

## **The Impact of Corruption on the Trade Flows of Arab Countries**

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### **Abstract:**

Corruption plays a significant part in economic transactions in developing countries. Due to the fact that it has the capacity to either facilitate or obstruct trade, As a result, demonstrating the link between corruption and commerce is crucial. There is no unanimity in the literature about this link. This paper investigates the impact of corruption on the trade of Arab countries with their trading partners in the United States from 2000 to 2019. We estimate the gravitational equation using the Poisson pseudo-maximum likelihood technique combined with the High-Dimensional Fixed-Effects method (PPMLHDFE). Unlike classical methods, PPMLHDFE estimator provides unbiased results and is consistent with the structural gravity equation. We measure the level of corruption using the Corruption of Control Index (CCI). The findings demonstrate unequivocally that corruption encourages the flow of products into Arab countries. However, we did not find any effect on exports.

**Keywords:** corruption, exports, imports, gravity model, Arab countries.

### **1. Introduction**

Corruption is described in criminal law as the abuse of power by holders of public or private office for the purpose of obtaining personal gain or benefit (including, but not limited to, bribery, fraud, forgery, nepotism, and manipulation) (Bahoo, Alon, & Paltrinieri, 2020, p. 2). Despite the fact that Olken and Pande (2012) suggest that corruption and wealth are inversely related, On the other hand, (Becker, Egger and Seidel (2009) assert that corruption is

impacted by regional considerations. Corruption manifests itself in a multitude of ways depending on the giver, receiver, and victim (Šumah, 2018). As Jain (2001) notes, the causes and consequences of corruption are inextricably linked and interrelated. While Dubrovskiy (2006) believes that corruption contributes significantly to the social fabric of many developing nations, Gupta, Davoodi, and Alonso-Terme (2002) argue that corruption distorts income distribution and exacerbates poverty. Corruption has been shown to impede growth (Mo (2001), De Vaal and Ebben (2011), Gründler and Potrafke (2019)); Corruption has been shown to obstruct the flow of foreign direct investment (Wei (2000), Habib and Zurawicki (2002)).

At first glance, it may appear as though the nature of corruption's impact on international trade is self-evident. However, this has been a point of contention among economists. Is corruption beneficial or detrimental to trade? Does corruption enable the effective lubrication of complex and lengthy bureaucratic systems, or is it counterproductive Kaufmann and Wei (1999)? From the standpoint of Anderson and Marcouiller (2002), corruption impedes international trade. Kellenberg and Levinson (2019) established that corruption plays a significant role in underestimating the reported amount of trade. However, as Thede and Gustafson (2012) demonstrate, "systematic multilayered corruption" constrains commerce. When the unpredictable nature of corruption is taken into account, the harm is mitigated in this instance. On the other hand, corruption may facilitate commerce by enabling individuals to avoid government policies based on the "queue model" and the "auction model," or bribery collected from exporters and importers by customs officials (Aidt, 2003). De Jong and Bogmans (2011) established that the regular payment of bribes increases imports, particularly in low-quality customs jurisdictions. Additionally, international financial institutions' attention to the significance of eliminating corruption and bribery in order to achieve growth and ease trade supports the notion that corruption obstructs the movement of products. Nonetheless, given the numerous studies confirming the beneficial effect of corruption on exports and imports, we believe that an empirical investigation is necessary to ascertain the influence of corruption on trade flows.

## **2. literature review:**

The research on the influence of corruption on trade flows is quite limited, and it is clear that there is little consensus on the nature and mechanism of this effect. Shepherd (2009) shows that international commerce is harmed by corruption and the sluggish speed of border processes. Lambsdorff (1998) demonstrates that the effect of a trade partner's degree of corruption on exports varies; the effect is negative for Sweden and Malaysia, but favorable for Belgium, France, and South Korea. Zelekha and Sharabi (2012) found that the link between corruption and trade is more directly tied to the destination country's degree of corruption. Zelekha and Sharabi (2012) discovered that the association between corruption and trade is more closely tied to the levels of corruption in the destination country. Many empirical studies have been published in the literature that show that corruption has a detrimental impact on trade flow. A study conducted by Tamaş and Miron (2021), revealed that among EU-countries, corruption control had a detrimental impact on Romanian imports but not on its exports. Another study conducted in the same context found that corruption had

a negative impact on intra-EU-25 trade (Hosseini Pozveh, 2011). Another evidence from Bandyopadhyay and Roy (2016) study, they clarified that corruption has a negative impact on the exports of some industrial goods by industrialized countries, particularly in the automotive industry. A comparison between developed and developing countries was made in a research project that found that long-term corruption impedes the flow of Vietnam's exports to developing countries more than it impedes the flow of Vietnamese exports to developed countries (Narayan & Bui, 2021).

Many studies, on the other hand, show that corruption has a positive effect on trade flow. For instance, Khorana and Martínez-Zarzoso (2020) stated that corruption control promotes intra-Commonwealth exports as well as exports to trade partners. Another research found that corruption had a detrimental influence on African nations' exports and imports (Musila & Sigué, 2010). Following that, Horsewood and Voicu (2012) show that corruption has a greater beneficial impact on Romanian and Bulgarian exports and imports than European Union membership. According to Martínez-Zarzoso and (2019), enhancing the capacity of the source government to manage corruption corresponds to a rise in MENA nations' exports. Achour and Hadji (2020) revealed that corruption decreases Egypt's, Jordan's, Tunisia's, and Morocco's commerce with their trading partners. In addition, the rise in corruption in MENA countries improves exports (Kamel, 2021). This result was emphasized by Ali and Mdhilat (2015), who stressed the importance of combatting corruption in order to maximize the commercial potential of the Middle East and North African countries. For more evidence, Gil-Pareja, Llorca-Vivero, and Martínez-Serrano (2019) found that when the "Structural Corruption Index" (SCI) is used, corruption helps trade.

Additionally, the literature explored the contradictions in the results. Using the terms "extortion" and "evasion," Dutt and Traca (2010) stress the dual role of corruption in terms of "extortion and evasion." Bribery offered by the exporter to the customs officials of the destination country assists in the escape of high customs duties, hence increasing international trade. Where it can be asserted that corruption enhances trade flows between nations in the Middle East and Latin America before the threshold is crossed, but has the opposite effect once the barrier is crossed. Another study discovered that corruption benefits exports and imports more in developing countries than in rich countries (Saputra, 2019). Finally, Azarbayjani, Shirazi, and Samiei (2012) asserted that countries in the Middle East with lower levels of corruption gain from increasing exports and imports.

### **3. Methodology and Data**

This study covers 59 countries, including 14 Arab countries, during the period 2000-2019. This study falls within the experimental work on determining the impact of corruption on international trade flows. We will estimate the impact of corruption control on Arab countries' trade with their trading partners in different regions, and the level of control corruption varies. In the first and second parts, we will investigate the impact of corruption on the imports and exports of Arab countries, respectively.

When using ordinary least squares, fixed effects, or random effects and PPML in estimating the gravity model we may encounter the problems of zero trade, heterogeneity,

autocorrelation of errors and excessive dispersion (Achour & HADJI, 2021, p. 127). In order to overcome these problems, we will use the approach taken by Larch, Wanner, Yotov and Zylkin (2019), Correia, Guimarães and Zylkin (2020)). We formulate this approach with Equation (1).

$$M_{ijt} = \exp(\kappa_{it} + \rho_{jt} + A_{ij} + P'X_{ijt}) + \varepsilon_{ijt} \quad (1)$$

Where:  $M_{ijt}$  denotes exports or imports;  $t$  denotes duration;  $\kappa_{it}$  denotes variables specific to the exporting country;  $\rho_{jt}$  refer variables specific to the importing country;  $A_{ij}$  is fixed-effect of the exporting-importing country;  $X_{ijt}$  are joint variables between source-destination countries; and  $\varepsilon_{ijt}$  is error term.

Using the panel data, we estimated total bilateral exports or imports as a maximum of 16,240 observations ( $14 \times 58 \times 20$ ). In the first step, we estimate the impact of corruption on the imports of Arab countries using the gravity equation (2).

$$im_{ijt} = \exp(H + v_1 \ln GDP_{it} + v_2 \ln GDP_{jt} + v_3 \ln POP_{it} + v_4 \ln POP_{jt} + v_5 col_{ijt} + v_6 cont_{ijt} + v_7 \ln CCI_{it} + v_8 \ln CCI_{jt}) + \varepsilon_{ijt} \quad (2)$$

Where:  $\ln$  is the natural logarithm;  $im$  is the dependent variable, which is the imports;  $i$  and  $j$  are the exporting and importing country, respectively;  $GDP$  Gross Domestic Product;  $POP$  population;  $distw$  is the weighted geographical distance;  $col$  and  $Cont$  are dummy variables express of colonial and borders, respectively, and take the value 1 in the case of common borders and colonial and the value 0 otherwise.  $CCI$  whose value ranges between -2.5 (weak) to 2.5 (strong) and  $v_\beta$  are model parameters  $\beta = 0, 1, 2, \dots, 8$ .

In the second step, we estimate the effect of corruption on the exports of Arab countries using the gravity equation (3).

$$Ex_{ijt} = \exp(Z + \rho_1 \ln GDP_{it} + \rho_2 \ln GDP_{jt} + \rho_3 \ln POP_{it} + \rho_4 \ln POP_{jt} + \rho_5 col_{ijt} + \rho_6 cont_{ijt} + \rho_7 \ln CCI_{it} + \rho_8 \ln CCI_{jt}) + U_{ijt} \quad (3)$$

Where:  $Ex$  is the dependent variable, which is the exports;  $U_{ijt}$  is the error term, and  $\rho_\alpha$  are model parameters  $\alpha = 0, 1, 2, \dots, 8$ .

For data collection, we imported the World Bank database for the variables of GDP, population and Control of Corruption index; imports and exports by IMF (Direction of Trade Statistics [DOTS]); CEPII for distance, border and colonial link variables.

#### 4. Results

Tables 1 and 2 present the results of our gravity model estimation. In Table 1, we present the econometric results of the determinants of Arab countries' Imports. The overall model is significant at 1 percent. The value of  $R^2 = 0.8766$  indicates that the explanatory variables explain the dependent variable by 87.66%. The value  $R^2$  indicates the robustness of the model and its high explanatory power.

The results emphasized the importance of the impact of GDP volume on countries' imports. The imports of the source country and the destination country increase by 70.7% and 52%, respectively, when the GDP is increased by 100%. The imports of Arab countries are negatively affected by an increase in the population, However, it is not significant. The imports of Arab countries increase by 23.8% when the population of the trading partner increases by 100%. Arab countries import more from less distant countries. This proves that long-distance hinders trade. The trade of Arab countries is related to their colonizers. The imports of countries from the colonizer increased by 104.2%. An increase in the CCI for source or destination countries by 100% reduces Arab countries' imports by 8.4% and 32.7%, respectively.

**Table 1. results of estimating the gravity equation for imports**

HDFE PPML regression	No. of obs	=	16,240
Absorbing 2 HDFE groups	Residual df	=	16,159
	Wald chi2(9)	=	4207.12
Deviance = 3666362.987	Prob>Chi2	=	0.0000
Log pseudolikelihood = -1879475.603	Pseudo R2	=	0.8766

im	Robust Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
lngdpi	0.707	0.043	16.290	0.000	0.622	0.793
lngdpj	0.521	0.043	12.050	0.000	0.436	0.605
lnpopi	-0.057	0.067	-0.860	0.390	-0.188	0.074
lnpopj	0.238	0.100	2.380	0.017	0.042	0.434
Indistw	-1.025	0.038	-27.110	0.000	-1.099	-0.950
Contig	0.019	0.113	0.160	0.869	-0.203	0.240
col	1.042	0.053	19.820	0.000	0.939	1.145
lnCCIi	-0.084	0.034	-2.480	0.013	-0.150	-0.018
lnCCIj	-0.327	0.086	-3.800	0.000	-0.496	-0.159
_cons	-1.686	1.764	-0.960	0.339	-5.143	1.771

Absorbed degrees of freedom:

Absorbed FE	Categories	-	Redundant	=	Num.	Coefs
importers	59		0		59	
exporters	14		1		13	

**Source:** output STATA 16.

In Table 2, we present the econometric results of the determinants of Arab countries' Exports. The overall model is significant at 1%. The value of  $R^2 = 0.80$  indicates that the explanatory variables explain the dependent variable by 80%.

The Arab countries that export the most are the countries that have the largest GDP. Exports rise by 92.4 % when GDP increases by 100%. Arab countries export to larger countries. The

effect of the population in the (exporting-importing ) country is negative on exports. The impact of the borders on the imports of Arab countries is negative, which is explained by the weak intra-Arab trade. Arab countries depend for their imports of goods on the countries that colonized them. The impact of corruption in Arab countries or in trading partners on Arab countries' exports varies, however, it is not significant.

**Table 2. results of estimating the gravity equation for exports**

HDFE PPML regression	No. of obs	=	16,239
Absorbing 2 HDFE groups	Residual df	=	16,158
	Wald chi2(9)	=	2567.15
Deviance = 10515291.69	Prob>Chi2	=	0.0000
Log pseudolikelihood = -5303738.106	Pseudo R2	=	0.8003

ex	Robust Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
lngdpi	0.924	0.071	13.040	0.000	0.785	1.063
lngdpj	0.631	0.062	10.220	0.000	0.510	0.752
lnpopi	-0.559	0.105	-5.330	0.000	-0.765	-0.353
lnpopj	-0.330	0.122	-2.710	0.007	-0.568	-0.091
lndistw	-1.192	0.039	-30.500	0.000	-1.268	-1.115
Contig	-0.616	0.077	-7.990	0.000	-0.767	-0.465
col	0.941	0.067	14.100	0.000	0.810	1.071
lnCCIi	0.021	0.051	0.420	0.675	-0.078	0.121
lnCCIj	-0.134	0.118	-1.140	0.256	-0.365	0.097
_cons	13.593	2.217	6.130	0.000	9.248	17.939

Absorbed degrees of freedom:

Absorbed FE	Categories	-	Redundant	=	Num.	Coefs
importers	59		0		59	
exporters	14		1		13	

**Source:** output STATA 16.

## 5. Conclusion:

The impact of corruption on bilateral trade is yet unknown. Corruption may facilitate trade flow. Proponents of this theory argue that corruption allows for the circumvention of intricate bureaucratic processes as well as the escape of large customs duties through the receipt of bribes by customs officers. The majority of scholars, on the other hand, may feel that corruption impedes trade. Scholars provide a variety of arguments to back this up. For example, a high cost and a long travel time. The goal of this study is to look at the impact of corruption on the trade of Arab countries. The gravity equation is the most widely used and successful model for describing trade determinants. From 2000 to 2019, the Expanded Gravity Model was used to assess the impact of corruption on Arab states' trade with their

trading partners. We use the PPML2HDFE estimator due to its several benefits. To begin, it enables us to regulate zero-trade, homogeneity, error autocorrelation, and hyper-dispersion; to continue, it enables us to deal with the structural gravity model; and last, the inclusion of just two dummy variables conveys the exporter and importer's fixed effects. The research demonstrates that an increase in the CCI in Arab countries or their trade partners impedes imports. However, we saw no discernible influence on exports. The collected data supports the idea of "effective wheel greasing." Arab countries' imports seem to rise in proportion to the size of their economies or the size of their trade partners. The population effect is variable. Arab nations buy more than bigger countries and sell more to smaller ones. The Arab countries that export the most are the least populous. For Arab countries, the colonizer is a critical commercial partner. The distance creates impediments to commerce in Arab countries.

The empirical evidence gathered in this research enables policymakers in Arab countries to make critical suggestions. Arab countries can use geographical and cultural convergence to boost inter-trade by capitalizing on current integration possibilities. In terms of corruption, the findings indicate the efficacy of corruption in boosting imports. However, this research is confined to the influence of corruption on trade, not on the quality of imported products. It is recommended that future researchers examine the influence of corruption on the quality and origin of imported or exported goods.

## 6. References

7. Achour, S., & Hadji, F. (2020). The Effect of Free Trade Agreement between the Mediterranean Arab Countries and Turkey on Foreign Trade Flows. *International Journal of Advanced Science and Technology*, 29(8), 6209-6215.
8. Achour, S., & HADJI, F. (2021). Determinants of trade flows to Agadir Agreement countries: gravity model three-way approach. *Theoretical & Applied Economics*, 28(2), 125-134.
9. Aidt, T. S. (2003). Economic analysis of corruption: a survey. *The Economic Journal*, 113(491), F632-F652.
10. Akbarian, R., & Shirazi, H. (2012). The Effect of Corruption on Trade Volume of Selected Countries in the Middle East and Latin America (2002-2008), *QUARTERLY JOURNAL OF QUANTITATIVE ECONOMICS*, 8(4), 29-46.
11. Ali, M. S. B., & Mdhillat, M. (2015). Does corruption impede international trade? New evidence from the EU and the MENA countries. *Journal of Economic Cooperation and Development*, 36(4), 107-120.
12. Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American economic review*, 69(1), 106-116.
13. Anderson, J. E., & Marcouiller, D. (2002). Insecurity and the pattern of trade: An empirical investigation. *Review of Economics and statistics*, 84(2), 342-352. <https://doi.org/10.1162/003465302317411587>
14. Azarbayjani, K., Shirazi, H., & Samiei, N. (2012). The Effect of Corruption on Bilateral Trade of Selected Countries in the Middle East. *Journal of Economic Research (Tahghighat-E-Eghtesadi)*, 47(2), 1-20.
15. Bahoo, S., Alon, I., & Paltrinieri, A. (2020). Corruption in international business: A review and research agenda. *International Business Review*, 29(4), 101660. <https://doi.org/10.1016/j.ibusrev.2019.101660>
16. Bandyopadhyay, S., & Roy, S. (2016). The Effects of Corruption on Trade Flows: A Disaggregated Analysis *International Trade and International Finance* (pp. 97-116): Springer.
17. Becker, S. O., Egger, P. H., & Seidel, T. (2009). Common political culture: Evidence on regional corruption contagion. *European Journal of Political Economy*, 25(3), 300-310. <https://doi.org/10.1016/j.ejpoleco.2008.12.002>

18. Bergstrand, J. H. (1989). The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade. *The Review of Economics and statistics*, 143-153. <https://doi.org/10.2307/1928061>
19. Bergstrand, J. H. (1990). The Heckscher-Ohlin-Samuelson model, the Linder hypothesis and the determinants of bilateral intra-industry trade. *The Economic Journal*, 100(403), 1216-1229. <https://doi.org/10.2307/2233969>
20. Correia, S., Guimarães, P., & Zylkin, T. (2020). Fast Poisson estimation with high-dimensional fixed effects. *The Stata Journal*, 20(1), 95-115. <https://doi.org/10.1177%2F1536867X20909691>
21. De Jong, E., & Bogmans, C. (2011). Does corruption discourage international trade? *European Journal of Political Economy*, 27(2), 385-398. <https://doi.org/10.1016/j.ejpoleco.2010.11.005>
22. De Vaal, A., & Ebben, W. (2011). Institutions and the relation between corruption and economic growth. *Review of Development Economics*, 15(1), 108-123. <https://doi.org/10.1111/j.1467-9361.2010.00596.x>
23. Deardorff, A. (1998). Determinants of bilateral trade: does gravity work in a neoclassical world? *The regionalization of the world economy* (pp. 7-32): University of Chicago Press. [https://doi.org/10.1142/9789814340373\\_0024](https://doi.org/10.1142/9789814340373_0024)
24. Dubrovskiy, V. (2006). Towards effective anti-corruption strategies in Ukraine: Removing the cornerstone without toppling the building. *CASE Network Studies and Analyses*(322). <https://dx.doi.org/10.2139/ssrn.1438040>
25. Dutt, P., & Traca, D. (2010). Corruption and bilateral trade flows: extortion or evasion? *The Review of Economics and statistics*, 92(4), 843-860. [https://doi.org/10.1162/REST\\_a\\_00034](https://doi.org/10.1162/REST_a_00034)
26. Evenett, S. J., & Keller, W. (2002). On theories explaining the success of the gravity equation. *Journal of political economy*, 110(2), 281-316.
27. Gil-Pareja, S., Llorca-Vivero, R., & Martínez-Serrano, J. A. (2019). Corruption and international trade: a comprehensive analysis with gravity. *Applied Economic Analysis*, 92(4), 3-20. <https://doi.org/10.1108/AEA-06-2019-0003>
28. Gründler, K., & Potrafke, N. (2019). Corruption and economic growth: New empirical evidence. *European Journal of Political Economy*, 60, 101810. <https://doi.org/10.1016/j.ejpoleco.2019.08.001>
29. Gupta, S., Davoodi, H., & Alonso-Terme, R. (2002). Does corruption affect income inequality and poverty? *Economics of Governance*, 3(1), 23-45. <https://doi.org/10.1007/s101010100039>
30. Habib, M., & Zurawicki, L. (2002). Corruption and foreign direct investment. *Journal of international business studies*, 33(2), 291-307. <https://doi.org/10.1057/palgrave.jibs.8491017>
31. Horsewood, N., & Voicu, A. M. (2012). Does corruption hinder trade for the new EU members? *economics*, 6(1), 1-28. <https://doi.org/10.5018/economics-ejournal.ja.2012-47>
32. Hosseini Pozveh, S. H. (2011). Does Corruption Mitigate Trade in the EU?
33. Jain, A. K. (2001). Corruption: A review. *Journal of economic surveys*, 15(1), 71-121. <https://doi.org/10.1111/1467-6419.00133>
34. Kamel, E. M. (2021). The MENA region's need for more democracy and less bureaucracy: A gravity model controlling for aspects of governance and trade freedom in MENA. *The World Economy*, 44(6), 1885-1912. <https://doi.org/10.1111/twec.13072>
35. Kaufmann, D., & Wei, S.-J. (1999). Does "grease money" speed up the wheels of commerce? : National bureau of economic research Cambridge, Mass., USA.
36. Kellenberg, D., & Levinson, A. (2019). Misreporting trade: Tariff evasion, corruption, and auditing standards. *Review of International Economics*, 27(1), 106-129. <https://doi.org/10.1111/roie.12363>
37. Khorana, S., & Martínez-Zarzoso, I. (2020). Twenty-First-Century Trade Governance: Findings from the Commonwealth Countries. *Contemporary Economic Policy*, 38(2), 380-396. <https://doi.org/10.1111/coep.12450>
38. Lamsdorff, J. G. (1998). An empirical investigation of bribery in international trade. *The European Journal of development research*, 10(1), 40-59.
39. Larch, M., Wanner, J., Yotov, Y. V., & Zylkin, T. (2019). Currency unions and trade: A PPML re-assessment with high-dimensional fixed effects. *Oxford Bulletin of Economics and Statistics*, 81(3), 487-510. <https://doi.org/10.1111/obes.12283>



40. Martínez-Zarzoso, I., & Márquez-Ramos, L. (2019). Exports and governance: Is the Middle East and North Africa region different? *The World Economy*, 42(1), 143-174. <https://doi.org/10.1111/twec.12633>
41. McCallum, J. (1995). National borders matter: Canada-US regional trade patterns. *The American economic review*, 85(3), 615-623.
42. Mo, P. H. (2001). Corruption and economic growth. *Journal of comparative economics*, 29(1), 66-79. <https://doi.org/10.1006/jcec.2000.1703>
43. Musila, J. W., & Sigué, S. P. (2010). Corruption and international trade: an empirical investigation of African countries. *World Economy*, 33(1), 129-146. <https://doi.org/10.1111/j.1467-9701.2009.01208.x>
44. Narayan, S., & Bui, N. M. T. (2021). Does Corruption in Exporter and Importer Country Influence International Trade? *Emerging Markets Finance and Trade*, 57(11), 3202-3221. <https://doi.org/10.1080/1540496X.2019.1679116>
45. Olken, B. A., & Pande, R. (2012). Corruption in developing countries. *Annu. Rev. Econ.*, 4(1), 479-509. <https://doi.org/10.1146/annurev-economics-080511-110917>
46. Pöyhönen, P. (1963). A tentative model for the volume of trade between countries. *Weltwirtschaftliches Archiv*, 93-100.
47. Saputra, P. M. A. (2019). Corruption perception and bilateral trade flows: Evidence from developed and developing countries. *Journal of International Studies*, 12(1), 65-78.
48. Shepherd, B. (2009). Speed money: time, corruption, and trade. Working Paper.
49. Šumah, Š. (2018). Corruption, causes and consequences *Trade and Global Market*: IntechOpen. DOI: 10.5772/intechopen.72953
50. Tamaş, A., & Miron, D. (2021). The Governance Impact on the Romanian Trade Flows. An Augmented Gravity Model. *Amfiteatru Economic*, 23(56), 276-289.
51. Thede, S., & Gustafson, N. Å. (2012). The multifaceted impact of corruption on international trade. *The World Economy*, 35(5), 651-666. <https://doi.org/10.1111/j.1467-9701.2012.01436.x>
52. Tinbergen, J. (1962). Shaping the world economy; suggestions for an international economic policy.
53. Wei, S.-J. (2000). How taxing is corruption on international investors? *Review of Economics and statistics*, 82(1), 1-11. <https://doi.org/10.1162/003465300558533>
54. Zelekha, Y., & Sharabi, E. (2012). Corruption, institutions and trade. *Economics of Governance*, 13(2), 169-192. <https://doi.org/10.1007/s10101-012-0109-7>