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Information acquisition and institutions: An organizational perspective

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ABSTRACT

Using a World Bank survey of Chinese firms, I construct a set of measures to capture the extent to which a firm involves outsiders in information acquisition. I find that firms that outsource more are not more likely to involve outsiders in acquiring information. Weakening contracting institutions raises the difficulty of safeguarding information leakage, more so when a firm involves outsiders in information acquisition than when no outsiders are involved. I test this prediction and find that firms under weaker contracting institutions are significantly less likely to involve outsiders in information acquisition.

1. Introduction

Information strategies are no less important than any other business decisions.[1] In addition to searching for the cheapest way to accomplish traditional business processes, acquiring the essential set of information and concealing it from rivals at minimum cost dictate a firm's survival. Lafontaine and Slade (2007) survey the huge literature on investigating firm boundaries on traditional business processes, but few studies have touched on firm boundaries related to information acquisition. Their tables show that there has been no empirical work on this topic so far.

What determines the extent to which a firm's information acquisition involves individuals outside the firm? Do the determinants differ from those that determine firm boundaries in traditional business processes?

To address these issues, in Section 2, I use a World Bank firm-level dataset to develop a set of measures of the extent to which a firm involves individuals outside of the firm in information acquisition. This set of measures enables me to examine the variation of such an extent across firms. I find that firms that outsource more are not more likely to involve outsiders in acquiring information, suggesting that the two activities are quite different and involve different challenges for firms.

In Section 3, I argue that a firm faces the challenge of safeguarding information leakage when it decides whether to involve outsiders in information acquisition.[2] Weakening contracting institutions raises the difficulty of this

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[1] Designing a system to govern who can/cannot get access to certain information constitutes a major business strategy within firm too. For instance, investment banks are required by law to implement Chinese wall, where investment banks are not supposed to between the corporate-advisory area and the brokering department in order to separate those giving corporate advice on takeovers from those advising clients about buying shares.

[2] This challenge is different from the problems of incomplete contract and asset specificity, the two key concerns in a firm's make-or-buy decision.

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challenge for a firm, more so when it involves outsiders in information acquisition than if no outsiders are involved. In turn, firms facing weaker contracting institutions are less likely to involve outsiders in acquiring information. In Section 4, I show robust firm-level correlations between my measures and the strength of contracting institutions, a pattern consistent with this prediction.

Two papers have addressed the relation between the concern of information leakage and firm boundaries of traditional production processes but not on information acquisition. Choi (1998) formalizes a situation in which acquiring inputs from suppliers reveals the input cost to the market, while producing in-house does not. The need to conceal input cost motivates firms to integrate vertically. Baccara (2007) formalizes the interaction between the decision to outsource production and the firm's own incentive to invest in R& D, taking information leakage by the contractors as an important concern.

2. Measurement

2.1. Data

My data comes from the *Survey of Chinese Enterprises* (SCE), which was carried out by the World Bank in cooperation with the Enterprise Survey Organization of China in early 2003. For balanced representation, the SCE covered 18 prefecture-level cities in five geographic regions of China: Benxi, Changchun, Dalian, and Harbin in the Northeastern region; Hangzhou, Jiangmen, Shenzhen, and Wenzhou in the Coastal region; Changsha, Nanchang, Wuhan, and Zhengzhou in the Central region; Chongqing, Guiyang, Kunming, and Nanning in the Southwestern region; and Lanzhou and Xi'an in the Northwestern region.

In each of these cities, the SCE randomly sampled 100 or 150 firms from nine manufacturing industries (garments and leather products, electronic equipment, electronic parts making, household electronics, auto and auto parts, food processing, chemical products and medicine, biotech products and Chinese medicine, and metallurgical products) and five service industries (transportation services, information technology, accounting and non-banking financial services, advertising and marketing, and business services). The total number of firms surveyed is 2400.

The SCE contains two parts. The first is a general questionnaire directed at senior management that seeks information about the enterprise, such as degree of innovation, product certification, marketing, relations with suppliers and customers, access to markets and technology, relations with government, labor force, infrastructure, involvement in international trade, finance, and taxation, and the information on the CEO and board of directors. The second questionnaire is directed at accountants and personnel managers and covers ownership, various financial measures, and labor and training. Most of the information in the first part of the SCE pertains to the survey year, 2002, whereas that in the second part pertains to the 2000–2002 period.

2.2. The extent of involving outsiders in acquiring information

The World Bank asks whether the firms acquire 6 distinctive types of information from 6 distinctive types of sources. Panel A of Table 1 depicts one possible configuration of the resulting 6×6 matrix for a particular firm.

As shown in Table 1, the 6 types of information are: (a) supply of input/services, (b) demand for product, (c) export market and import sources, (d) technical standards, (e) product/technology development, and (f) laws and regulations. The 6 sources are: (i) media, (ii) business association, (iii) fairs or exhibitions, (iv) employee's personal connection, (v) government agencies, and (vi) professional services/consulting firms.

The 6 types of information are essential to any functioning firms. Any firm must know their product demand. Any firm without the information on the relevant technical standards cannot operate. While firms do not choose whether to acquire these 6 types of information, they choose the source to acquire them from endogenously.

Constructing a measure of the extent to which a firm's information acquisition involves outsiders involves two steps. **The first step** is to come up with an operational definition of firm boundaries of information acquisition. I propose one here: define a firm involving outsiders in acquiring information as it acquires information from sources that must involve at least someone from outside of the firm who is aware of the firm's identity.

My benchmark measure regards sources (iv), (v) and (vi) as fitting the definition. I define a dummy for each type of information, denoted *Info_out*, equals 1 if a firm acquires that type of information from sources (iv), (v) and (vi). The example in Column 1 of Panel B in Table 1 shows that the firm does not involve outsiders in acquiring information for information types: (a) supply of input/services, and (f) laws and regulations, but it does for all the other 4 types of information.

The second step involves a meaningful aggregation of the 6 dummies for each firm into a measure comparable across firms. I use principal component analysis to aggregate the 6 *Info_out* dummies to form a score denoted as *Info_pca*. The variable *Info_pca* then measures the extent to which a firm involves outsiders in acquiring information for the 6 essential types of information. I mainly use this benchmark measure, but it has two important varieties.

First, whether sources (iv), (v) and (vi) fit the operational definition can be debatable. In particular, exploiting (iv) employee's personal connections to acquire information may not necessarily reveal a firm's identity. I construct an alternative dummy, denoted *Info_out1*, which excludes source (iv). Similarly, one can also question whether acquiring information from (v) government agencies necessarily reveals a firm's identity. I use another dummy, denoted *Info_out2*, which excludes both sources (iv) and (v). Consider the example in Table 1. Although the dummy *Info_out* indicates the firm involves outsiders in acquiring information for (e), it is no longer the case if we use dummies *Info_out1* and *Info_out2*. Principal component analysis, again, aggregates these two respective sets of dummies to scores *Info_pca1* and *Info_pca2*.