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Privatizing Rural China: The Role of Screening, Learning, and Contractual Innovation on the Evolution of Township Enterprises[1]

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working paper

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1 Introduction

Rural industry has made an extraordinary contribution to China's rapid economic growth over the past 20 years, though some observers have raised concerns over the sector's recent performance. Its contribution to national gross industrial output rose from about 10 percent in 1979 to nearly 40 percent in 1996, rising at an average annual rate of nearly 20 percent during the 1980s (Oi, 1999; Walder, 1995). The sector created more than 5 million new jobs annually over 1978-96. Despite this record, rural industry's recent performance—particularly in certain sub-sectors—has raised concerns over the sector's economic health and long-term sustainability (Nyberg and Rozelle, 1999). The capacity to absorb labor appears to have declined in the 1990s. TVE expansion may have reached a turning point in 1997 when the total number of firms and overall employment marked their first decline.

Instead, a new set of firms have emerged with remarkable rapidity. Since 1995, China's rural industrial sector has quietly experienced a surge of firms that have been privatized. According to the authors' recent survey of 670 firms in China's Lower Yangtse Delta region, more than half of the enterprises that were formerly owned by township governments, i.e., Township Enterprises, have been partially or completely privatized by the summer of 2000. And, according to our interviews, the privatization process is not over as leaders told us they have plans to continue privatizing more of their firms. Perhaps the most surprising thing about this rash of privatization, however, is that it has been carried out so fast that there is almost no systematic study on it.

The move to privatization, however, has not been universal, either across regions or in its pace over time for a given region. Some places such as Southern Zhejiang, including Wenzhou and Ningbo, started privatization as early as 1994 and have finished privatization by 1996. Other places such as Southern Jiangsu, including Wuxi--the model of China's collective TVEs--only began privatization in 1998.

The sharp differences in the rates of privatization both over time and space raise the question about what factors have led to faster and slower progress. Some researchers have posited that privatization is the result of the central government policy (Qin, 1998; Yang, 1999). Others argue that privatization is just another rent-seeking movement in China (Lu, 1998; PBC, 1998; Sun, 1998). They argue that privatization merely legitimates asset stripping and programs to support the transition to new ownership forms is just another way for corrupted government leaders to get access to government or bank funds.

Regardless of which set of determinants have been most instrumental in accelerating or limiting privatization, another debate involving privatization, but perhaps about an even more fundamental issue, has arisen about the very desirability of the continued industrialization of the rural sector. The poor performance of rural industry in terms of employment and output during the late 1990s has led to calls by some for the government to actively discourage further expansion (Xiao, 1998; Wei, 1999). At the other extreme, there are those that argue that there is nothing fundamentally wrong with the rural industrial sector and that the recent slump in performance may be mostly as a result of the economy-wide recession (Peng, 1998). Somewhere in the middle, a third school of thought admits that there are reasons to think that the traditional form of collective enterprises may have outlived their usefulness and part of the poor performance of the sector could be due to the incentive problems that arise when local leaders own firms that are run by hired managers. The experience of the past two decades, however, has shown the flexibility of rural institutional forms to evolve and adapt to newly emerging changes in the economic and political environment (Jin and Qian, 1998; Chen and Rozelle, 1999). The recent wave of privatization is just an extension of the evolutionary process that has seen continual improvement in the property rights bestowed on the manager since the early reform, and as privatization becomes more widespread and the adjustment costs are sunk, there is no reason to believe that this new private sector can not lead rural China in another drive to rapid growth.

The overall goal of our paper is to present some facts and raise a number of issues that will help to address some of the unanswered questions and unresolved debates about the extent of privatization, the determinants of privatization, and an assessment of its impacts on the rural economy. To meet this broad goal, we will first use our new data set to describe the privatization process in rural China. Since TVEs have been so important to China's growth, documenting such a dramatic change of them will be important for both academia and policy makers. Second, we will attempt to offer an explanation about when and why local governments have privatized their firms. Specifically, we will investigate how the shift of comparative advantage of the leader and manager in managing firms, change of market environments, and the strengthening of bank incentives affect the timing and degree of privatization. Finally, we will examine whether privatization indeed brings any changes to firm efficiency. Improving incentives are only a necessary condition for creating more efficient firms; many other factors also affect firm efficiency. In addition to presenting new information on these trends, we will report the results of multiple regressions to control for factors affecting efficiency and identify the effects of ownership change.

Our paper has a number of contributions that strengthen the literature on rural industrialization. First, it is based on a comprehensive set of primary data. Second, we use contract theory to examine the privatization process itself and demonstrate how information asymmetries affect the privatization contract design and how the choice of contracts affect a firm's post-privatization performance. Our work is really a case study of induced institutional innovation. We will show that changes in the economic environment on the one hand may lead to a weakening of the performance of certain institutional forms, but the changes also trigger a search for a more effective institutional form.

Our approach has aided us in developing a new view on the determinants of privatization and how the process could work despite several key potential contract design problems such as information asymmetries between the seller (government leader) and buyer (manager). The

flexibility of institutions in China, however, allows local leaders to use some innovative contracts to overcome the information asymmetries. Specifically, the local government leaders use the down payment together with an ex post share of the profit as a screening mechanism to elicit useful information about the new owner's valuation of the firm. Although the contracts maximize the revenues of the seller, it reduces efficiency of firms who continue to share profits with the government after privatization—a new explanation for the under-performance of privatized firms.

The paper, however, has several limitations. First, the data was collected in only two provinces, Jiangsu and Zhejiang, thus, we should be careful when having inferences on the TVEs sector as a whole. Second, most of the data were collected in the summer of 1998, and there could be a lot more going on since then. Further survey of these same firms will help us in the analysis, especially on the postprivatization performance analysis. Finally, as argued in the paper, a theory of corruption could also be consistent with some of the findings of the paper. Although we could show that information asymmetry and screening are important during the process of privatization, we cannot definitely partition the influence of screening from that of corruption. The main problem is that we do not have a good measure for corruption.

To meet our overall goals and objectives, the structure of the paper is as follows. Section 2 introduces the survey and the data. Section 3 describes the trends of privatization. Section 4 demonstrates some of the covariates of privatization and analyzes the determinants of privatization. Section 5 describes the process of privatization, emphasizing firm evaluations and the determinants of payments, and how information asymmetries affect the ways that leaders and managers have executed privatization. In this section, we address why one of the most commonly observed forms, insider privatization, could be successful and actually leads to greater efficiency outcomes. Section 6 employ multivariate analysis to test whether firms perform better after privatization and what firms perform better. Section 7 proposes an alternative theory for the

findings in Section 6. We argue that corruption could be another reason for the under-performance of some insider-privatized firms. Section 8 concludes.

2 Data

The data set used in this paper is from a survey we conducted in 1998 and 2000. The survey concentrated on township enterprises (TEs) and private firms and focuses on the period from 1994 to 1997.[2] We randomly sampled 59 townships in 15 counties in Jiangsu and Zhejiang Provinces, two of China's most developed coastal provinces, one north of Shanghai and the other south. In the first phase of the data collection, we carried out a census of 643 township-owned firms drawn from these townships (henceforth the *township census data*). On average, a township had 11 township-owned firms, with the maximum of 20 firms and a minimum of 2.[3] For all of these firms, we have information on any changes that occurred in ownership between 1993 and 1997, and the year of the change. For 390 of these firms, we have additional information on any changes in 1998 and 1999. These changes include outright privatization of these firms, as well as conversions to joint-stock or shareholding companies. We also collected some basic social-economic information on each township, and interviewed the township leaders to get their human capital attributes, such as their level of education, age, and job history.

Changes in ownership took several forms. Depending on the definition, firms are classified as township or private. When using a *share-shifting* definition, a township enterprise includes only those firms with 100 percent controlling interests held by the township and a private enterprise includes those with any shares held by private individuals. According to the *controlling-interest shifting* categorization, a township (private) enterprise is a firm in which the

[2]The township (town) is the lowest level of government in China's administrative hierarchy. Township governments established many enterprises in the 1980s, which are called Township Enterprises (TEs). This paper will use TEs and (locally) government-owned enterprises interchangeably. To have a better understanding of China's township enterprises, see Walder (1995), Putterman (1997), Che and Qian (1998), Chen and Rozelle (1999) and Oi (1992).

township (private owner) holds a majority of the shares. The most restrictive definition, *complete privatization*, implies that a township enterprise is any firm with any shares held by the township, and a private firm is only that which is fully owned by the private individual.

To get more detailed firm-level data (henceforth the *firm-level data*), we randomly sampled 3 firms in each township from a pool of all the township-owned and private firms that were of a comparable size.[4] In total, we drew 168 such firms. Thirty-three out of the 168 firms were established originally as private firms (henceforth *private* firms), and 135 were owned initially by the government (henceforth *government-owned* firms) in 1994.[5] Private firms were included in the sample to ultimately allow us to test how well privatized firms do relatively to private firms (which are assumed to face full incentives).[6] We chose 1994 as the starting time because most privatization has occurred since the mid-1990s. Although we tried during the pretest period to elicit information as far back as 1990, we found that the recall of leaders and managers, and secondary accounting and financial data, deteriorated when trying to answer questions on activities that had occurred more than five years before. A detailed description of the sample design is included in Appendix A.

The survey form for these 168 firms included two main parts. Enumerators conducted a sit-down survey with the firm manager or owner. The manager survey elicited detailed information on firm ownership during the survey period, the privatization process (including how firms were evaluated and the price paid by the buyer), and on the buyout negotiations during which the price was established. We also asked the manager about the other rights that they had in the firm, questions on corporate governance, information about the firm's production and

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[3] To help put these firms in perspective, average employment in 1994 was 180 (median, 80), output was 13.9 million RMB (median, 4.0), and total fixed assets were 25.3 million RMB (median, 4.4).
[4] Getting detailed information for all the firms in a township would be extremely costly, if not impossible. The survey, as it was, took 15 enumerators three months.
[5] We use government-owned firms and township enterprises interchangeably in this paper.
[6] Although we assume here that private firms face better incentives and outperform government-owned firms (thus establishing a standard for judging the performance of privatized firms), we actually test for this in the empirical part.

marketing activities, and his or her human capital attributes. The second part of the firm-level data was provided by the firm's accountant who filled in a set of tables from the firm's financial and cost accounting records.

One of the most important goals of the survey was to collect good measures of the manager's effort levels and the firm's performance. In order to do this, we took great effort to record detailed information from the firm's income statements and balance sheets. We focus on four effort and performance measures: the manager's weekly workload, accumulated inter-firm arrears to asset ratio, profit rate and value added per worker. The manager's weekly workload is straightforwardly defined as the number of hours the manager works per week. Profit rate, defined as profits to sales ratio, measures how well firms are reducing costs and generating profits.

To create a good measure of accounts receivable management, we start with the *inter-firm arrears rate*, which is defined as a ratio of accumulated accounts receivable to total assets. We then turn this variable into a "positive" measure of performance, called accounts receivable management, a new variable that is defined as (1 - inter-firm arrears rate). We argue that the way a firm manages its accounts receivable provides a measure of managerial behavior since unpaid accounts or arrears tend to accumulate in firms whose managers have poor incentives to collect overdue accounts.[7] For example, in firms in which managers or salespersons sell products for a personal rebate (or kickback) instead of increasing the firm's income, firm arrears could easily accumulate. Even worse, managers sometimes diverge cash by providing trade credit to other firms that are owned by their relatives or friends. At the very least, managers with poor incentives are not willing to put out the effort to collect firm arrears.

We also use the firm's labor productivity to directly measure firm's performance. Specifically, we use value added per worker as a proxy of firm's labor productivity. As in Shirley

[7] Inter-firm arrears are used in Frydman and Rapaxzynski (1994), World Bank (1996), and Havrylyshyn and Mcgettigan (1999) in studying privatization.

and Xu (2001), value added is defined as the difference between product value and materials costs. We then define value added per worker as the value added to worker ratio, and deflate all years to the 1994 price level. In estimating the production functions later, we use the log of value added per worker as the dependent variable.

3 Privatization of Township Enterprises

Starting from the mid-1990's, rural China has been experiencing a rapid privatization movement. All townships in our sample have experienced privatization in the study period, and some townships have sold all their firms to private owners by 1999. Although being carried out widely, privatization is decentralized with most decisions made at the township level. Out of 59 townships, only 34 percent reported that there were county level policies regarding privatization, and the rest made their own privatization policies or had no policies at all. Out of the 88 privatized firms, for which we have detailed information, 81 reported that privatization decisions were made by the township governments and in only 7 cases those were made by county governments.

The proportion of firms undergoing privatization is striking (Table 1). Using the share-shifting definition, the broadest measure of privatization, 86 percent of the sample firms became privatized (Sample II: column 1). Although the proportion of privatized firms grows progressively less as the definition becomes more restrictive, considering only firms that became 100 percent private, 57 percent privatized.

In examining the privatization trends in rural China after 1993, one of the most remarkable features is how fast privatization appears and how it accelerates throughout the first 7 years (Table 2). There is a marked increase over time in the rate of privatization activity between 1993 and 1998, which peaks in 1997 and 1998. The rise and plateauing of privatization occur in both the number of firms affected and the percentage of firms privatized. In 1996, the rate of

privatization was nearly double of that experienced between 1993 and 1995. The rate again increased dramatically in 1998, before declining significantly in 1999.

Moreover, although the differences across provinces are modest, there is considerable heterogeneity across townships in terms of the rate of privatization (Table 3). A cumulative percentage of privatized firms suggest a fairly uniform distribution for the rate of privatization at the township level, with a significant number of firms in each percentage category. On one hand, there are 7 townships barely started privatization in 1999 (row 1, column 3). On the other hand, another 7 townships have finished all privatization by 1997 (row 5, column 1). The different rate of privatization cross-township again confirms that the privatization decisions are mostly made at the township level.

In summary, our data suggest that rural China has experienced a massive privatization movement in the mid-1990s. The shift in ownership shares and firm ownership forms shows that privatization is fundamental and wide spread. Although all townships are involved in this privatization movement, they differ in the degree and speed of privatization.

4 The Determinants of Privatization

The rapid privatization and the heterogeneity across townships raise a fundamental question about the determinants of privatization. Some researchers have posited that privatization is the result of the central government policy (Qin, 1998; Yang, 1999). The differences in pace and scope of privatization over time and across space, however, would not be consistent with a centrally directed movement. Others have argued that privatization is just another rent-seeking movement in China (Lu, 1998; PBC, 1998; Sun, 1998). They argue that privatization merely legitimates asset stripping and programs to support the transition to new ownership forms is just another way for corrupted leaders and managers to get access to government or bank funds. If the opportunities for asset stripping were random, then it could be consistent with the observed pattern of privatization. However, to the extent that opportunities for asset stripping are

idiosyncratic, if corruption is the only reason to privatize, then we should not find the pace of privatization correlated with structural factors.

We argue that privatization arise as rural industries adapt to the newly emerging economic and political environments of the mid to late 1990's. Specifically, shifting comparative advantage of firm operations from leaders to managers, decreasing profitability due to market competitiveness, and changes in rural financial system have made privatization a natural choice for the local leaders. In this section, we examine the role that each of these factors may have in the emergence of China's rapid privatization movement.

Privatization, or the shift of operational and ownership out of the hand of the states may occur when the manager has a comparative advantage running the firm vis-à-vis the leader. In fact, it has been shown that such a shift has been underway since the mid 1980's (Chen and Rozelle, 1999; Whiting, 1996). Initially, local leaders were more effective in allocating resources or distributing products (defined as *external management*) efficiently because they drew on the connections that they had as a result of their state leadership positions. Individuals, lacking such connections, were unable to profitably do business. The leaders typically hired a manager to do routine *internal management* such as operating the product line and managing workers. With the development of markets, however, the relative advantage of leaders in mobilizing resources and engaging in firm management has disappeared (Naughton, 1995; Jin and Qian, 1998). Hence, even in the early stages of the shift, leaders began to offer managers incentive contracts to induce them to exert more efforts in managing the government-owned firms. At the same time, managers began to accumulate enough human capital to begin to execute both external and internal management functions.

The continued development of markets in rural China during the 1990's, has led to the next stage of enterprise reform to the extent that individuals have better incentives to do business than leaders (Nyberg and Rozelle, 1999). We should expect to see that when managers have better human capital than leaders the firm could be expected to be more profitable in the hands of

the managers. Although we do not observe the manager's human capital attributes, we do observe the leaders'. We can test how cross-sectional differences of the leaders' attributes affect the rate of privatization. Our data show that township leaders with more education and experience have lower probabilities (0.32-0.33) to privatize, compared to those with bad human capital, with a probability of 0.45-0.47 to privatize (Table 4: rows 1 and 2).

Besides shifting comparative advantage of management, the leader also considers the perks she has to forego with privatization. These perks associated with township ownership can be interpreted in many ways. Cynically, they can be viewed as private benefits derived from the de facto control of firm assets by the leader (Brandt, Li and Roberts, 2001). More optimistically, they can be viewed as political capital obtained from promoting economic activity in the township (Oi, 1999; Chen and Rozelle, 1999). If perks are related to firm size and profitability, then leaders who control larger and more profitable firms might be less willing to privatize. With the increase of the competitiveness of the markets, however, firms' growth slows down and firm's profitability worsens. As a result, leaders can enjoy less or even no perks, and this increases their incentives to sell their firms. A simple conditional probability analysis confirms this. Larger (more profitable) firms have a probability of 0.47 (0.48) to privatize, while smaller (or less profitable) firms have a probability of only 0.32 (0.30) to privatize (rows 3 and 4).

Privatization decisions may also depend on factors outside the rural industry. In particular, the changing role of the rural financial system may have influenced the decisions of many leaders to undertake privatization. The bank can discipline firms by hardening the budget constraints of firms, and as shown by Cao et al. (2000), hard budgets tend to make privatization more likely. With a hard budget, township governments have to be responsible for bad projects and firm losses. In many cases, the value of a firm ownership decreases. In the case when government-owned firms face the same budget constraints as private firms, transferring the ownership to the more capable owner--managers--becomes rational (Brandt, Li and Roberts, 2000). Our survey on the relationship between local government and banks allows us to measure

the hardness of the budget and to test its effects on privatization. We call the budget constraints *hard* when the local governments can persuade the banks to give extensions of overdue loans to township enterprises before liquidating them, and *soft* otherwise. We find that township enterprises facing hard budget constraints is 18 percent more likely to privatize (row 5).

The decision by banks to stop lending to certain firms would also likely affect the tendency of leaders to turn one form of ownership to another. In particular, banks, in some cases, have chosen not to lend to township enterprises, an action which would lower the value of township ownership of a firm. It has been shown that banks' lending decision depends critically on their incentives of lending (Park and Shen, 2000). Banks with poor profit incentives and which are still used for supporting non-economic policies frequently choose to lend to township enterprises and not to more profitable private firms because bank managers in such a situation often benefit from maintaining a close relationship with the governments. Banks with managers that have more profit-oriented incentives, on the other hand, care more about their own profitability and will more likely lend to the more profitable private firms. Our data show that when the bank managers are offered more profit-oriented contracts, a locality's firms have a higher probability of being privatized (44 percent) than when the bank managers face weaker incentives (35 percent).

Although the above analyses are based on simple conditional probabilities, multiple regression analyses in another paper by the authors support the descriptive observations reported in Table 4. Employing both probit and survival models, it can be shown that privatization is more likely when firms are smaller, less profitable, the leaders have less management skills, the budget is harder, and the bank managers have better incentives.

In summary, the descriptive and multiple regressions evidence from our sample reveals that the heterogeneity in the pace of privatization across time and space is related systematically to a number of factors. The highly variable nature of privatization means central policies are not totally in control of the movement. The systematic influences argue that rent seeking or

corruption may not be the most important reason for privatization, since the opportunities for corruption are more likely to be idiosyncratic, but the variables that measure the shift of comparative advantages of managers and leaders are found to be strongly correlated with privatization. Outside of the rural industry sector, the rural financial reforms also appear to have accelerated privatization.

5 Insider Privatization, Down Payment and Incentives

China's privatization movement not only has proceeded at a different pace than other countries, the privatization process also differs from the rest of the world. Understanding the way firms are privatized will be critical in studying the new owners' behavior after privatization. China's approach of selling most firms to insiders and using a complex way to produce price makes it unique in the transition world.

One of the most important features of privatization is that most firms are sold to insiders, especially to the managers. According to the firm-level data, in 92 percent of the case of privatization in our sample, leaders sold the firms to an insider. In a typical case, the original manager and other employees bought out the firm completely or partially. Managers of the firms increased their personal shares the most, owning by far the largest part of privately held shares (nearly 70 percent). In only seven cases did outsiders buy the firm,, but all of them were the only bidders for the firms they bought. Even in these cases, the "outsiders" were local businesspersons who know the firms well.

5.1 Evaluation and the Down Payment

The striking difference between China and the rest of the world in terms of who bought the firms raise the questions about why insider privatization is so prevalent. Part of the reason may lie in the way that privatization process is carried out.

While there is not a legally-mandated nation-wide privatization process, many localities followed a similar procedure. The privatization process is usually initiated by a top township leader who decides which firms to privatize and when. In step one of the privatization process, the government leader organizes an evaluation team. Out of the 88 privatized firms in our firm-level sample, 85 were evaluated. Most of the evaluations (54 percent) were carried out by the township governments. The others were conducted by the county governments (13 percent) or an independent Certified Public Accountant (CPA) firm (33 percent).

One of the key tasks of the evaluation team is to assess the value of the firm's assets and debts. Asset evaluations typically are based on the book value. Ninety-three percent of the debts, which are usually held by banks (48 percent) or other firms (24 percent), end up being borne by the privatized firm. After enumerating both the firm's asset and debt values, the evaluation team then set the firm's equity value--the difference between its asset and debt values. We define this as the firm's *base value*.

In step two, the negotiations over the price of the firm occur. During the negotiations, leaders and managers start at the base value of the firm and attempt to come to a consensus about the firm's future profitability. As might be expected, there is a lot of uncertainty on this during the negotiation. Successful negotiations make adjustments to the firm's base value and come up with the purchase price the manager needs to pay. In this paper, we call this the "own payment," but this is usually thought as the buyout price of the firm.

While the privatization procedure is fairly similar within and across regions, the down payments that managers make on firms vary sharply across the sample (Table 5). Dividing privatized firms into groups and ranking them by the ratio of the down payment to its base value (DB ratio) allow for the analysis of the process of privatization. At one extreme, twenty firms (row 1) have a DB ratio close to zero (9 of them are zero), and the managers did not have to pay much, if anything, to buy the firm. At the other extreme, seven firms have a negative DB ratio (row 6). In these cases, the firms were sold for a non-negative price, although they had a negative

base value (or the firm's debts exceeded its assets). There are also 20 firms which have a DB ratio exceeding one. The rest of the firms had a DB ratio between zero and one. Top leaders and outsiders have worried about the danger that insider privatization would invariably lead to corruption and managers who can hold up leaders and grossly underpay for their firms. Although some buyers paid a low price, our data illustrate that at least in the case of some firms, the buyer paid a price that exceeded the best ex ante estimates of a firm's book value.

By examining the *premia* and *premium rates* paid by managers for their firms, we can demonstrate that in some cases the manager-cum-buyer bought the firm for a steep discount, while in other cases, they paid a price well in excess of what the accounting value of the firm (Table 5, column 6).[8] To measure the premium, we set the premium equal to the down payment minus the book value. A normalized measure, the premium rate, is created by dividing the premium by the value of assets. In the case of 32 out of the 88 privatized firms, buyers purchased firms that were *heavily discounted* with a premium rate smaller than (-0.2); 26 firms were *moderately discounted* (with a premium rate between -0.2 and 0); and 30 firms paid a premium (henceforth *premium-paying* firms).

5.2 Insider Privatization with a Tail

One of the main problems of insider privatization is that the leader is at an informational disadvantage vis-a-vis the manager during the negotiation process in transition economies (Frydman and Rapaczynski, 1994; Putterman, 1997). The leader typically does not know how efficient a firm will become after ownership is transferred to its manager.

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[8] The premium rate is a better measure than the DB ratio for a number of reasons. First, seven firms have a negative equity value and, as a result, a negative DB ratio. The negative ratios are difficult to compare to the positive ones, since, in fact, managers paid a positive premium for these firms. Second, there are also firms with very small equity positions, and the ratios of these firms are very large. Hence, the DB ratio has a skewed distribution, with the 90th percentile almost 5,000 times as big as the 10th percentile. The premium rate is not subject to this problem since its distribution is smooth.

In China's rural areas, leaders face similar information difficulties. The township governments usually own multiple firms. The sample median is 12 firms per township. With so many firms, it is likely that leaders may not know each one well. Each firm may sell its products to markets in many localities. The sample median is 4 county market destinations per firm. Leaders may not always know where these markets are located or who the firm's customers are. Leaders often do not have enough time to get to know the firms because they are frequently rotated among postings. On average in the sample, leaders switch post every 2 to 3 years. In contrast, the manager has been running the firms for many years. The sample median is 5 years as the manager and 12 years as an employee. With such greater experience, it is almost certain that the manager better understands the firm's future profit-earning potential and has a more informed basis for knowing how much effort will be needed to overcome any serious inefficiencies. In summary, in the case of China's rural enterprises, the main point here is that managers apparently have a more accurate assessment of the true value of firms than leaders when the privatization deals are negotiated.

The question that naturally arises when considering the wide variations in the payment premium rate and asymmetric information is: how are leaders able to value their firms. Evaluations can only provide an assessment of the firm's book value. Evaluations are not able, and in fact do not try to determine the true market value of the firms. The market value of the firm, always difficult to gauge in a market economy like the United States, is even more so in a transition economy such as China since there are neither good capital markets nor standard accounting practices. The down payment, as discussed above, is actually determined during intense negotiations between government leader and the firm's manager.

The asymmetric information that characterizes the buyout of the firm creates tension when establishing the firm's purchase price. Having private information about the firm's prospective value, a manager might always be expected to claim that the firm is of a lower value to him that it really is in order to be able to pay a lower price. Without any mechanisms to reveal

the manager's private information, the government would only have the option to either accept the low price or to not privatize at all. If leaders and managers were unable to overcome the problem caused by the asymmetric information, it could lead to no privatization--a lose-lose situation since both parties could benefit from the efficiency gains of privatization.

In such an environment, are leaders always able to overcome the difficulties? Do the variation of premium rate reflect any systematic success that leaders and managers have had? Examination of the data reveals a correlation between performance and the premium rate of the firm: managers who pay "higher" premiums tend to perform better than those who pay "lower" premiums postprivatization. Table 6 divides the sample into three groups of firms: the heavily discounted, the moderately discounted, and the premium-paying firms. Organized this way, the data show that the premium-paying firms' postprivatization performance improved more than that of the discounted firms. The heavily discounted firms, in contrast, performed worse postprivatization than preprivatization in terms of accounts receivable management and value added per worker.

Firms having different premium rates, also differed in the amount of effort their managers exerted. Some managers we interviewed exerted almost no effort to improve their newly acquired firm's efficiency. These, interestingly, were the ones that said they bought their firms at a relatively low premium rate. It would not have been the discount that caused the under-performance; rather, it more likely was the consequence of getting the firm for such a discount that affected their incentive to exert effort in the firm. The attitude of owners of heavily discounted firms toward the firms often had not changed much from the time when they were hired as managers for the government-owned firm. The data demonstrate that managers, who paid a positive premium, exerted more effort and showed more interest in improving their newly acquired firm. For example, managers of the premium-paying firms worked 13 hours longer per week than managers of the heavily discounted firms (Table 7, column 4).

Given these observations, the question arises: if two managers ex ante pay different prices for what essentially appear to be similar firms, why should the new owners behave differently ex post? Conventional economic thinking suggests that the amount that the managers paid for the firms is already sunk and should not affect ex post behavior since in both cases they are residual claimants and so should act the same.

The answer in part might be that the original owner of the firm endowed the "new" owner with different sets of rights, and that the rights depend on the magnitude of the premium rate and affect the new owner's incentives. Although both firms were "privatized," it is always possible that the leader may come back to ask for an additional payoff postprivatization. And this might be expected by managers ex ante. In other words, after the "deal," the negotiation over some firms might leave a "tail" in the leaders' hands.[9] It is that the non-performing firms were reacting to the explicit or implicit agreement (or threat) that the government would come back asking for more postprivatization. If ex-post the manager has to share his profits with the government, his incentive to improve the firm's efficiency would be lower. In contrast, better performing firms appear to face a different set of incentives. If leaders promised not to interfere or ask for further payments from these firms, and if the rights of these privatized firms are secure, managers would have better incentives. If both parties anticipate these actions before privatization, the selling price may reflect the manager's own knowledge of the firm's future earnings potential under his guidance.

Perhaps the most important result from this inquiry into the institutional evolution of China's locally government-owned enterprises is that we believe we have identified a screening mechanism that leaders use to elicit information from managers about the value of the firm at the time of privatization. The screening occurs by the use of joint contingent profit share and the down payment. The buyout process is one where the leader offers the manager a menu of

contracts, each one consisting of two key terms: a down payment and a sharing rule for future profits. For managers that pay a lower premium or have a higher discount, the government has the right to take a larger part of the firm's postprivatization profits. For managers that are willing to pay more for the firm ex ante, the government promises to take only a smaller (or no) part of the firm postprivatization profits. In equilibrium, good managers will be separated from bad ones. Good managers that believe that they can make substantial profits after privatization if they put all of their efforts into the firm, would prefer to pay a higher down payment ex ante in order to keep most or all the profits in the future. Bad managers, in contrast, knowing that they will not likely earn much postprivatization, will pay only a small amount up front. In return for the lower price, the discount-paying manager has to share a greater part of any profits with the government.

Although this mechanism makes it possible to elicit important information ex ante for the government, there is a cost. The contract terms accepted by some managers, i.e. those that pay a discounted price, will not provide strong ex post incentives. In this subset of cases, the manager's ownership rights are incomplete, and they face a moral hazard problem because the manager's effort at improving the firm efficiency will not be completely observable or contractible. However, it can be shown that this cost, under some circumstances, is worth it for the benefit of the better screening mechanism since it allows local leaders to elicit useful information and proceed with privatization with the best managers and best firms. In another paper, we show theoretically that in equilibrium the leader will give full incentives to the best managers but not to the others.

Although our original survey instrument was not able to isolate the contractual contingencies, new information supports the idea that a tail does exist with privatization in rural China. In a supplementary survey that we conducted in the summer of 2000, we asked the following question to government leaders: Are there privatized firms for which you received only

[9] In Chinese, "with a tail" or "leave a tail" mean that things are not completely done. Specifically in this paper, it means that privatization does not give the new owner full incentives, since the original owner, the

a small buyout price, but from which you expect to receive future payments? Leaders in 15 out of 38 townships answered ``yes" to this question. Many respondents actually told us that this question is sensitive because the central government has been cracking down fee collecting activities by the local governments.[10] We consider this to be prima facie evidence that such contractual forms do exist. But discussions with the new survey enumerators raise caution about using this information for any thing more than establishing a lower bound. Another set of survey questions on fees and profits turned into the government by the firm show that firms indeed make further payments postprivatization, and the payments are negatively correlated with the buyout price. The correlation between the postprivatization payment (as a percentage of profit) and the normalized buyout price is -0.39.[11]

6 Successful Insider Privatization in Rural China

While it is important to understand how many firms have been privatized, and how privatization has been executed, the biggest issue facing policy makers is whether or not the privatization movement has been successful. More specifically, insider privatization has created a hot debate among policy makers. Some researchers in China suspect that the government leaders and the insider managers collude to seek rents from privatization (Lu, 1998; PBC, 1998; Sun, 1998). They argue that these firms are not becoming more efficient due to the nature of the rent-seeking process. Others argue that even if insiders pay little to buy out the firms, as long as the new owners have full incentives, these firms should prosper (Li and Rozelle, 2000).

Despite the importance of these issues, few studies have systematically analyzed the impacts of privatization on firm efficiency. In this section, we provide a summary of our

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government, retains over future profits.

[10] Although the central government action is mainly about fees imposed on farmers, the local leaders were conservative even when being interviewed by our enumerators.

[11] This provides some anecdotal evidence since we have only 25 observations.

empirical work of whether firms perform better after privatization, what firms perform better and why they perform better.

In order to more rigorously test if postprivatization performance increases with the relative size of the down payment, we conduct a series of multivariate analyses. We first test whether privatized firms as a whole perform better after privatization. Next, we test how the premium rate affects performance by dividing the postprivatization privatized firms into three groups: the premium-paying, the moderately discounted and the heavily discounted firms. If the screening mechanism we have identified is used by local governments, we would expect the premium-paying firms to perform the best among privatized firms and their performance should catch up with that of private firms after privatization.

To measure the effects of privatization on firm efficiency, we specify the alternative models to explain performance as a function of privatization and other control variables. We use three performance measures—accounts receivable management, the profit rate and value added per worker as dependent variables. To explain performance, we follow Frydman et al. (1999), and include a firm size measure, total asset value, as an independent variable for the first two dependent variables and control for the inputs, labor and capital in logs, in estimating value added per worker. In order to compare the performance of privatized firms to that of government-owned and private firms, and to compare post privatization performance to preprivatization performance, we have three ownership indicators: private, preprivatization privatized, and postprivatization privatized indicators (the default is government-owned firms). We also include interactive variables of calendar year with province and calendar year with sector, but do not report them since they are not the focus of the paper.

The OLS regressions without controlling for the size of down payment show at most some mixed results of the effect of privatization on performance (Table 7). The firm size measures are significant in two of three regressions (rows 1 to 3). Larger firms tend to perform better than smaller firms in terms of profitability and collecting account receivables. As

expected, private firms indeed have an overall better performance than government-owned firms with a 23 percent lower inter-firm arrears rate, a 6.1 percentage points higher profit rate (the mean for government-owned firms is –0.7 percent), and a 16.4 percent higher value added per worker (row 4). The improvement in performance of privatized firms relative to government-owned firms is less obvious. Although the postprivatization indicator has a positive coefficient, none of them are significant (row 6).

When we control for the relative size of the down payment, however, we find performance of privatized firms increase significantly with the size of the down payment (Table 8). Privatization has a strong positive effect for the premium-paying firms for all three performance measures. Compared with the government-owned firms, this group of firms has a 32 percent lower inter-firm arrears rate, 5.6 percentage points higher profit rate, and a 22 percent higher value added per worker (row 6). As the premium rate decreases, there is a trend of both a decreasing significance level and a decreasing magnitude of the coefficients. The heavily discounted groups perform the same as government-owned firms since the group indicator is not significant in any of the three regressions (row 8).

There is also evidence showing that premium-paying privatized firms have caught up with private firms. We conduct a series of F-tests for regression (4)-(6) in order to examine whether the performance of privatized firms is catching up with that of private firms or whether it remains the same as that of government-owned firms. We accept the hypothesis (p-value bigger than 0.45) that the premium-paying firms perform as well as private firms in terms of all three measures. This means that accounts receivable management, profit rate and value added per worker of privatized firms, whose managers paid a premium, have caught up with those of private firms.

If these effects are typical for firms in rural China, they show, in general, how privatization of small firms leads to improved firm performance. They also show that not all

firms improve their performance equally. Firms with a higher premium rates improve performance more than those with a lower buyout price.

7 A Corruption Story

Although our earlier empirical finding that the probability of privatization is determined by some systematic institutional factors indicates that corruption may not be the main cause for privatization, we cannot exclude the likelihood that corruption could exist in the process of privatization. Also, a corruption theory may explain our empirical findings in the last section. If the leader were to ask the firm for a payment to her personal account, the manager might be allowed to purchase the firm for a below-market, discounted price. If there were no chance of being caught, the manager would have full incentives for the firm's future profits. However, if there was a chance of that the manager gets caught and be punished for corruption, and if the probability of getting caught was greater the more discount the manager received, the manager in this case would obviously face imperfect incentives.

In terms of our theoretical framework, we can also demonstrate the impact of corruption on performance. Suppose information is symmetric between the leader and manager. The manager can pay any price between zero and the firm's true value to buy the firm, and he gets a discount if the payment is below the firm's value. The leader also demands that the manager pay her a bribe as a compensation for the discount, and the amount of the bribe is smaller than and increases with the size of the discount. Suppose that the probability of being detected is higher for a higher discount (bribe). This would be the case if the degree of underpayment could trigger an audit or if it becomes more likely someone would notice the leader's increase in wealth when he takes a higher bribe. It is also not unreasonable to assume that if the manager is caught, he will lose the firm. If he is not caught, the value of the firm will be whatever the firm is worth.[12]

[12] There could be more serious punishment for bribing such as being jailed, but we consider only economic punishment specific to the firm for the analysis.

Since there is a chance that the manager will lose the firm if privatization involves corruption, the manager does not have full incentives after privatization. Also, the more down payment the manager has made, (or the less bribe he has paid), the less likely he will be caught, and the more incentives he has and the better the firm should perform after privatization.

One of the most significant results is that the corruption theory generates the same prediction as the screening theory: Manager's postprivatization effort and the firm's performance increase with the size of the buyout price. Hence, if we see in the performance equation that the coefficient on the buyout price variable is positive, we do not know if this is due to the nature of the screening contract or the result of corruption. The main difference here is that the corruption theory does not require information to be asymmetric. In other words, even when the official knows a firm's true value, the firm could still be under-priced because the official may provide a discount to the manager in exchange for a bribe. Hence, if asymmetric information significantly impacts the buyout price, we can have evidence that screening matters. In another paper by the authors, we show statistically that asymmetric information is playing an important role in the size of the down payment. As a result, we can assume at least part of the effect of the premium rate on performance is from screening. We cannot rule out, however, that another part is from corruption.

8 Conclusion

In this paper, we have described the process of privatization of China's Township Enterprises. The importance of rural industry means that understanding the effects of privatization is a key part in increasing the effectiveness in developing industry-wide and sector specific industrial policies. In particular, we present the findings of our own field survey and analyses to show how far privatization has proceeded and how it has affected firm performance.

The pervasiveness and causes of privatization are readily apparent. The privatization in mid-1990s is deep and fundamental. Almost 90 percent of local government-owned firms have

transferred their shares to private sectors partially or completely by 1999. Privatization is widespread, regardless of what definition we use (share shifting, controlling interest shifting, or complete). Our analysis shows how the incentives of local governments to privatize are affected by monitoring costs, human capital, incentives, and bank liquidity, all of which affect the value of the firm under alternative forms of ownership.

Our analysis also explains the surprising success of insider privatization that China's local leaders have had during the late 1990s. We demonstrates that in the face of information asymmetry between the seller and buyer of a firm, the down payment and a contractually contingent payment in the form of a claim on future firm profits by the government leader can be used to elicit private information from the buyer about the firm's future profitability. Using such a mechanism, leaders can maximize their revenues and keep privatization from becoming stalled. Although some inefficiency arises due to the poorer incentives that some managers face, "privatization with a tail" allows leaders to separate good managers from poor managers (or strong firms from weak firms) and attain a second-best solution.

Privatization, in general, and insider privatization, in particular, are flourishing in rural China. It is happening on its own. And, in some cases, privatized firms are succeeding. In this aspect, our study is among the first to really provide an systematic explanation--both theoretical and empirical--of what appears to be the largest episode of privatization in any country since transition began, and perhaps in history. More work is needed, however. There are still many questions about the sustainability of privatized firms, the dynamics that affect profits during and immediately after privatization, and many other aspects of privatization--a very complicated, but important process to understand.

Our results present evidence that rural industries in China may continue to contribute to the nation's economic growth in the future. Private firms will necessarily be a part of all industrial sectors in the future. The current trends suggest private, rural firms are evolving in a positive way that may very likely give them an active role. While more work is needed, we

demonstrate a rural industrial sector that is continuing to respond to the other institutional changes that are going on around it. We can not say if the gain in efficiency is enough to make rural industries competitive in the future. But at the very least, the change is in the right direction. As such, policy makers who are calling for the suppression of rural industries, have no basis for their claims. It may be that additional policy changes could relax constraints that could make the gains in efficiency even greater, and rural industries could even re-assume its pivotal role in China's growth and rural employment.

Appendix A

Our survey involved intensive fieldwork that spanned more than 2 years and geographically covered all of our 2 study provinces. Following three pilot surveys in 1997 and early 1998, the main survey was conducted in the summer of 1998. Thirteen enumerators spent three months in the study area. Although the two provinces are known as one of the heartland of the rural industrial movement, each province has its own special features and contains great heterogeneity.

The sampling procedure was designed to ensure we randomly chose a diverse and broad-based set of sample regions. We drew eight counties from Jiangsu Province and seven counties from Zhejiang Provinces after stratifying all of the counties in each province into three income groups. The fifteen counties are located in five regions of the two provinces: Northern Jiangsu, Central Jiangsu, Southern Jiangsu, Northern Zhejiang and Southern Zhejiang. Within each county, we chose four townships also by stratifying on the basis of income. In total, we conducted surveys in 59 townships.

Firm selection also followed several pre-defined rules to ensure we had a sample of firms that would facilitate our analysis. Upon arriving in each township, the business administration bureau provided us with a comprehensive list of all firms that operated in the township in 1994. Using size and ownership data that also came from the same bureau, we narrowed the sample, following six rules: a.) the sampled enterprise should have no foreign shares; b.) the sampled enterprise should be an independent tax paying unit with no subsidiaries; c.) the sampled enterprise should have at least 20 employees and a fixed capital base that exceeded 200,000 yuan.[13] d.) the sampled enterprise should be a manufacturing firm and firms classified as providing services were excluded; e.) the sampled firm should be located within the geographic center of the township's leader area, and would be excluded if it were located far away from the

[13] One US Dollar = 8.3 Chinese yuan.

center.[14] f.) the sampled enterprise was not in bankruptcy in the summer of 1998. The enumeration group randomly selected three firms from the revised list. In total, we completed surveys on 168 rural enterprises.

[14] The sampling is so designed because almost all TEs and big private firms are located at the center of the township, and distance is the major cost when conducting the survey.

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Table 1. Ownership Structure of Industry *After Privatization* under Alternative Definitions of Privatization in Both Jiangsu and Zhejiang Provinces, 1993-1999.

Firm Type	Proportion of Firms in Each Type of Privatization Category		
	"Share-Shifting"[a]	"Controlling-Interest Shifting"[a]	"Complete" [a]
	(1)	(2)	(3)
Sample I: 1993-1997, 643 firms, 57 townships [b]			
Township Enterprises [c]	48	53	66
Privatized	52	47	34
Sample II: 1993-1999, 390 firms, 43 townships [b]			
Township Enterprises [c]	14	22	43
Privatized	86	78	57

Source: Authors' Data

[a] Under "Share-Shifting Privatization", a privatized firm is any township enterprise in 1994 (fully-owned;) that shifted any part of its shares to private individuals. Under Controlling-interest Shifting Privatization, a privatized firm is any township enterprise in 1994 (fully-owned; those with majority share) that transferred enough shares to private individuals to give them a majority share. Under "Complete Privatization", a privatized firm is any township enterprise (fully-owned; those with majority-share; those with minority-share) that shifted all of its shares to private owners, and has hence lost all of its ownership interest in the firm.

[b] Sample I has 643 firms that were owned by the township in 1993, and it covers the period 1994-1997. Firms (390) in Sample II is a sub-sample of Sample I. For these 390 firms, we have information for two more years (1998 and 1999).

[c] Under share-shifting privatization, a township enterprise includes only those firms with 100 percent controlling interests held by the township. Under controlling-sharing shifting privatization, a township enterprise includes all firms in which the township holds a majority of the shares. Under complete privatization, a township enterprise include all firms with any shares held by the township.

Table 2. Rate of Privatization under Alternative Definitions of Privatization in Jiangsu and Zhejiang Provinces Using Sample II, 1993-1999 (390 firms).

Year	Rate of Privatization in Each Type of Privatization Category [a]		
	"Share-Shifting" [b]	"Controlling-Interest Shifting" [b]	"Complete" [b]
	(1)	(2)	(3)
1993	8	7	3
1994	15	13	5
1995	7	7	4
1996	20	18	13
1997	30	22	15
1998	27	38	35
1999	25	28	16
Total	86	78	57

[a] Rate of privatization is defined as percentage of firms privatized during that year, conditional on the firm had not been privatized at the beginning of that year.
[b] See Table 1 for the definitions of privatization.

Table 3: Distribution of the Rate of Privatization at the Township Level

Percentage Privatized	Sample I, 57 townships [a]		Sample II, 43 townships [a]	
	Number of Townships	Cumulative Percentage	Number of Townships	Cumulative Percentage
0-20	10	17.54	7	16.28
21-40	9	33.33	6	30.23
41-60	17	63.16	10	53.49
61-80	14	87.72	12	81.40
81-100	7	100.00	8	100.00
Total	57		43	

[a] See Table 1 for the definitions of the two samples.

Table 4: Conditional Probability of Privatization When Controlling for Township, Firm and Bank Characteristics (N=307) [a]

	Probability of privatization	
	Less than median	More than median
1. Township leader's year of education	0.45	0.33
2. Township leader's age	0.47	0.32
3. Number of employees	0.47	0.32
4. Total Profit	0.48	0.30
5. Firm's budget constraints [b]	0.31	0.49
6. Bank's weight on profitability [c]	0.35	0.44

[a] Numbers in the table are probabilities of a firm being privatized conditional on a firm is in the group the independent variable is less (more) than the median.

[b] The firm's budget constraints is from the leader's interview. The budget is said hard when the leader is able to persuade the bank to give extensions to overdue loans of township enterprises before liquidating them.

[c] Bank's weight on profitability is from bank's interview, we ask the bank manager to rank the importance of bank profitability as a measure of their performance (scale 1 to 5 with 5 the highest).

Table 5: The Down Payment, Base Value, and Premium Rate of Privatized Firms in Rural China, 1994-1997. (N=88)

Down payment to base value (DB) ratio [a] (percent)	(1) Number of fimrs	(2) Down payment [b] (million yuan)	(3) Base value [c] (million yuan)	(4) Asset value [d] (million yuan)	(5) Payment premium [e] (million yuan)	(6) Premium rate [f]
0-20	21	0.78	7.16	18.06	-6.39	-0.32
21-50	14	1.48	4.56	11.67	-3.17	-0.29
51-75	13	1.57	2.39	6.80	-0.82	-0.12
76-100	13	3.09	3.80	16.61	-0.70	-0.03
Greater than 100	20	3.24	2.58	10.88	0.93	0.10
Less than 0 [g]	7	0.20	-0.69	6.22	0.89	0.18

[a] The ratio is calculated by dividing column 2 by column 3.

B The down payment is the cash paid by the new owner to the government at the time of privatization.

[c] The base value is the book value of equity, which is the difference of the book value of assets and the book value of debt.

[d] The asset value is the book value of assets.

[e] The payment premium is the difference of the down payment and the base value, or column 5 = column 2 - column 3.

[f] The premium rate is the ratio of payment premium to the asset value, or column 6 = column 5 /column 4.

[g] The DB ratio is negative because the book value of equity is negative.

Table 6: Average Performance Measures of Heavily-Discounted, Moderately-Discounted and Premium-Paying Privatized Firms in Rural China, 1994 to 1997. (N=88) [a]

Privatized firms	Accounts receivable management [b]	Profit rate [c]	Value added per worker [d]	Manager's workload [e]
Heavily-discounted (30 firms) [f]				
Preprivatization	0.780	0.012	13.63	
Postprivatization	0.749	0.026	10.33	**69.8**
Improvement [g]	**-0.031**	**0.014**	**-3.30**	
Moderately-discounted (26 firms) [f]				
Preprivatization	0.823	-0.007	9.73	
Postprivatization	0.846	0.018	13.78	**75.4**
Improvement	**0.023**	**0.025**	**4.05**	
Premium-paying (32 firms) [f]				
Preprivatization	0.796	0.001	9.49	
Postprivatization	0.833	0.023	12.54	**82.5**
Improvement	**0.037**	**0.022**	**3.05**	

[a] This table reports the means of each group of firms for all four years except that the manager's workload is only for the year 1997.

[b] Accounts receivable management = 1 - inter-firm arrears / assets.

[c] Profit rate = profits / sales

[d] Value added per worker = (production value – materials costs)/workers.

[e] Manager's workload is the number of hours the manager works per week.

[f] Heavily discounted firms are those in which the premium rate is less than -0.2; moderately discounted firms are those in which the premium rate is between -0.2 and 0; and premium-paying firms are those in which the managers have paid a non-negative premium (the premium rate is positive or zero).

[g] Improvement is defined as: postprivatization mean - preprivatization mean.

Table 7: Ordinary Least Square Regressions Explaining the Effect of Privatization on Firm Performance in Rural China, 1994-1997 [a]

	Dependent variables: performance measures		
	Accounts receivable management (1)	Profit rate (2)	Value added per worker (log) (3)
Asset	0.0007***	0.0005**	
	(0.0002)	(0.0002)	
Employment (log)			0.102***
			(0.023)
Capital labor ratio (log)			0.333***
			(0.025)
Private firms	0.046**	0.054**	0.152**
	(0.019)	(0.026)	(0.076)
Privatized firms			
Preprivatization	0.023	0.005	0.049
	(0.017)	(0.023)	(0.066)
Postprivatization	0.027	0.015	0.104
	(0.017)	(0.022)	(0.065)
Province*year indicators	Yes	Yes	Yes
Sector*year indicators	Yes	Yes	Yes
Observation	572	591	552
R-squared	0.13	0.14	0.36
F-statistics	1.76***	2.06***	6.35***

[a] Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10, 5 and 1 percent. All regressions include interactive terms of province*year and sector*year.

Table 8: Ordinary Least Square Regressions Measuring the Effect of the Down Payment on Performance of Privatized Firms in Rural China, 1994-1997 [a]

	Dependent variables: performance measures		
	Accounts receivable management (4)	Profit rate (4)	Value added per worker (log) (6)
Asset	0.0008***	0.0005**	
	(0.0002)	(0.0002)	
Employment (log)			0.105***
			(0.023)
Capital labor ratio (log)			0.333***
			(0.025)
Private firms	0.045**	0.052***	0.152***
	(0.019)	(0.026)	(0.076)
Privatized firms			
Preprivatization	0.021	0.004	0.045
	(0.017)	(0.023)	(0.066)
Postprivatization			
Premium-paying	0.063***	0.056*	0.202**
	(0.022)	(0.029)	(0.086)
Moderately-discounted	0.058**	0.021*	0.124
	(0.024)	(0.033)	(0.094)
Heavily-discounted	-0.025	-0.028	0.003
	(0.021)	(0.029)	(0.083)
Observation	572	591	552
R-squared	0.15	0.15	0.36
F-statistics	2.06***	2.13***	6.20***

[a] Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10, 5 and 1 percent. All regressions include interactive terms of province*year and sector*year.