'és (2016) showed that the existence of institutions is necessary to achieve economic growth. Moreover, a limited number of studies exists in the field of international trade that have shown more high-quality institutions improve the flow of international trade (Levchenko, 2007; Nunn, 2007; Dutt & Traca, 2010; Levchenko, 2011; de Jung & Bogmans, 2011; Yu (2010), Francois & Manchin, 2013; Nunn & Trefler, 2015; Araujo, Mion, & Orlenas, 2016; Gil-Pareja et al., 2017; Beverelli et al., 2018).

From a theoretical perspective, there are at least two reasons that justify the direct impacts of institutions on trade. First, high-quality institutions act as sources of relative advantage. The literature on institutions as sources of relative advantage has grown significantly (Levchenko, 2007; Nunn, 2007; Levchenko, 2011; Yu, 2011; Nunn & Trefler, 2014; Araujo, Mion, & Orlenas, 2016). Second, low-quality institutions act as barriers against the direct flow of foreign investments and international trade and increase the costs of international transactions (foreign direct investments and imports/exports) (Bloningen & Piger, 2014; Benjek et al., 2014; Demir & Hu, 2015; Judd & Levige, 2016; Hou et al., 2020).

Some recent studies have shown that the good quality of institutions can remarkably

reduce three types of trade expenditures, including total trade costs, the costs of trading agricultural goods, and the trade costs of manufactured goods (Hou et al., 2020).

In the literature on the relationship between institutions and the flow of international trade, few studies have pointed to institutional conflicts as determining factors in the flow of international trade between countries (Levchenko, 2007; Dela-Dem et al., 2018; Alvarez et al., 2018; Martínez-Zarzoso & Márquez-Ramos, 2018; and Beverelli et al., 2018). There is strong empirical evidence to support the significant influence of institutional conflicts between countries on their bilateral trade (Baron & Garrett, 2020). The question that remains unanswered is how countries can strengthen their trade despite such conflicts. The majority of the existing literature has shown that governments and institutions are significant drivers in trade and economic growth. Similarities between the governance of various countries strengthen the flow of bilateral trade. On the other hand, institutional conflicts impose remarkable costs on trade. Thus, when differences between countries become more profound, the probability of trade between them gets reduced (Dela-Dem et al., 2018).

Empirical evidence

In a study titled “Institutional Quality and International Trade”, Levchenko (2007) investigated the effects of the institutional quality of exporting countries on the imports of the U.S. using the cross-sectional data of 389 industries in 116 countries. The findings indicated that institutional conflicts significantly determined the flow of trade between countries, particularly in the case of underdeveloped ones, as such conflicts might deprive them of the profits of exports.

In a study titled “Does Institutional Quality Matter for Trade? Institutional Conditions in a Sectoral Trade Framework”, Álvarez et al. (2018) investigated the influence of the quality of national institutions on the bilateral

trade flow, and whether the institutional distance between importing and exporting countries significantly influenced the bilateral trade. The study utilized the gravity model and estimated the relationship between the World Bank’s good governance index and the flow of bilateral trade in the industries of 186 countries for the period 1996-2012 according to the Poisson Pseudo-Maximum Likelihood Estimator. The findings showed that both the institutional conditions of destination countries and the institutional distance between exporting and importing countries significantly influenced the rates of bilateral trade.

In a study titled “Exports and governance: Is the Middle East and North Africa region different?”, Martínez-Zarzoso and Márquez-Ramos (2018) analyzed the role of good governance in the trade of the Middle East and North Africa (MENA) region. The study used the gravity model to estimate the relationship between the World Bank’s good governance index with the export flow of 19 MENA countries to 189 trade partners during 1996-2013. The findings showed that the similarity between the good governance indices of importing and exporting countries increased the MENA countries’ exports. Thus, any improvement in the good governance index of the MENA countries increased their exports to their trade partners. On the other hand, it was found that the good governance of the target countries had no significant effects on the exports of the MENA countries.

Beverelli et al. (2018) conducted a study titled “Institutions, Trade, and Development: a Qualitative Analysis” and qualitatively investigated the effects of national institutions on international trade and development. The study used the gravity model to estimate the relationship between the World Bank’s good governance index and the trade flow of 63 countries at medium/low levels of income with their business partners during 1996-2013. The study offered strong evidence that good

governance had more significant effects on the imports of poorer countries from wealthier ones compared to their exports to such countries.

A review of the domestic literature on the field shows that though the topic of good governance and the growth of exports has been extensively investigated in the framework of internationalization and the methods of entering markets, few studies have attempted to determine the effects of institutional conflicts on the flow of mutual trade, particularly concerning intermediate goods (Aghasafari et al., 2019; Kimiai & Arbab Afzali, 2016; Renani & Molla Esmail Dehshiri, 2013). However, such studies have greatly contributed to the establishment and consolidation of the determining factors of export in developing countries.

Aghasafari et al. (2019) conducted a study titled "An Investigation of the Roles of Institutions and Infrastructure on Iran's Bilateral Trade with its Major Trade Partners" and used the gravity model and the Poisson Quasi-Maximum Likelihood Estimator. Moreover, the model estimation was carried out using the panel data of the volume of trade between Iran and its developed and developing business partners during 2003-16. The results showed that the mutual effects of various institutional indices on Iran's bilateral trade with its developing and developed business partners were significant and negative. Thus, it was shown that Iran was more inclined to do business with countries that enjoyed lower levels of corruption and higher political stability, enforced trade-facilitating laws, and practiced superior forms of democracy.

In a study titled "The Effects of Governance and Knowledge Economy Factors on the Exports of Emerging Economies", Kimiai and Arbab Afzali (2016) investigated the effects of institutional factors (governance), a select group of knowledge economy factors (the accumulation of R&D expenditures, human resources, and ICT), and costs (foreign

exchange rates) on the exports of emergent economies during 1996-2013 by using panel data. The results showed that the good governance index had a significant impact on exports.

In their study titled "The relationship between Institutional Quality Conditions, the Economic Rents of Natural Resources, and the Growth of Exports in a Select Group of Developing Countries", Karsalari and Rahimian Buger (2015) used panel data to investigate the research question during 1996-2013 and found a significant relationship between the improvement of the quality of institutional environments and the growth of exports in the investigated countries. Moreover, a significant relationship was observed between utilizing natural resources and the growth of exports. The results showed the significant role of non-cost components in explaining the export-related behavior of developing countries and the need to consider them in planning economic programs and determining policy objectives.

Model

The Gravity Theory of Trade is an economic model that is used to predict the export rate between two countries according to their GDPs and the differences between them in that regard (Grant & Lambert, 2008). The model has undergone meticulous theoretical and applied transformations since its introduction by Tinbergen in 1962 (Anderson, 1979; Helpman & Krugman, 1985; Bergstrand, 1985; Anderson & Wincoop, 2003). The model is used in empirical studies to show the effects of institutions on the flow of trade between pairs of countries (Head et al. 2015; Rini et al., 2018).

Based on the traditional gravity model, the gravity models proposed by Alvarez et al. (2018) and Martínez-Zarzoso and Márquez-Ramos (2018), and domestic empirical studies, a form of gravity model is proposed in the present study by adding the good

governance index to the traditional variables like the economy size, distance, and the shared language (a replacement for culture):

Where

$$\begin{aligned} LEX_{ijt}^m = & \alpha_0 + \alpha_1 LAVGGOVP_{jt} \\ & + \alpha_2 LAVGGOVR_{it} \\ & + \alpha_3 LGDPCP_{it} + \alpha_4 LGDPCR_{jt} \\ & + \alpha_5 LDIS_{ij} + \alpha_6 LONG_{ij} + v_k \\ & + u_k + \varepsilon_{kt} \end{aligned}$$

In the model, LEX is the logarithm of the value of exports (\$), m is the group of intermediate goods, i is the source country, j is the destination country, and LAVGGOVR and LAVGGOVP represent the average good governance index of developing (source) countries) and their importing partners (destination countries), respectively.

The components of governance for the developing countries and their business partners were collected according to the World Bank's good governance index⁴. The index ranges from +2.5 to -2.5, and more negative values indicate the worsening of governance according to any investigated component. The variables of the model were logarithmic because the gravity model is exponential. Thus, each index of governance in the model was standardized between 0 and 1, and the average of the six-fold indices of governance⁵ were used the governance index in the proposed model.

The control variables of the study were GDPCP (the GDP of the destination country in 2010 in terms of U.S. dollars), GDPCR (the GDP of the source country in 2010 in terms of U.S. dollars), DIS (distance between the capitals of the source and destination countries), LONG (a dummy variable representing the shared language), t (year), u (the periodic constant effect), v (absolute constant effect), and ε_{kt} (a random error that is not correlated with v_k , u_k , or the dependent variables. In the proposed model, the GDP variable is a criterion to indicate market size,

the distance between the capitals is a replacement for trade costs, and the shared language indicates the cultural similarities of countries. The model utilized panel data, and various tests were used to establish a convenient model. The most significant tests conducted in the present study include F-Limer, Hausman Test, Variance Heterogeneity Test, and correlational tests. As was mentioned above, the coefficients related to the variables of the average good governance were estimated within three gravity models in the present study. The number of pairs of countries with good quality conditions was determined at 5106. The figure was 369380 for the pairs of countries with moderate institutional conditions and 4598 for the pairs of countries with bad conditions. The basis for the selection of the pairs of countries with good, moderate, and bad governance conditions was the average global good governance index. Thus, when the index ranged between 0 and 0.25, it was concluded that institutional conditions were bad. On the other hand, figures in the range of 0.25-0.75 indicated moderate conditions, and the ones above 0.75 showed good institutional conditions. According to the goals of the study, the coefficients of the important variables were α_1 and α_2 in the proposed model. It was expected that the good governance of source and destination countries could increase the export of intermediate goods by developing countries to their business partners⁶. The estimation of the model was carried out using the Estimated Generalized Least Squares (EGLS) method, which is based on static panel models. As the number of observations needed to be big enough to make the results of the model more reliable, the period between 1997 and 2018 was investigated in the present study.

4 <https://info.worldbank.org/governance/wgi/>

5 The $\frac{\min(x) - \max(x)}{(x - \min(x))}$ method was used for standardization.

Model Estimation and the Analysis of the Results

Descriptive analysis

Investigating the exports of intermediate goods according to governance conditions showed that the highest rates of exports in that regard were recorded in countries with moderate governance conditions over the past few decades.

Chart 1 shows the average share of developing countries in exporting intermediate goods according to their

governance conditions during 1997-2017. Based on the chart, it can be seen that the majority of the developing countries exporting intermediate goods had moderate governance conditions. During the investigated period, almost 88.6% of the export of intermediate goods was carried out by the developing countries with moderate governance conditions, 11% was performed by the six countries that had good governance conditions, and 0.4% by 11 countries with bad governance conditions.

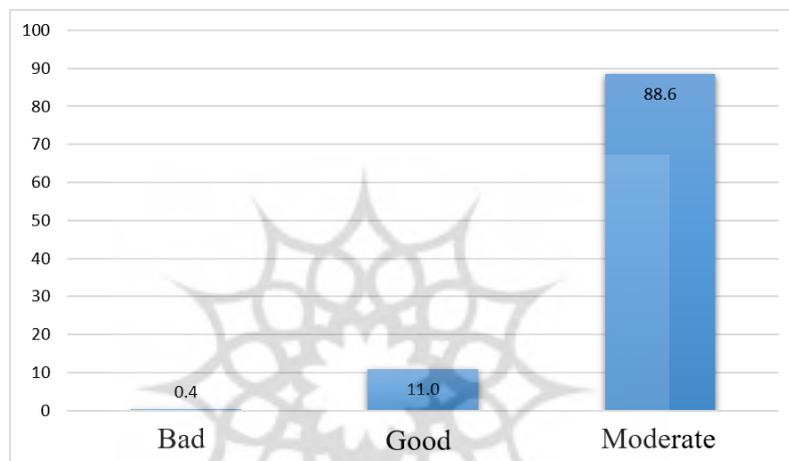


Chart 1. The average share of developing countries in exporting intermediate goods according to their governance conditions during 1997-2018

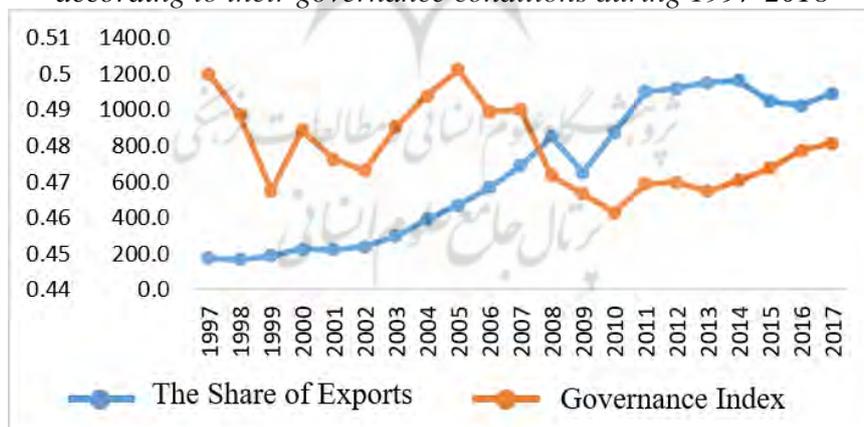


Chart 2. The average trends of the governance index and the export of intermediate goods by developing countries

Based on the above chart, it could be observed the trend of exporting intermediate goods by the developing countries that had moderate governance conditions was increasing, and the increasing trend of the

exports and the average governance index started to move in the same direction since 2010. The value of the exported goods in the investigated period increased from \$176.4 billion in 1997 to \$1092.4 billion in 2017 in

the case of developing countries with moderate governance conditions, which showed a nearly six-fold increase. The average governance index experienced some ebbs and flows during the same period, though it grew from 0.4615 in 2010 to 0.4897 in 2017.

Chart 2 illustrates the average governance index and the export of intermediate goods by the developing countries that have good governance conditions. Based on the chart, the export of intermediate goods by the

developing countries having good governance conditions experienced an increasing trend, though it did not move in the same direction as the average governance index since 2007. Moreover, the value of the intermediate goods exported by countries having good governance conditions increased from \$25.4 billion in 1997 to \$201.6 billion in 2017, which was a nearly eight-fold increase. The average index of governance decreased from 0.8510 in 2007 to 0.8312 in 2017.

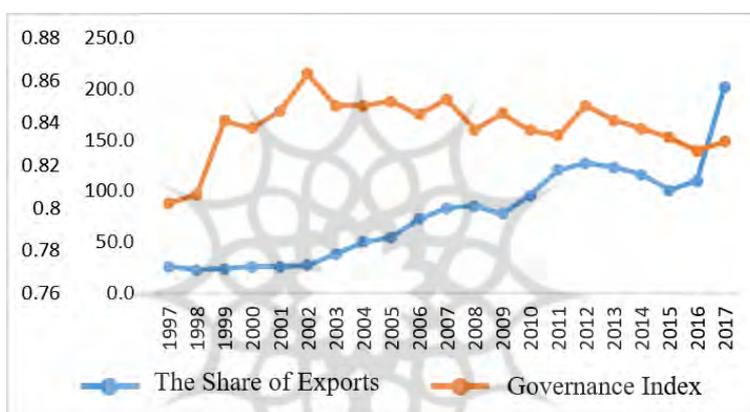


Chart 3. The trends of the governance index and the export of intermediate goods by developing countries having good governance conditions
From Left: governance index ,the share of exports

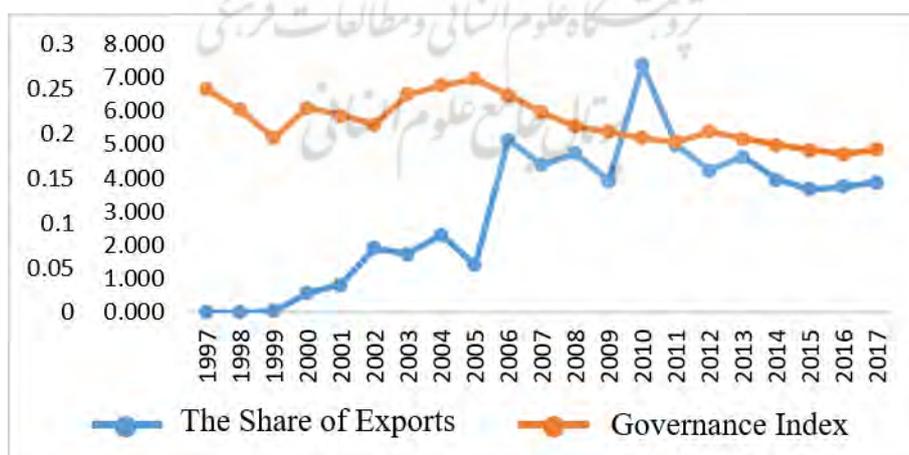


Chart 4. The trends of the governance index and the export of intermediate goods by developing countries having bad governance conditions

Chart 4 illustrates the average trend of the governance index and the export of

intermediate goods by developing countries having bad governance conditions. Based on

the chart, the export of intermediate goods by the developing countries that had bad governance conditions experienced an increasing trend, though it was not aligned with the average governance index since 2005. The value of the intermediate goods exported by developing countries having bad governance conditions increased from \$0.001 billion in 1997 to \$3.9 billion in 2017. Moreover, the average governance index decreased from 0.2607 in 2005 to 0.1817 in 2017.

Table 1 presents the average shares of the within-group export of intermediate goods from developing (source) countries to destination countries according to good, moderate, and bad governance conditions during 1997-2017. Based on the table, first, the flow of exporting intermediate goods from developing countries was not limited to the destinations having similar institutional quality conditions. This was evident in the case of countries having good and bad governance conditions. Moreover, it was shown that almost 42% of the intermediate

goods exported from developing countries with moderate governance conditions were transported to countries with good governance conditions. Moreover, exports from countries with moderate governance conditions to destinations with moderate and bad conditions were at nearly 56% and 2%. Another point was that the export destinations of developing countries' intermediate were mostly made up of countries that had moderate and good governance conditions. Thus, developing countries with good governance conditions exported nearly 67.3% of their intermediate good to countries with moderate governance conditions, 32.4% to countries with good conditions, and 0.25% to the ones with bad conditions. In the case of developing countries having bad governance conditions, nearly 76.6% of the intermediate goods were exported to the countries having moderate governance conditions, 4.9% were exported to the countries having bad conditions, and 18.4% to the ones having good governance conditions.

Table 1.

The export of intermediate goods between developing countries and their business partners according to governance conditions between 1997 and 2018 (%)

		Destination countries according to their governance conditions		
		Bad	Moderate	Good
Source countries according to their governance conditions	Good	32.4	67.3	0.25
	Moderate	42.0	56.0	2.0
	Bad	18.4	76.6	4.9

A necessary condition to make the results of estimation more reliable is to fulfill the stationarity of the variables. Thus, the stationarity of the variables in the present study was investigated using Levene's Test, Levin-Lin-Chu (LLC) Test, Im-Pesaran-Shin (IPS) Test, Augmented Dickey-Fuller (ADF) test, and Phillips-Perron-Fisher (PPF) Test. Based on the results of the tests and the estimated p values, it was concluded that all of the investigated variables – except for the

LGDPGR – were stationary in $p < 0.01$. Moreover, the results obtained by carrying out the Kao Test approved the existence of a co-integration or a long-term equilibrium relationship between seven models of bilateral exports among developing countries at $p < 0.05$. The hypothesis concerning the accuracy of merging on the investigated period was confirmed for the models based on the calculated F-Limer statistic. Moreover, a Fixed Effects Model was

selected based on the values of the Hausman Test for the investigated models⁷. The results indicated that no significant relationship existed between the average governance index of the source and destination countries with the export of intermediate goods by developing countries to their business partners (destinations) having similar (good, moderate, or bad) governance conditions. Rather, the relationship was only significant in exporting intermediate goods to countries sharing moderate governance conditions with the source country. Thus, the present study found that the institutional governance conditions of source and destination countries significantly influence the export of intermediate goods, and pairs of countries with moderate governance conditions, rather than the ones with good or bad conditions, were more likely to improve the flow of exports among developing countries.

Another important point was that increasing the export of intermediate goods by developing countries sharing good governance conditions was not influenced by variations in the governance conditions of the source and destination country, and this was not approved statistically. The same result was applicable to countries having bad governance conditions, as well.

The relationship between exports and moderate governance conditions

Investigating the results of the estimation of other explanatory variables in the model, including the GDP of destination countries (LGDPCP) and the GDP of source countries (LGDPCR) showed that the above variables were found to be significant in the fixed effects model of exporting intermediate goods by developing countries. Thus, increasing the rate of economic growth in source and destination countries could

increase the export of intermediate goods by developing countries. On average, a 1% increase in the economic growth of the source and destination countries increased the rate of export by 1.283% and 0.954%, respectively. The variables “distance” (LDIS) and “common language” (LONG) were significant in the fixed effects model at $p < 0.01$, and their coefficients were determined at -0.993 and 0.545, respectively.

Investigating the results of estimating the coefficients of other explanatory variables in the model, including the GDP of destination countries (LGDPCP) and the GDP of source countries (LGDPCR), showed that the variables had significant effects in the fixed effects model of exporting intermediate goods by developing countries. Thus, increasing the economic growth rate of source and destination countries having good governance conditions increases the export of intermediate goods by developing countries. On average, a 1% increase in the economic growth of source and destination countries increased the rate of exports by 1.254% and 1.349%, respectively.

The results of estimation using the fixed effects method showed that the variable “distance” (LDIS) had the most significant effect on the export flow of intermediate goods having good governance conditions compared to other variables. In other words, the coefficient of the LDIS variables was determined at about -3.314. The variable “common language” (LONG) was significant at $p < 0.01$ in the fixed effects model, and its coefficient was determined at 1.702.

The relationship between exports and the governance index of countries having bad conditions

Based on the results of estimating the export of intermediate goods by developing

⁷ Check Appendix 2 to get more information about the tests carried out before model estimation.

countries having bad governance conditions using the fixed effects method, the variable coefficient of the average governance index for the source countries was determined at 3.615, and the coefficient was not significant at $p < 0.01$. On the other hand, the variable coefficient of the average governance index for the destination countries was determined at -6.979, though it was only significant at $p < 0.1$. Thus, in the case of the developing countries exporting intermediate goods with bad institutional conditions, the effect of governance on the export of intermediate goods was not significant compared to other variables. However, the effect of the governance conditions of destination countries on the export flow of intermediate goods by developing countries was found to be negative.

Investigating the results of estimating the coefficients of other explanatory variables in the model, including the GDP of destination countries (LGDP), showed that such variables were not significant in the fixed effects model of exporting intermediate goods by developing countries at $p < 0.01$, and the results were unexpectedly negative. Therefore, according to the fixed effects model, increasing the economic growth rate of the source countries having bad governance conditions decreased the number of intermediate goods exported by developing countries. On average, a 1% increase in the economic growth of the source (developing) countries reduced the export growth rate by 4.902%.

Conclusions and suggestions for future research

The present study, which contributed to the empirical literature on export, investigated the effects of the institutional factors of source and destination countries on the export flow of intermediate goods from developing countries by considering governance quality conditions (good,

moderate, and bad) and other economic variables. The findings were significant from three perspectives: first, unlike most of the studies conducted in the field, the present study did not just focus on the investigation of the relationship between institutional factors and the export of developing countries without any concern for the type of exported commodities. Rather, it attempted to explain the phenomenon and detect its causes in the case of intermediate goods. Second, the study investigated the relationship between institutional factors and developing countries' exports by considering governance conditions (good, moderate, and bad) regardless of institutional differences (similarities) between developing (source) countries and destination countries. Moreover, it tried to observe variations in the bilateral export of developing countries according to their governance conditions.

A remarkable finding of the present study showed that the effect of developing (source) countries' institutional factors and their importing partners (destinations) on the flow of export depended on governance conditions (good, moderate, and bad). It was shown that the effect of the institutional factors of exporting developing countries was only significant when goods were exported to business partners having similarly moderate governance conditions. Nevertheless, this was not confirmed in the case of developing countries that exported intermediate goods to partners with similarly good or bad governance conditions. Policies based on boosting the quality of governance in developing (source) and destination countries having moderate governance conditions were found to improve the flow of export and pave the way for developing countries to participate in global and regional value chains. In other words, it was shown that developing countries needed to consider the governance conditions of their trade partners if they intended to invest in and produce

intermediate goods. Thus, countries having moderate governance conditions need to prioritize revising their encouraging policies concerning institutional development and trade to improve the competitive edge of their export products.

Along with the influence of the institutional variable on the flow of exports, the economic growth rates of source and destination countries were found to be effective in increasing developing countries' export of intermediate goods in the case of countries having similarly good or moderate governance conditions. This conclusion was not applicable to countries with similarly bad governance conditions. Moreover, the effect of the variables "distance" and "common language" on the export flow of intermediate goods by developing countries having moderate or good governance conditions was significant. In comparison to institutional factors, traditional factors (distance and common language) that influenced the export flow of intermediate goods from developing countries were more significant, particularly in the case of countries having good governance conditions. It seems that the capacity for the advancement of institutional quality is weak in the majority of developing countries and their trade partners having good governance conditions with regard to increasing the rate of exports. Therefore, the dynamicity of exports in developing countries having good governance conditions does not necessarily depend on the establishment of higher-quality institutions and policies as a way to grow more, and the traditional factors of the flow of exports are still strong stimuli in the case of the exchange of commodities.

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