The Role and Effect of Institution in International Trade

Ma, Yan

Zhou, Lingfeng

(Citation)
国民経済雑誌,227(4):95-105

(Issue Date)
2023-06-10

(Resource Type)
departmental bulletin paper

(Version)
Version of Record

(JaLCDOI)
https://doi.org/10.24546/0100482443

(URL)
https://hdl.handle.net/20.500.14094/0100482443

ISSN 0387-3129

国民経済雑誌
THE
KOKUMIN-KEIZAI ZASSHI
(JOURNAL OF ECONOMICS & BUSINESS ADMINISTRATION)

The Role and Effect of Institution in International Trade

Yan Ma
Lingfeng Zhou

The Kokumin-Keizai Zasshi
(*Journal of Economics & Business Administration*)
Vol. 227, No. 4 (June, 2023)

神戸大学経済経営学会

The Kokumin-Keizai Zasshi (*Journal of Economics & Business Administration*)
Vol. 227, No. 4 (June, 2023), 95-105

The Role and Effect of Institution in International Trade

Yan Ma[a]
Lingfeng Zhou[b]

This study reviews the literature on the relationship between institutions and international trade, focusing on how variation in institutional quality across countries affects international trade outcomes. We first summarize how institutions have been measured in the literature and then discuss the main findings on the impacts of institutions on international trade.

Keywords Institution, bilateral trade, trade pattern

1 Introduction

Since the late 1990s, researchers have been paying growing attention to how institutional factors affect trade flows. Recent studies by Lanz, Lee, and Stolzenburg (2019) and Francois and Manchin (2013) suggest that low quality of institutions plays a crucial role in explaining why developing economies consistently underperform in export. Actually, one might trace the "missing export" of developing countries in Lanz et al. (2019) back to Trefler (1995), who noted the "missing trade" mystery, i. e., the size of international trade was far smaller than predicted by trade theory. Anderson and Marcouiller (2002) argue that the impacts of variation in institutional quality across countries potentially play a role in trade barriers in addition to tariffs and quotas. Institution was viewed as the intangible, informal, and unobserved trade barrier in related studies by Liu, Lu, and Wang (2020) and Linders, de Groot, and Rietveld, (2005). In this study, we provide a literature review on institutional factors and international trade.

We delve into the definition of institutions as well as the three main institutional factors that have been widely studied in the literature: institutional quality, institutional distance, and insti-

a Graduate School of Business Administration, mayan003@kobe-u.ac.jp
b Graduate School of Business Administration, lzhou369@outlook.com

tutional dependency. We first review the measures for these institutional factors used in the empirical studies. Next, we summarize the main empirical findings associated with these institutional factors, and their implications for international trade.

The remainder of this paper is organized as follows. Section 2 introduces the definition of institution and its role in international trade; section 3 reviews the institutional factors and the corresponding measures used in the literature; section 4 summarizes the main empirical findings on how institutions influence international trade; section 5 concludes.

2 Institution

The concept of institutions has been found to be challenging to define. Rodríguez-Pose (2013) argues that various studies disagree on a "common definition." Nunn (2007) focuses on specific functions of institutions, avoiding a definition, while Álvarez, Barbero, Rodríguez-Pose, and Zofío (2018) use commonly accepted measures of institutions in the literature (Worldwide Governance Indicators; see more discussion in section 3.1) as a starting point. North (1990) describes institutions as the "rules of the game" and "humanly devised constraints that shape human interaction." North (1991) further argues that institutions "determine costs and hence the profitability and feasibility of economic activity." In Levchenko (2007), institutions are considered to be a broad spectrum of structures that affect economic outcomes such as contract enforcement and property right protection.

The relationship between institutions and uncertainty in economic activities has been examined in the literature. In addition to Levchenko (2007), North (1990) argues that the fundamental role of institutions is to reduce the cost of uncertainty in economic activities. Acemoglu, Johnson, and Robinson (2005) also argue that uncertainty in interactions imposes additional costs on economic activities, particularly in contract and property protection, raising both transformation and transaction costs. Dixit (2011) emphasizes that institutions play a role in reducing uncertainty in "human interactions" by promoting the "security of property rights" and protecting contracts and property against insecurity in international trade activities.

3 Institutional Factors and Measures

How institutional factors affect trade flows has been investigated in the trade literature. In this section, we focus on reviewing the concepts and measurements of three key institutional factors: institutional quality, institutional distance, and institutional dependency.

3.1 Institutional quality

Institutional quality, often referred to as the quality of governance, has been identified as a key institutional factor in the trade literature. Institutional quality captures the overall performance of a country's economic institutions with respect to specific functions, such as enforcing contracts and protecting property rights, foreign investments, and shareholders. Contract enforcement and property rights protection have been paid majority attention due to their significant role in trade. However, selecting appropriate measures for other specific institution's quality is challenging.

Kaufmann, Kraay, and Mastruzzi (2004, 2011) provide the Worldwide Governance Indicators, which are the most commonly used measure of institutional quality in the literature. These indicators capture six dimensions of institutional quality across countries based on World Bank data, which includes rating results from polls of experts in various relevant organizations worldwide and survey results from residents in different countries. The six dimensions are Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption.

The "Voice and Accountability" indicator measures citizens' power to choose their government and hold it accountable for its governance. This indicator reflects whether people and businesses can prevent the government from acting arbitrarily and enforcing good governance when necessary. The independence of the media is included in the rating; "Political Stability and Absence of Violence/Terrorism" captures the perceived possibility of the government being destabilized through unlawful intervention or violence against individuals and property rights. This indicator constitutes the very foundation of a stable economic environment for a country; "Government Effectiveness" reflects the perceived capability of the government to create and implement sound policies; "Regulatory Quality" refers to the quality of policies that have been executed by the government and represents the transaction costs incurred as a result of government intervention in private trade. This indicator also takes into account the perceived incidence of policies that suppress relevant market mechanisms, the excessive regulation of international business, and the like; "Rule of Law" measures the judicial quality and contract enforceability in the legal system of a country. This measure reflects the achievability of fairness and predictability in social and economic interactive activities in society and mainly focuses on the quality of contract enforcement; "Control of Corruption" refers to the extent to which public-private economic interactions are unjust due to poor governance. Essentially, corruption imposes additional transaction costs on economic activities by introducing a "third-

party" involvement into private transactions, increasing the expense of the business. These indicators provide a comprehensive assessment of institutional quality and have a large number of countries available for estimations. However, as the data is collected through surveys, it may be subject to bias and limitations.

The Worldwide Governance Indicators are used in various ways to measure institutional quality across countries. The first approach is to use all six dimensions to provide a comprehensive assessment of institutional quality. However, as the six indicators are highly correlated, de Groot, Linders, Rietveld, and Subramanian (2004) and Álvarez et al. (2018) used them separately to avoid multicollinearity issues. The second approach is to compose a single index using multiple indicators to capture overall institutional quality. For example, Linders et al. (2005) took a simple arithmetic average of the six indicators, while de Groot et al. (2004) and Ranjan and Lee (2007) used a more complex composition method. The third approach is to use only one indicator out of six to focus on a specific aspect of institutional quality. Among the six indicators, the "rule of law" has attracted the most attention due to its focus on the perceived quality of the judicial system and contract enforcement. For example, Levchenko (2007) used the "rule of law" index to measure contract enforceability, while Nunn (2007) and Lanz et al. (2019) used it as a measure of judicial quality.

An alternative measure of institutional quality in the literature is the Heritage Foundation index, which covers various aspects of institutional environments, such as property rights, corruption, and freedom from government influence. Ranjan and Lee (2007) used this index as an alternative to the Worldwide Governance Indicators, and Lanz et al. (2019) used it to check the robustness of their results. Other indexes used in the literature include the International Country Risk Guide indexes, the World Economic Forum's survey scores, the Global Bilateral Migration Database's migrant stock data, and the Economic Freedom of the World database by the Fraser Institute. These indexes measure includes various aspects of institutional quality, including contract enforcement, property rights, economic freedom, and corruption.

3.2 Institutional distance

In the trade literature, the concept of institutional distance is closely linked to that of institutional quality. Institutional distance refers to the inhibitory effect that differences in institutional quality between countries have on trade flows. To measure institutional distance, economists have employed various techniques. de Groot et al. (2004) employed a simple measure, constructing a dummy variable indicating whether two countries share similar institutional quality

based on the Worldwide Governance Indicators. On the other hand, Linders et al. (2005) used the Kogut-Singh index to calculate the overall governance quality difference for each trading country pair. Similarly, Liu et al. (2020) used Euclidean distance for index composition.

3.3 Institutional dependence

Institutional dependence is an industry-specific factor and refers to the fact that country-level institutional quality affects trade flows in some industries more than others. The most widely used measure of institutional dependence is the Contract Intensity index composed by Nunn (2007)[1]. Based on Rauch's (1999) product categorization, Nunn (2007) argued that industries whose products require a larger proportion of relationship-specific input are more institutionally intensive regarding contract enforceability[2]. Contract Intensity index has two versions (z_i^{rs1} and z_i^{rs2}), where the difference is the second measure includes reference priced inputs as relationship-specific inputs:

$$z_i^{rs1}=\sum_j \theta_{ij} R_j^{neither}, \quad (1)$$

$$z_i^{rs2}=\sum_j \theta_{ij} (R_j^{neither}+R_j^{ref\ price}), \quad (2)$$

where z_i represents contract intensity in the industry i and rs stands for "relationship-specific". θ_{ij} captures the proportion of the value of input j in the total value of all inputs in the industry i. $R_j^{neither}$ is the share of differentiated input j, which means neither sold on organized exchanges nor with reference prices; $R_j^{ref\ price}$ is the proportion of input j that is reference priced but not sold on organized exchanges.

An alternative proxy is the Levchenko (2007) index, which was calculated based on the Herfindahl index of an industry's intermediate input use[3]. Levchenko (2007) adopted such a measure of product complexity as a proxy for industry-level institutional dependence.

4 Main Empirical Findings

There are three main strands of literature on how institution affect trade. First, bilateral trade flow increases with higher institutional quality in both origin and destination countries, for example, Anderson and Marcouiller (2002) (AM (2002) hereafter) and Francois and Manchin (2013). Next, bilateral trade flow decreases with larger institutional distance between the two trading countries. Finally, institutional quality has been found to have larger effects on trade flows in industries whose inputs are more relationship-specific than others.

4.1 Cross-country variation in institutional quality

The literature on international trade has long recognized the importance of institutions as a determinant of trade costs. AM (2002) used a structural model of relative import demand to analyze the effect of inadequate institution on trade volume reduction. Since trade activities across borders are inherently uncertain, and are subject to a range of risks, including bribes extortion, predation, expropriation, and similar challenges, inadequate institutions may fail to provide sufficient protection against such risks, leading to higher trade costs in the form of "insecurity" price markups that similar to the markup caused by tariffs and transport costs. Concretely, for exports from an origin country j to destination countries i and k, the relative price of the exports is shown as:

$$\frac{p_{ij}}{p_{kj}}=\left(\frac{S_i}{S_k}\right)^{\delta 1}\left(\frac{1+b_{ij}}{1+b_{kj}}\right)^{\delta 2}\left(\frac{1+l_{ij}}{1+l_{kj}}\right)^{\delta 3}\left(\frac{d_{ij}}{d_{kj}}\right)^{\delta 4}\left(\frac{1+(1-a_{ij})t_i}{1+(1-a_{kj})t_k}\right), \quad (3)$$

where S_i and S_k capture the institutional qualities in destination country i and k; b, l, d, t and a capture other determinators of trade, including shared border, common language, physical distance, tariff, and whether associated to free trade agreements. The magnitude of "insecurity" markup depends on destination countries' institutional quality to facilitate international trade. Thus, the effect of relative institutional quality $\frac{S_i}{S_k}$ on relative price $\frac{p_{ij}}{p_{kj}}$ potentially explains the trade pattern found in the real world that high-income countries trade "disproportionally" with each other since these countries have better institutional quality in general and hence lower transaction costs.

Unlike other bilateral trade resistances, such as geographical distance, shared borders, and languages that are subject to the bilateral relationships between destination and origin countries, low institutional quality of a country negatively influences its imports from all origin countries. Specifically, institutional quality was modeled to capture only characteristics of destination countries that are not subject to the bilateral relationship between destination and origin countries. The relative institutional quality of destination countries was recognized as one of the determinants of relative import demand. By affecting the impacts of insecurity in international trade activities, better institutional quality contributes to a reduction of price markup, leading to higher import demand in the destination country. Using 2182 import trade flows across 48 destination countries in 1996, the estimation results in AM (2002) suggest if the Latin American countries, including Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela, were able to improve their institutional quality towards the average level of countries in the European Union, the total import volumes in the Latin American countries would increase by 30%.

Thede and Gustafson (2012) extended AM (2002) empirical model by replacing the aggregated measure of institutional quality with an indicator of corruption level in the destination country to form an augmented gravity model. They found that the effect of corruption level on trade is greater than other economic distance factors. Francois and Manchin (2013) also employed the gravity model in their empirical work and found that both destination and origin countries' institutional quality affect trade positively, with low-income countries depending more on institutional quality than high-income countries. Söderlund and Tingvall (2014) used gravity model with detailed firm-level data and found that weak institutions in the destination country reduce trade, but this effect declines over time as firms become more familiar with the institutional environment. Lanz et al. (2019) augmented the gravity model by adding interaction terms of institutional quality and other factors (e.g., geographical distance) and found that the trade resistance generated by distance and weak contracting institutions may reinforce each other, with the negative effects of inadequate institutions on trade being magnified by an increase in the distance factor.

4.2 Bilateral institutional distance

Following AM (2002), de Groot et al. (2004) argued that institutional homogeneity, also known as institutional distance, affects the price markup in trade. They used bilateral export data for over 100 countries in 1998 and found that increases in institutional distance reduce trade flows. Put in another way, countries with low quality of institutions not only suffer from trade volume reduction with all other countries, but also are less likely to enjoy the benefit of trading with relatively more developed countries with which they usually do not share similar institutions.

Additionally, Álvarez et al. (2018) adopted a sectoral gravity model and also studied the effect of institutional distance on trade in addition to that of national institutional quality. Their empirical results suggest that an increase in the bilateral institutional distance can enhance the impact of institutional quality in the destination country on bilateral trade flows. In other words, the greater the difference between the institutions of destination and origin countries, the larger effect that the destination country's institutional quality has on bilateral trade. Together with the results of Lanz et al. (2019), we can see that geographical distance and institutional distance have similar effects on the impact of institutional quality on trade.

4.3 Institutional dependence and contract enforceability

The literature suggests that the effects of institutions on international trade are heterogeneous across industries. Levchenko (2007) developed an incomplete contract framework with a focus on relationship-specific capital investment for production. Concretely, a greater likelihood of an incomplete contract raises the fraction of relationship-specific investment for production process, i.e., the proportion of capital invested that cannot be recovered after production. Better contracting institution reduces the likelihood of incomplete contracts and, consequently, reduces the fraction of relationship-specific investment. Hence, industries that require more relationship-specific investments for production depend more on national institutional quality. Countries with better contracting institutions are more likely to produce goods in institutionally intensive industries.

In the empirical analysis, Levchenko (2007) extended Romalis's (2004) model into the following econometric specification:

$$rel\_share_{ic} = \alpha + \beta_1 inst\_dep_i * inst_c + \beta_1 skint3_i * skill_c + \beta_1 capint3_i * capital_c + \gamma_c + \delta_i + \varepsilon_{ic}, \quad (4)$$

where rel_share_{ic} is country c's U.S. import share in industry i. $capital_c$ and $skill_c$ measure capital and labor endowments, and $capint3_i$ and $skint3_i$ measure capital and labor intensity. The institution interaction term $inst\_dep_i * inst_c$ incorporates industry-level institutional dependence and country-level institutional quality measures. Using the U.S. import data on 1998 for 389 industries across 177 origin countries, the empirical results confirmed the effect of heterogeneity of institutional dependence across industries on trade patterns. Origin countries with higher institutional quality obtain larger shares of the U.S. import in the industries that are more "institutionally dependent."

Nunn (2007) also explores the concept of underinvestment in relationship-specific investments by drawing upon insights from the literature on incomplete contracts. Building on the insights of Klein, Crawford, and Alchian (1978), Williamson (1979, 1985), Grossman and Hart (1986), and Hart and Moore (1990), Nunn argues that underinvestment is more likely to occur in the absence of adequate institutions to enforce contracts. To measure institutional dependence, Nunn develops the Contract Intensity index and finds that countries with better institutions exhibit higher levels of export in industries that depend more on contracting institutions, as evidenced by trade data for 28 industries across 78 countries. Furthermore, Castellares and Salas (2019) employed gravity model with interaction terms of crisis measures (e.g., dummy variables indicating financial crises, economic recessions) and industry-specific contracting in-

stitutional dependence for regression analysis and revealed that industries that depend more on contracting institutions are more negatively affected by crises such as financial crises and economic recessions.

5 Concluding Remarks

The literature on how institutions affect international trade has established that institutional quality across countries affects trade in two main ways. On the one hand, countries with better institutions trade more with all other countries. On the other hand, a high institutional difference between two countries reduces bilateral trade. In addition, we reviewed measures and proxies of institutional quality and institutional dependence that have been widely used in the literature.

The literature also suggests that institutional quality's effect on costs of mitigating uncertainty varies across industries, with those that depend more on contract-enforcing institutions being more affected. Future research could investigate how institutions mitigate the impact of uncertainty and global events, such as natural disasters and pandemics, on trade outcomes.

Notes

1) Numerous studies adopted the Contract Intensity Index introduced by Nunn (2007). For example, Feenstra, Hong, Ma, and Spencer (2013) and Wang, Wang, and Li (2014).

2) Rauch's (1999) categorization of three classes of products: (1) product that can be traded on an organized exchange; (2) product that cannot be traded on an organized exchange but has reference price; (3) differentiated product that neither can be traded on an organized exchange nor has a reference price.

3) Herfindahl index has been used to measure product complexity and to proxy institutional dependence in the literature. For example, Blanchard and Kremer (1997).

References

Acemoglu, D., Johnson, S. and Robinson, J. A., 2005. "Institutions as a fundamental cause of long-run growth." *Handbook of Economic Growth,* 1, pp. 385-472.

Álvarez, I. C., Barbero, J., Rodríguez-Pose, A. and Zofío, J. L., 2018. "Does institutional quality matter for trade? Institutional conditions in a sectoral trade framework." *World Development,* 103, pp. 72-87.

Anderson, J. E. and Marcouiller, D., 2002. "Insecurity and the pattern of trade: An empirical investigation." *Review of Economics and Statistics,* 84(2), pp. 342-352.

Blanchard, O. and Kremer, M., 1997. "Disorganization." *The Quarterly Journal of Economics,* 112(4), pp. 1091-1126.

Castellares, R. and Salas, J., 2019. "Contractual imperfections and the impact of crises on trade: Evidence from industry-level data." *Journal of International Economics,* 116, pp. 33–49.

de Groot, H. L., Linders, G. J., Rietveld, P. and Subramanian, U., 2004. "The institutional determinants of bilateral trade patterns." *Kyklos,* 57(1), pp. 103–123.

Dixit, A., 2011. "International trade, foreign direct investment, and security." *Annual Review of Economics,* 3(1), pp. 191–213.

Feenstra, R. C., Hong, C., Ma, H. and Spencer, B. J., 2013. "Contractual versus non-contractual trade: The role of institutions in China." *Journal of Economic Behavior & Organization,* 94, pp. 281–294.

Francois, J. and Manchin, M., 2013. "Institutions, infrastructure, and trade." *World Development,* 46, pp. 165–175.

Grossman, S. J. and Hart, O. D., 1986. "The costs and benefits of ownership: A theory of vertical and lateral integration." *Journal of Political Economy,* 94(4), pp. 691–719.

Hart, O. and Moore, J., 1990. "Property Rights and the Nature of the Firm." *Journal of Political Economy,* 98(6), pp. 1119–1158.

Kaufmann, D., Kraay, A. and Mastruzzi, M., 2004. "Governance matters III: Governance indicators for 1996, 1998, 2000, and 2002." *The World Bank Economic Review,* 18(2), pp. 253–287.

Kaufmann, D., Kraay, A. and Mastruzzi, M., 2011. "The worldwide governance indicators: Methodology and analytical issues." *Hague Journal on the Rule of Law,* 3(2), pp. 220–246.

Klein, B., Crawford, R. G. and Alchian, A. A., 1978. "Vertical integration, appropriable rents, and the competitive contracting process." *The Journal of Law and Economics,* 21(2), pp. 297–326.

Lanz, R., Lee, W. and Stolzenburg, V., 2019. "Distance, formal and informal institutions in international trade." *WTO Staff Working Papers* (ERSD–2019–03), World Trade Organization (WTO), Economic Research and Statistics Division.

Levchenko, A. A., 2007. "Institutional quality and international trade." *The Review of Economic Studies,* 74(3), pp. 791–819.

Linders, G. J. M., de Groot, H. and Rietveld, P., 2005. "Institutional Determinants of Bilateral Trade: An Analysis according to Product Type." *Tinbergen Institute Discussion Papers* (05–023/3), Tinbergen Institute.

Liu, A., Lu, C. and Wang, Z., 2020. "The roles of cultural and institutional distance in international trade: Evidence from China's trade with the Belt and Road countries." *China Economic Review,* 61, p. 101234.

North, D. C., 1990. *Institutions, Institutional Change and Economic Performance,* Cambridge University Press.

North, D. C., 1991. "Institutions." *Journal of Economic Perspectives,* 5(1), pp. 97–112.

Nunn, N., 2007. "Relationship-specificity, incomplete contracts, and the pattern of trade." *The Quarterly Journal of Economics,* 122(2), pp. 569–600.

Ranjan, P. and Lee, J. Y., 2007. "Contract enforcement and international trade." *Economics & Politics,* 19(2), pp. 191–218.

Rauch, J. E., 1999. "Networks versus markets in international trade." *Journal of International Econom-*

ics, 48(1), pp. 7-35.

Rodríguez-Pose, A., 2013. "Do institutions matter for regional development?" *Regional Studies,* 47(7), pp. 1034-1047.

Romalis, J., 2004. "Factor proportions and the structure of commodity trade." *American Economic Review, 94*(1), pp. 67-97.

Söderlund, B. and Tingvall, P. G., 2014. "Dynamic effects of institutions on firm-level exports." *Review of World Economics,* 150(2), pp. 277-308.

Thede, S. and Gustafson, N. Å., 2012. "The multifaceted impact of corruption on international trade." *The World Economy,* 35(5), pp. 651-666.

Trefler, D., 1995. "The case of the missing trade and other mysteries." *American Economic Review,* 85(5) pp. 1029-1046.

Wang, Y., Wang, Y. and Li, K., 2014. "Judicial quality, contract intensity and exports: Firm-level evidence." *China Economic Review,* (31), pp. 32-42.

Williamson, O. E., 1979. "Transaction-cost economics: the governance of contractual relations." *The Journal of Law and Economics,* 22(2), pp. 233-261.

Williamson, O. E., 1985. *The Economic Institutions of Capitalism,* New York: The Free Press, 1985.