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# Which types of institutions hinder productivity among private manufacturing firms in China? $\stackrel{\text{there}}{\sim}$

ABSTRACT

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### 1. Introduction

Strong institutions foster economic development through better allocation of resources (Besley & Ghatak, 2009; Hsieh & Klenow, 2009).<sup>1</sup> But given that there are many different types of institutions, facing limited resources, how should policy makers prioritize the different types of institutional improvement? Which particular types of institutions matter and which types matter more.

North (1991) distinguishes two types of institutions, namely, "property rights institutions" and "contracting institutions." The former concern the role of government in protecting private property, while the latter concern the role of legal system in solving contracting dispute. In other words, property rights institutions concern the relations between firms and the government (local, central, or provincial), which are governed by the rules and regulations that officials have to follow, the enforcement mechanisms that officials are subject to, and the channels through which firms can report wrongdoings of a particular group of officials. Contracting institutions concern the relations among different non-governmental parties, and these relations are partly governed by contract laws.

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<sup>1</sup> See Acemoglu et al., 2001; Engerman & Sokoloff, 2000; Hall & Jones, 1999.

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Property rights institutions significantly hinder firm productivity but not contracting institutions in China. Weakening property rights institutions by a standard deviation lowers firm productivity by 34.4% of its corresponding standard deviation. Small firms find weak property rights institutions more challenging than big firms do. We address endogeneity using instruments that are both relevant and separable. The results lend micro-level support to the explanation of country-level evidence given in Acemoglu and Johnson (2005), that individuals may get around weak contracting institutions by altering the contract terms but find it harder to mitigate the risk of expropriation.

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Adopting North (1981, 1991)'s distinction, Acemoglu and Johnson (2005) document some country-level pattern: "property rights institutions have a major influence on long-run economic growth, investment, and financial development, while contracting institutions appear to affect the form of financial intermediation but have a more limited impact on growth, investment, and the total amount of credit in the economy."

Since a substantial fraction of economic activities are carried out by firms, it is natural to ask whether their country-level results bear out at firm-level too. If so, stronger institutions unleash a country's larger output through making firms more productive.

Testing these hypotheses involves three challenges. First, how to disentangle institutional differences across countries from other cross-country differences? Using panel data does not help because institutions persist. <sup>2</sup> Second, how to measure the different types of institutions at firm-level? <sup>3</sup> Proxies aiming at measuring different types of institutions may be highly correlated among one another. Third, how to identify the causality?

We tackle the first challenge by looking at a single country: China. A country with large variations in institutions is rare. A notable exception is China, a big country with over a billion people and with hugely different levels of economic development and different government policies across regions (Du, Lu, & Tao, 2008; Lu & Tao, 2009; World Bank, 2008).

We use the survey responses of firms in China to tackle the second challenge. The survey was conducted by the World Bank in 2002. The firms' responses to the question of the extent to which the firm agrees that officials are "helping" rather than "grabbing hands" constitute our measure of the firm-level property rights institutions, while their responses to the question of whether the firm believes the court will uphold contracts in business disputes constitute our measure of the firm-level contracting institutions. Section 2.2 discusses these measures in detail. Acemoglu and Johnson (2005) show that these firm-level measures correspond well to their country-level institutional measures. Our measures show (i) institutional strength varies substantially within China, and (ii) they are not highly correlated.

Using our measures requires tackling endogeneity. First, officials never expropriate firms randomly.<sup>4</sup> Second, many factors determine firm productivity; we cannot control all of them. Any omitted factors correlated with our institutional measures would bias our estimation.

We therefore instrument our institutional measures. Following Hausman, Leonard, and Zona (1994), we use the averages of the perception of firms in the other industries within the same city as our instruments (IVs). Section 3.2 details the rationale behind using these instruments, and in Section 3.2.1 we provide the technical notes of the IVs. The first-stage regressions in Section 3.2.2 show that these instruments are highly relevant. More importantly, they are also separable: the instrument of property rights institutions affects the measure of property rights institutions but not contracting institutions, and vice versa. Several indirect tests on the exclusion restriction in Section 3.2.3 relieve our concern that these instrumental variables (IVs) are invalid.

We find that firm productivity is lower in firms exposed to weaker property rights institutions but not weaker contracting institutions. A one-standard-deviation decrease in the strength of property rights institutions lowers firm productivity by 34.4% of its corresponding standard deviation, where firm productivity is measured by output per labor. These results are borne out of the ordinary least squares (OLS) regressions when endogeneity is not addressed and the IV regressions when endogeneity is carefully dealt with. They remain robust to the use of alternative measures of firm productivity, and to the inclusion of alternative proxies of institutions. Size also matters. We find that weak property rights institutions impose a greater challenge to small firms than large firms.

#### 1.1. A brief review of literature

At the macro-level, cross-country/region studies have shown that strong institution is conducive to investment (Besley, 1995), growth (Knack & Keefer, 1995; Mauro, 1995), productivity (Hall & Jones, 1999), finance (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997, 1998), income (Acemoglu, Johnson, & Robinson, 2001, 2002) and trade (Dollar & Kraay, 2003; Feenstra, Hong, Ma, & Spencer, 2013; Levchenko, 2007; Nunn, 2007).

At the micro-level, studies have also shown that institution has important influences on firm performances and decisions, such as firm size (Laeven & Woodruff, 2007), location choice (Du et al., 2008), financial decisions (for instance, firms' reinvestment rates according to Cull and Xu (2005) and Johnson, McMillan, and Woodruff (2002)), growth (Beck, Demirgüç-Kunt, & Maksimovic, 2005), corporate R&D (Lin, Lin, & Song, 2010), productivity (Lu, Png, & Tao, 2013), etc.

Following North (1981, 1991), a series of political economy studies have explored the relative importance of "contracting institutions" and "property rights institutions" in economic activities. Acemoglu et al. (2001, 2002) have shown that at country-level, states have been playing a more important role in codifying and protecting private property than do court litigations.<sup>5</sup> Acemoglu and Johnson (2005) identify these causal effects using separable instruments for the two types of institutions: settler mortality and indigenous population density in 1550 to instrument property rights institutions but not contracting institutions, whereas English legal origin instrument contracting institutions but not property rights institutions. Beck et al. (2005) evaluate the impact of legal, corruption, and financial constraints on firm growth using cross-country data, and give a similar argument to that of Acemoglu and Johnson (2005).<sup>6</sup> They find that none of the specific legal obstacles (e.g., perceived quality, fairness, honestly, quickness of courts, etc.) has a

<sup>3</sup> Woodruff (2006) provides an excellent survey on the measuring of institutions.

<sup>&</sup>lt;sup>2</sup> North (1981) discusses the persistence of institutions, including good ones and bad ones, and how such persistence is attributed to path-dependence.

<sup>&</sup>lt;sup>4</sup> Beck et al. (2005) also discuss a possible reverse causality for firms with bad performance to blame intentionally or unintentionally their bad performance on institutional quality. It is unlikely to be a major concern in this data set because performance measures are collected directly from accountants, whereas the perceived measures are collected from the senior managers.

<sup>&</sup>lt;sup>5</sup> See Besley and Ghatak (2009) for a review of this stream of literature.

<sup>&</sup>lt;sup>6</sup> Their corruption constraints proxy the property rights institutions, whereas their legal constraints proxy the contracting institutions.

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