Does Institutional Quality Matter for Trade? Institutional Conditions in a Sectoral Trade Framework

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S U M M A R Y

This article examines the extent to which national institutional quality affects bilateral sectoral trade flows, as well as whether the conditioning role of institutions for trade has been waxing or waning with time. Based on a new trade theory framework, we derive a sectoral gravity equation, including novel variables corresponding to the exporter's labor competitiveness levels, along with importer's price indices and sectoral incomes, and analyze industry-specific bilateral trade flows of 186 countries for the period 1996–2012. We address potential endogeneity and econometric drawbacks by means of the Poisson Pseudo-Maximum Likelihood estimation methods. The results indicate that both the institutional conditions at destination and the institutional distance between exporting and importing countries are relevant factors for bilateral trade. Moreover, the effect associated with institutional conditions at destination moderately increases over time. This is a robust outcome across economic sectors, with higher values for agriculture and raw materials than for manufacturing and services.

1. Introduction

The role of institutions as a driver of economic development has been attracting considerable attention in the literature on long-run economic growth. It has been widely acknowledged that local institutional conditions shape growth trajectories in different parts of the world (Acemoglu, Johnson, & Robinson, 2005; Rodríguez-Pose & Storper, 2006). Trade is also considered a fundamental driver of economic growth. Yet, our knowledge about how the local quality of institutions impinges on trade trends remains limited. It has been claimed that good institutional environments facilitate bilateral trade. High institutional quality reflects pluralistic and inclusive political institutions that facilitate the existence of a level playing field, where individual economic agents cannot abuse market power by monopolizing trade in their favor (e.g., tariffs and quotas), and thereby restrict flows as a result of rent-seeking activities. Indeed, institutional quality and smaller gaps in governance drive trade flows (De Groot, Linders, Rietveld, & Subramanian, 2004), while weak or inadequate institutions may restrain trade in magnitudes which are not dissimilar to those related to the introduction of tariffs (Anderson & Marcouiller, 2002; Francois & Manchin, 2013). Specific institutional dimensions have also been found to affect trade. Low levels of trust, for example, have been associated with lower bilateral trade in the European context (Guiso, Sapienza, & Zingales, 2009), whereas both an efficient rule of law and a good endowment of informal institutions can facilitate trade (Yu, Beugelsdijk, & de Haan, 2015).

In a recent contribution Nunn and Trefler (2014) review the theoretical and empirical literature emphasizing the interdependences between trade and institutions, providing ample evidence of the impact of international trade on domestic institutions. Trade affects institutions in a number of ways; particularly, through the complexity of intermediate inputs in relationship-specific investments and the need for contract security (see also Nunn, 2007). Their results offer empirical evidence that institutional quality is the single most important source of long-run gains from trade. Institutional differences constitute also an entry barrier for foreign direct investment (Demir & Hu, 2015) and a good institutional framework is a requirement for the positive effect of the foreign direct investment channel on economic growth (Jude & Levieuge, 2016).

From a theoretical perspective, Levchenko (2007) extends the Ricardian model of comparative advantage, introducing the effect of institutions. It represents an alternative approach to those studies whose underlying models are based on the new trade theory, as the one proposed in this study. His results, relying on the set same

set of indicators by the World Bank to explain US imports in 1998, show a positive effect of institutions on comparative advantage. Blonigen and Piger (2014) review the literature and analyze the effect of institutions on foreign direct investment in OECD countries. They use the Bayesian estimation methods and their results are less conclusive with respect to the effect of institutions. Finally, Benáček, Lenihan, Andreosso-O'Callaghan, Michalíková, and Kan (2014) find that institutions, social governance, and political risk are key factors in determining FDI flows, although results differ depending on the groups of countries considered. As a result, there is an extensive literature analyzing the role of institutions in trade and related flows such as FDI, and from alternative theoretical perspectives.

Despite these contributions, the association between institutions and trade can benefit from further study. It has been argued that "defining institutions is notoriously difficult and the current literature on the topic does not agree on a common definition" (Rodríguez-Pose, 2013, p. 1037). Hence, it is no surprise that Nunn and Trefler (2014, p. 265) circumvent the problem by simply avoiding defining institutions. Measuring institutions across different territorial contexts has also proven difficult. In particular, informal institutions—trust, individual habits, values, group routines, and social norms—are more difficult to assess and value than formal ones—laws, rules, and organization (Amin, 1999). For this reason, in our analysis, we do not rely on a single definition or dimension of institutions and consider the whole range of World Governance Indicators elaborated by the World Bank (Kaufmann, Kraay, & Mastruzzi, 2010). As with any other institutional measure, these indicators are imperfect, but represent the most comprehensive set of variables capturing the quality of institutions to date and allow testing the overall robustness of the results.

Much of review literature is based on the estimation of gravity equations and relies on World Bank indicators, as in the case of the present study.[1] Nevertheless, we make a theoretical contribution based on a new trade theory framework that allows us to analyze sectoral trade determinants for the primary, industrial, and service sectors, while relying on the most suitable estimation technique associated to the Poisson Pseudo-Maximum Likelihood estimator. Our database also covers a larger sample of countries and a longer period than previous studies. The paper focuses on two key issues: (a) whether local institutional quality affects the volume of trade by any given country, both at the aggregate level and by sectors; and (b) from a dynamic perspective, whether the impact of institutions has been waxing or waning with time. In trying to answer these two questions, the paper improves our understanding of which institutions matter for sectoral international trade both from a theoretical and an applied perspective.

Studying the effects of institutional quality on sectoral trade requires the adoption of a theoretical model that can serve as microeconomic foundation for the econometric specification. This comes prior to the introduction of government quality indicators as a control variable for bilateral trade fostering or hampering trade. For this reason, and based on standard new trade theory models, we identify a sectoral gravity equation that we use to study the effects of institutional factors on bilateral trade. The specification identifies relevant explanatory variables of trade at sectoral level such as labor competitiveness in origin (in terms of productivity and wages), along with price indices and sectoral income shares at destination. Subsequently, institutional conditions in the countries of origin and destination are included in a larger specification of trade costs controlling for distance,

contiguity (border effect), existence of regional trade agreements, and cultural proximity, measured in the form of colonial links and the use of a common language.

From an applied perspective most of the literature analyzing the role of institutions on trade considers trust indicators by the Eurobarometer, institutional indicators from the World Bank, and alternative datasets about institutional quality and governance (De Groot et al., 2004; Francois & Manchin, 2013; Linders, Slangen, De Groot, & Beugelsdijk, 2005). We go beyond this literature and account for all dimensions of institutional quality in the World Bank dataset. This means that our dataset is the most comprehensive and representative of sectoral trade flows and institutional conditions to date. Institutions are introduced in two different ways: (1) as a barrier at destination, and (2) as the difference between the institutional indicators of the importing and exporting countries, as a measure of institutional distance. On top of the institutional indicators, the dataset contains information on trade on tangible goods (commodities) as well as services covering 186 countries over the period 1986–2012. Geographical distances, common border, cultural ties (including language), and regional trade agreements are also accounted for, so as to control for additional transport costs and trade barriers. The empirical strategy, moreover, follows Santos Silva and Tenreyro (2006), Santos Silva and Tenreyro (2010, Santos Silva and Tenreyro (2015) and Francois and Manchin (2013) in relying on the Poisson-Pseudo Maximum Likelihood (PPML) method as the most suitable econometric method. The Poisson estimator is consistent and unbiased in presence of heteroscedasticity when the data have a large number of zeros.

Summing up, the article proposes a structural specification of the gravity equation for bilateral trade at the sectoral level, allowing to identify relevant determinants of trade. It makes use of suitable econometric techniques based on the PPML estimation method and determines the role of institutional quality in world trade making use of a comprehensive dataset including a large variety of countries at different stages of development and economic specializations across sectors.

With these aims in mind, the paper unfolds as follows. The next section introduces the theoretical model on which the analysis is based. Section 3 dwells on the data used in the empirical analysis and its sources. The effects of institutional barriers on sectoral countries across the world are estimated in Section 4, allowing us to address the questions of whether institutions matter for trade and whether, if that is the case, their influence has been waxing or waning over time. The analysis also unveils disparities across sectors in the relationship between institutional quality and trade patterns. Finally, Section 5 draws conclusions.

2. Model

We estimate the effect of institutional barriers on trade flows between any two economies i and j relying on a theoretically founded specification of the gravity equation based on the so-called new trade theory, NTT. The model is characterized by the Dixit–Stiglitz–Krugman assumptions regarding "love-for-variety" preferences, increasing returns to scale technologies and iceberg transport costs. Following Barbero, Behrens, and Zofío (2015), it allows for multiple countries and multiple differentiated sectors in trade flows' definition (exports and imports), thereby extending the different specifications surveyed by Behrens and Ottaviano (2009). These authors summarize the NTT analytical framework including the effect of transport- and non-transport-related trade costs for the case of two countries. We extend this model and include our independent variable of interest, institutional quality, as yet another barrier to sectoral

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[1] Head and Mayer (2013) offer a chronological overview on the most common and/or efficient methods in the empirical estimation of gravity equations.