



# Contractual versus non-contractual trade: The role of institutions in China



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## ABSTRACT

Recent research has demonstrated the importance of institutional quality at the country level for both the volume of trade and the ability to trade in differentiated goods that rely on contract enforcement. This paper takes advantage of cross-provincial variation in institutional quality in China, and export data that distinguishes between foreign and domestic exporters and processing versus ordinary trade, to show that institutional quality is a significant factor in determining Chinese provincial export patterns. Institutions matter more for processing trade and more for foreign firms, just as we would expect from a greater reliance on contracts in these cases.

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## 1. Introduction

The importance of institutional quality in determining the volume of trade has been established by several recent papers (Levchenko, 2007; Nunn, 2007; Ranjan and Lee, 2007).<sup>1</sup> Beyond its influence on the volume of trade, however, institutional quality can also have an impact on the organization of trade and production. Levchenko (2007) shows that countries with better institutions specialize in goods that are institutionally dependent, as measured by the Herfindahl index of intermediate inputs, while Ranjan and Lee (2007) investigate the different effects of contract enforcement on homogeneous goods versus differentiated goods. Combining these two approaches, Nunn (2007) measures the extent of differentiation in intermediate inputs, arguing that goods that rely on more differentiated inputs will be more subject to “hold up” problems with suppliers, and therefore benefit more from good institutions. The index he constructs is a measure of the *contract intensity* of exports.

The above papers all focus on either U.S. imports or world trade data, and do not distinguish regions within countries. But institutions certainly differ a great deal within countries (Acemoglu and Dell, 2009, 2010). In the current paper, we take advantage of the cross-province variation in institutional quality in a large developing country, namely China, to examine the significance of institutional quality for Chinese export patterns. The tremendous growth in exports from China, especially since it joined the WTO in 2001, is reason enough to direct attention to that country. But in addition, provincial imports and exports from China are separated into categories not typically available. Consequently, we are able to address the limitation

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<sup>1</sup> The importance of institutions has also been particularly emphasized by the empirical work by La Porta et al. (1997, 1998), and Acemoglu et al. (2001, 2002). In our working paper (Feenstra and Spencer, 2005), we also argue that local institutional differences play a significant role in the pattern of exports depending on their contractual relations.

of previous research that it uses only indirect measures, such as the Herfindahl index of intermediate inputs or the Nunn (2007) index, to characterize the extent to which traded goods rely on contracts. We also take advantage of special features of the Chinese input–output table to refine our construction of the Nunn (2007) indexes of *contract intensity* for China based on whether an input used by an exporting industry is domestic or imported.

Chinese trade data is separated into “ordinary” exports and a special customs designation, called “processing” exports. As their name suggests, processing exports are goods that rely on inputs that are imported duty free, then processed in China, with the finished good exported. Such relationships are contractual in the sense that the buyer specifies the characteristics of the good and makes payment accordingly. In contrast, “ordinary” imports and exports have no special customs treatment and we treat them as closer to arms-length transactions. Due to the need to enforce contracts, we hypothesize that higher quality judicial institutions would have more effect in increasing processing exports than ordinary exports. Moreover, the Chinese trade data also categorize the ownership of importing and exporting firms as domestic, joint venture or foreign and we also hypothesize that foreign firms are more dependent on contracts and therefore on institutions. We discuss features of the Chinese judicial system supporting this hypothesis in the next section. So the trade data are broken down into categories that arguably are related to the use of contracts. To reflect this idea, we refer to the categories of ownership and the choice between processing and ordinary exports as the *contractual modes* of exports.

For institutional quality, we use measures of the effectiveness of the judicial system in enforcing contracts for 30 provincial capital cities in China from the World Bank (2008). It is no accident that institutional authority differs across provinces. The old Chinese proverb, “The mountains are high and the emperor is far away,” is suggestive of a neglect of authority in regions far away from Beijing, and differences were exacerbated by colonial rule that differed across regions. Since colonial rule is exogenous, it provides a useful instrument for our court-based measures of institutional quality. As a second instrument, we use enrollment in Christian missionary lower primary schools in China in 1919, as suggested by Fang and Zhao (2009).<sup>2</sup> Combining this institutional variation across provinces with the contractual relations in the trade data makes China an excellent testing ground for the impact of institutions on trade.

In the empirical analysis, we initially abstract from differences in contractual modes so as to focus on the more basic question of whether higher quality institutions are associated with greater exports of more contract dependent goods in our Chinese data. We first distinguish exports based on the Rauch (1999) classification of differentiated, reference-priced and homogeneous goods and then on contract intensity based on the Nunn (2007) index. Using our instrumental variables (colonial status and enrollment in Christian missionary schools in 1919), we find that the hypothesis is supported by positive and significant interactions between institutional quality (based on our measures of the quality of the court system) and goods that exhibit higher contract dependence. The results hold quite strongly for contract dependence measured by the Nunn contract intensity index, but only weakly for the Rauch classification of export goods.

Next, examining the effects of contractual mode determined by the nature of ownership and type of trade (processing versus ordinary), we interact contractual mode with our (instrumented) court measures of institutional quality. In most cases, we can explain the signs of these interactions based on our hypotheses, but we are concerned that there may be bias from the potential role of geography as an omitted factor. For example, some contractual modes, such as those that divide ownership and control, are more common in coastal cities, where institutional quality is also higher. We address this potential problem by adding a three-way interaction term that combines the Nunn index of contract intensity with contractual mode and institutional quality. For each of our court measures (instrumented by colonial status and enrollment in Christian missionary schools) and contractual modes, this three-way interaction is statistically and economically significant in explaining the volume of exports. Admittedly, the variation in province–industry–year export values that is explained by this triple interaction is not that large: about 3–5% of the total variation, but this is very similar to what Nunn (2007) finds for the explanatory power of his index when applied across countries. Here, we find similar results *within* a country. Furthermore, we find a very systematic pattern to the impact of institutional quality: institutions matter more for processing trade than ordinary trade, and more for foreign firms, just as we would expect from a greater reliance on contracts in both cases.

In the next section, we describe the Chinese trade and institutional data and our construction of the Nunn (2007) index of contract intensity. In Section 3, we provide an initial analysis of the effects of institutions for our overall Chinese data, prior to addressing the implications of different contractual modes in Sections 4 and 5. Section 4 develops the regression specification incorporating contractual modes and also examines the effects of institutional quality interacted with the various contractual modes. Section 5 adds the three-way interaction of the Nunn (2007) index with institutional quality and contractual mode, and Section 6 concludes.

## 2. Chinese trade and institutional data

Data for Chinese exports and imports are available at the Harmonized System (HS) of product classification, broken down by source or destination countries, city of origin or destination, customs regime (including both ordinary and processing

<sup>2</sup> We thank Michael Funke for providing us with this variable from Fang and Zhao (2009). In our working paper, we use colonial status and provincial population in 1953 as instruments. We have dropped the latter at the suggestion of a referee, since it may not satisfy the exclusion restriction.

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