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Why Do Governments Dump State Enterprises?
Evidence from China

David D. Li and Francis T. Lui

8.1 Introduction

Should governments privatize state-owned enterprises (SOEs)? What is the impact of existing privatization programs? These are important research questions that have motivated an enormous amount of economic research during the past decade. According to a few recent literature surveys (Djankov and Murrell 2002; Megginson and Netter 2001; Toninelli 2000), the accumulated research seems to have converged on the view that privatization is critical to reform SOEs and many of the implemented privatization programs have had a positive impact on enterprise performance. Thanks to this research, our knowledge on these important questions has greatly improved.

But why do governments choose to privatize SOEs? More generally, why do governments choose to part with, or dump, SOEs by either transferring their ownership to private hands or liquidating the enterprises? In many ways, these are even more important and relevant questions than the opening questions that have generated the huge privatization literature. After all, there are no obvious reasons to believe that in reality governments faithfully follow economists' advice on major economic policy issues such as privatization. Policymakers often seem to have their own considerations and agenda. With a better understanding of why governments (do not) choose to privatize, the obstacles to efficiency-enhancing privatization might be

identified and resolved and our economic analysis of privatization put to better use.

Unfortunately, there is a very limited literature on why governments choose to dump SOEs, although one can identify a few general streams of thinking on this issue. In some cases, there is limited formal research, especially empirical research, along each of the streams.

The first group of general theories argues that governments dump SOEs in order to enhance enterprise efficiency. In fact, most theoretical research on privatization simply starts from this premise and derives various predictions. Underlying this thinking is the belief that, somehow, the political marketplace is efficient and the equilibrium of the political game is economically efficient. In a larger context, Glaeser, Johnson, and Shleifer (2001) call this the Coasian theory of institutions. But why, in reality, does there seem to be a common phenomenon—that many efficiency-enhancing privatization programs fail to be implemented due to government objections? At least, we need empirical tests of such theories of government decisions of privatization.

The second line of thinking explains that governments dump state enterprises in order to enhance their revenue rather than efficiency.[1] Privatization or liquidation of SOEs may bring in sales revenues to the government. Privatization also may increase the future flow of tax revenue when the efficiency of the privatized enterprises increases enough and tax enforcement is strong enough. Finally, in the case of profit-losing SOEs, privatization or liquidation of such enterprises relieves governments of the burden of financial subsidies. In the Chinese context, Cao, Qian, and Weingast (1999) argue that governments privatize due to their facing harder budget constraints. However, without enterprise-level data, they cannot directly test this hypothesis. Using a data set of China's township and village enterprises, Brandt, Li, and Roberts (2001) find that when local banks faced tighter liquidity constraints, it was more likely that local collective enterprises were privatized. It is interesting to test this line of thinking against the first one.

The third line of thinking is that governments dump SOEs as a strategic move in political games. For example, it is often suggested that reformist politicians in Eastern Europe and the former Soviet Union chose mass privatization in order to secure political support for further reforms (see, e.g., Shleifer and Treisman 2000). In the context of Western Europe, it might be that conservative parties in power use privatization or liquidation of SOEs in order to weaken labor unions and therefore the political basis of the labor party of social democrats. For example, Biais and Perotti (1998) model

1. Under a set of strict conditions (including a perfect capital market, nondistortionary taxes, and a fully competitive product market), maximizing privatization revenue or government tax revenue or stopping financial losses is equivalent to maximizing social efficiency. We certainly do not think these conditions are satisfied in the economies we are concerned with.

how a right-wing government can use mass privatization to get reelected. Plausible as it is, this explanation for the motivation of privatization has yet to be put to systematic empirical tests.

The purpose of this chapter is to fill the gap in the literature by empirically testing competing theories of why governments dump (i.e., privatize or liquidate) SOEs. We are able to do this thanks to a unique data set of Chinese state enterprises, in which some were privatized or liquidated while the rest remained state owned. The focus of the test is on the first two groups of theories of government motivations of privatization, since in the Chinese context, political moves are often covert and we do not have reliable information on them. However, we are able to estimate the relative level of the political benefit of control to the government with SOEs.

In order to facilitate the test, we first set up a simple theoretical model that is general enough to incorporate various explanations as special cases. We then derive predictions of the simple model, linking them to the hypothesized government preference. Empirical estimations of the underlying parameters provide us with inferences on government preferences and therefore yield tests of different theories of why governments privatize.

Our simple model of privatization is based on a bargaining game between a government and the workers of the SOE. The government is assumed to have a general objective function consisting of the enterprise's efficiency and revenue contribution and the political benefit of control to the government. The issue of the burden of financial subsidies to poorly performing SOEs is also modeled by allowing the government to treat negative revenue asymmetrically from positive revenue. The workers care about employment (or unemployment) and total wages. Privatization or liquidation of SOEs may cause changes in efficiency, in total revenue to workers and the government, in employment, and in the political benefit of control of the government. These changes are anticipated by both parties when they negotiate the decision to privatize or liquidate, so that the equilibrium takes these factors into account.

The simple model predicts when privatization or liquidation is implemented based on the underlying parameters of the government objective function as well as changes to the SOE due to privatization. By testing this prediction against observed data on privatization, we are able to estimate the parameters of the government's objective function and therefore test different theories of privatization.

The empirical tests reject the efficiency theory while supporting the revenue theory. They show that none of the alternative measures of efficiency increases has predictive power with regard to the privatization-or-liquidation decision. On the other hand, increases in revenue to the government are important in predicting the decision. In particular, a significant factor inducing the privatization-liquidation decision is delayed loan and interest payment *when it becomes a financial burden to the government.*

That is, delayed loan and interest payment alone is not important. Moreover, other things being equal, the more surplus workers there are and the greater the government's political benefit of control of the enterprise, the less likely is the SOE to be privatized or liquidated. Overall, the main message of the tests is that governments dump SOEs not for the purpose of increasing efficiency but for enhancing tax revenue, or for relieving themselves of the financial burden of subsidizing profit-losing state enterprises.

Section 8.2 of the paper describes the simple model of privatization and its predictions. Section 8.3 explains the design of the empirical tests and measurement of variables. Test results are presented in section 8.4, and section 8.5 summarizes the paper with discussions on some policy implications.

8.2   A Simple Model of Privatization

Two parties are most critical in the privatization decision of a state enterprise, and the model focuses on them. The first is the government agency, which is in control of the senior managers of an SOE. The government agency and the senior managers of an SOE who are government officials can be viewed as one entity and have important decision rights in privatizing of the enterprise. The other party is the workers, who have been offered long-term employment by the SOE and can demand compensation when they become unemployed. For simplicity, we assume that both parties have to agree before a privatization decision can be made.

To be general, we suppose that the government may be concerned with three possible objectives associated with an enterprise: economic efficiency of the enterprise, revenue contribution from the enterprise to the government, and political benefit of control from the enterprise. The possible concern for efficiency comes from the government's desire to seek the society's economic prosperity. The preference for tax revenue is often argued to be common among bureaucrats of various kinds. Finally, government officials derive the political benefit of control by gaining direct control of an SOE, as many have illustrated (e.g., Kornai 1978, 1992). The general preference of the government is the same regardless of whether an SOE is privatized or not. But each of the entries in the objective function may change after privatization. In particular, the political benefit of control is supposed to be zero when the firm is private. We assume the relative weight on each of the three elements to be α, β, and 1, respectively. We can write the objective function of the government as

(1) $$W_G = \alpha t + \beta T + B,$$

where e is a measure of economic efficiency of the enterprise (whether it is state owned or privatized); T is the equivalent of per-period revenue the government gets, and B is the political benefit of control (which is zero when the enterprise is private).

A potentially important factor we need to model is the so-called *soft budget constraint,* which refers to the phenomenon that SOEs expect to be bailed out when in financial difficulty. An alternative way to interpret the soft budget constraint is that the government tolerates negative revenue, T, from the operation of the enterprise. The opposite of the soft budget constraint is the *hard budget constraint,* which makes the government feel extra pain with negative T and thus makes it likely to make changes in the operation of the enterprise rather than passively subsidize it. Based on this analysis, we introduce an extra term to equation (1) to capture the softness of the budget constraint:

(2) $$W_G = \alpha e + \beta T + \beta_s D(T)T + B$$

where $D(T) = 1$ if $T < 0$, and $D(T) = 0$ otherwise. The coefficient β_s is meant to capture the phenomenon of the soft budget constraint. The lower the value of β_s, the softer the budget constraint is. Intuitively, β_s is the extra pain a single unit of loss of profit causes to the government.

Turning to workers' objectives, we focus on two concerns. First, they are concerned with layoffs. Second, other things being equal, an increase in the total wage bill benefits all workers. Thus, a reduction in employment must be compensated by an increase in the total wage bill paid to the same group of workers in the form of wages and unemployment compensation. Let the size of employment be L and the per-period wage bill be W, and let the relative weights on them be 1 and γ, respectively. We write down the objective function of the workers as

(3) $$W_L = L + \gamma W.$$

An interpretation of the objective of the workers is that if the privatization results in the layoff of one worker, then the extra compensation paid to the worker must be γ.

We are now ready to analyze the conditions under which privatization may occur. Obviously, such a decision is an outcome of negotiations between the government and the workers, and compensation from the government to workers may be necessary. Suppose that M is the monetary equivalent of the monthly perpetual amount of transfer from the government to workers needed in order for the latter to agree to privatization.

In order for the workers to agree to a plan of privatization, it must be that

(4) $$\Delta W_L = \Delta L + \gamma(\Delta W + M) > 0,$$

where the differences are taken between the value of privatization and no privatization.

At the same time, the government must also find privatization to be worthwhile, i.e.,

(5) $$\Delta W_G = \alpha \Delta e + \beta(\Delta T - M) + \beta_s \Delta[D(T)T] + \Delta B > 0.$$

Multiplying equation (4) by β and equation (5) by γ and adding up the two multiplied inequalities, we have

(6) $\alpha\gamma\Delta e + \beta\Delta L + \beta\gamma(\Delta W + \Delta T) + \gamma\beta_s[\Delta D(T)T] + \gamma\Delta B > 0.$

We define

$$R = W + T,$$

which is the total amount of cash flow of the enterprise that can be divided among government and workers. Equation (6) can be rewritten as

(7) $\alpha\gamma\Delta e + \beta\Delta L + \beta\gamma\Delta R + \gamma\beta_s[\Delta D(T)T] + \gamma\Delta B > 0.$

We make two assumptions to further simplify equation (7). First, we assume that after privatization, there is no need for the government to bear a negative loss of the enterprise (i.e., T is always positive after privatization). We use T_s to denote the value of government revenue collection from SOEs. Second, the political benefit of control to the government after privatization is zero. We denote the political benefit of control associated with SOEs as B_s. Equation (7) can be simplified as

(8) $\alpha\gamma\Delta e + \beta\gamma\Delta R - \gamma\beta_s D(T_s)T_s + \beta\Delta L - \gamma B_s > 0.$

A simple interpretation of equation (8) is that in order for an SOE to be privatized, a combination of the efficiency gain, the increase in cash flow R, and the preprivatization profit-loss must be high enough to overcome the combination of the layoff of workers and the loss of political benefit of control of the government. Another way to interpret equation (8) is to look at the impact of the government's and the workers' preferences on the privatization decision. Other things being equal, a higher α (i.e., government's putting more weight on efficiency) makes privatization more likely to happen, since Δe is positive. When $\gamma\Delta R + \Delta L$ is positive, i.e., when the increase in cash flow from privatization is sufficient to compensate layoff of workers so that a surplus is left for the government, a higher β also makes privatization more likely to happen. Finally, so long as γ is not zero, a higher β_s (i.e., a harder budget constraint) makes privatization more plausible.

Notice that equation (8) is general enough for us to test various hypotheses of why privatization was implemented. Although we may not be able to identify each of the parameters of α, β, and γ, we will be able to estimate the coefficients on each of the variables of Δe, ΔR, $D(T_s)$, T_s, ΔL, and B_s. The hypothesis that efficiency gain is a cause of privatization can be tested by estimating the coefficient of Δe; the estimated coefficients of ΔR and $D(T_s)T_s$ are the bases for testing the hypotheses that increasing revenue, or hardening the budget constraint, are causes of privatization, respectively.

8.3   The Data and Design of the Empirical Tests

8.3.1   The Data Set

The data set we use is based on three surveys of several hundred Chinese SOEs covering the 1980–1999 period. The first survey was conducted in 1990 by a research team consisting of economists from the Chinese Academy of Social Sciences (CASS), Oxford University, and the University of Michigan. The survey has information on 769 SOEs from 1980 to 1989. The second survey was implemented in 1995 by researchers from the CASS and the University of Michigan, and collected information on the same group of enterprises from 1990 to 1994. Of the original 769 sample enterprises, 680 remained valid in the second survey. The third survey was sponsored by a consortium of researchers from mainland China, Hong Kong, and the United States. Carried out in early 2000, the survey obtained information retrospectively on the sampled enterprises from 1994 to 1999 (with overlapping information of 1994 for the purpose of quality control). Putting all three surveys together, we have a data set of a substantial number of China's SOEs throughout the twenty years of reform.

The sample of the enterprises came from four provinces and five sectors and represented mostly manufacturing firms. Unlike surveys of the SOEs conducted by government agencies, the two surveys were carefully designed and pilot-tested by economics researchers. The data set contains detailed information on the operations and financial information of the SOEs in the sample. It also contains qualitative information from the senior managements of the SOEs. The first part of the data set was widely used in studies such as Groves et al. (1994), Groves et al. (1995), and Li (1997).

What makes our empirical test possible is that in the third enterprise survey, conducted in 2000, about 200 of the original sample of 680 "disappeared"; i.e., these enterprises no longer existed at the time of survey in early 2000. Subsequently, the survey team made major efforts in finding out what happened to most of these enterprises. It turned out that the majority of these former SOEs were either privatized or liquidated (i.e., "dumped") by their supervising government agencies. The rest, of course, were still SOEs but were merged with other state enterprises and therefore disappeared from the sample.

The dumped SOEs fell into two large categories: privatization and bankruptcy/liquidation. There were several cases of privatization, including sales to private individuals (often, the chief manager) or private enterprises, mergers with township and village enterprises (TVEs), and takeovers by foreign enterprises. Figure 8.1 provides a breakdown of the major categories of the cases.

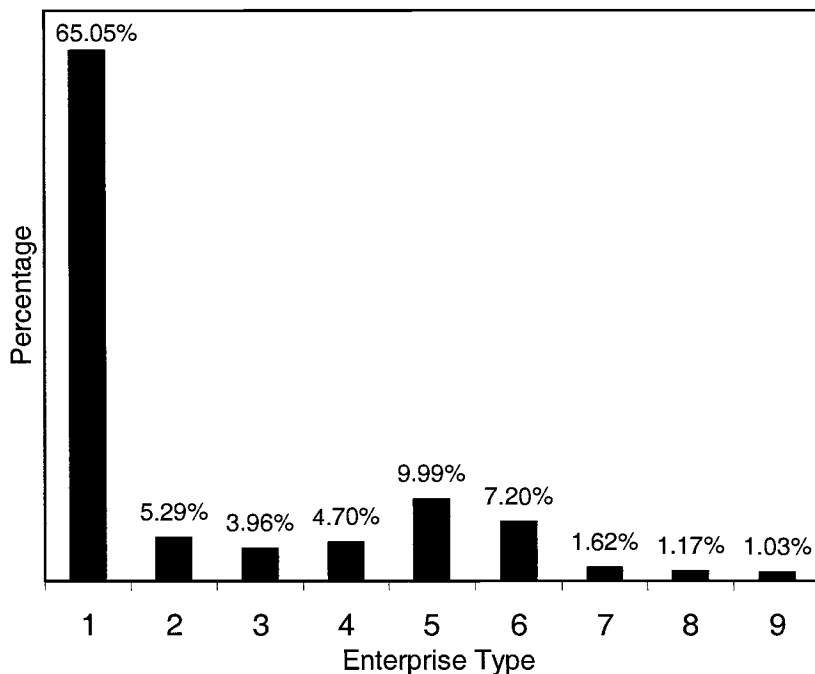Regarding the dumped SOEs, the survey team could not get as detailed

Fig. 8.1   Type distribution (all 681 enterprises)

Notes: 1 = SOEs without ownership changes; 2 = SOEs merged or acquired by other SOEs; 3 = SOEs acquired by foreign invested firms; 4 = SOEs acquired by urban collective enterprises; 5 = SOEs that were liquidated; 6 = SOEs in bankruptcy procedures; 7 = SOEs auctioned or leased out; 8 = SOEs that become share-holding cooperatives; 9 = SOEs that disappeared and could not be identified. We treat cases 3 to 8 as privatization or liquidation.

information about their operation after the ownership change as from before the change. The survey provides information on when the identity change happened, who bought the ownership shares of the enterprise (when relevant), and what happened to the workers (in many but not all cases).

8.3.2   The Design of the Econometric Test

Our empirical tests closely follow the theoretical model as summarized in inequality (8). Let y_i be the dependent variable, which is equal to 1 if enterprise i was dumped by the government between 1995 and 2000; otherwise it is zero. In our empirical tests, we do not distinguish the two subcategories of privatization and bankruptcy/liquidation, since the theoretical model is applicable to both cases. Our econometric model is

$$(9) \qquad \text{prob}\{y_i = 1\} = \text{prob}[\alpha\gamma\Delta e_i + \beta\gamma\Delta R_i - \gamma\beta_S D(T_{Si})T_{Si}$$
$$+ \beta\Delta L_i - \gamma B_{Si} + \varepsilon_i > 0],$$

where all the variables are the same as those explained before and the error term ε_i is introduced due to omitted variables that we cannot observe. We assume that the error term follows a normal distribution. Due to the wide variations in the size of enterprises in the sample, it is unreasonable to assume that the error term has the same standard deviation across different enterprises. Instead, we believe that for larger firms, the privatization decision invokes more considerations not captured by the model. Therefore, we assume that the error term for large firms has a larger standard deviation than for small firms. In particular, we assume that the standard deviation of the error term is proportional to the size of the labor force of the firm. This means that in the actual implementation, we divide all of the independent variables by the size of the employment of the enterprise.

8.3.3 Measurement of Variables

The dependent variable y_i is zero for enterprises that remained state-owned by early 2000, including those that were merged with other SOEs. The variable y_i is equal to 1 if the ith enterprise had been either privatized or bankrupt/liquidated by 2000—corresponding to categories 3 to 8 in figure 8.1. From the point of view of the theory, both cases are the same, representing the situation that the government decided to get rid of control of the enterprise.

We measure the efficiency gain Δe_i in two alternative ways. First, we use an estimated increase in the gross rate of return on total assets of the enterprise after the identity change, whether it is actual or counterfactual. The gross rate of return on total assets is defined as the total amount of value-added of the enterprises (which is available to pay wages and bonuses, taxes, bank interest, etc.) divided by the total value of the assets. Unfortunately, we do not have data on the gross rate of return for those privatized SOEs. Neither do we have observations on the counterfactual cases of privatization for those unprivatized SOEs. Fortunately, in the last survey (conducted in 2000), we have a sample of about 300 non-state-owned enterprises. We calculate the average rate of return on assets for industry groups of these firms and use the averages for privatized SOEs. That is, Δe_i was constructed as the difference between the industry average gross rate of return on assets of non-state-owned enterprises and the average of SOEs from 1990 to 1994.

Alternatively, we measure Δe_i by potential increases in labor productivity when a privatized enterprise lays off those surplus workers while maintaining the same production level as before. In the surveys, enterprise managers provided information on the maximal amount of workers who could be laid off without affecting current production of the enterprise. In the case of liquidation, we still calculate the index. Under the assumption that productive workers (not including surplus workers) of the liquidated enterprise are transferred to a similar production facility in the same industry, the index also captures the potential productivity increase.

ΔR_i, which is the increase in total cash flow of the enterprise due to privatization or liquidation, cannot be fully observed in the data set due to the lack of information on the operation of privatized enterprises. By definition, ΔR_i is not a measure of social-welfare or social-efficiency gain, since it only affects the welfare of the government and workers. For example, cutting a surplus worker does not change ΔR_i, since the saved wage bill for the government comes from the same amount of loss of the affected worker. Cutting a surplus worker does increase social efficiency, as captured by Δe_i.

In order to implement the econometric model, we partially parameterize ΔR_i. We assume that ΔR_i consists of two parts: observed and unobserved. The observed part is based on the information of how the enterprise was losing profit before its potential identity change. The data set describes the percentage of the output that is losing profit. It is reasonable to assume that after being privatized or liquidated, the enterprise will sell the part of the asset that produces such outputs. The value of the assets, which is assumed to be proportional to the profit-losing output, constitutes part of the source of enhanced revenue for the government and workers. Using an interest rate of 5 percent, we convert the one-time increase in cash flow to perpetual increase in cash flow and define this as S_i. Moreover, through other channels, the privatization can also increase the total amount of cash flow for the government and workers to share. Not being able to observe it, we suppose it is proportional to the total value of the remaining asset. The proportion depends on observed attributions of the enterprise before being privatized, such as which industry the enterprise is in and how much reform it had implemented as an SOE. In summary, we assume

$$\Delta R_i = S_i + (a_1 \, \text{industry}_1 + a_2 \text{industry}_2 + \ldots + a_J \text{industry}_J + b_1 \text{reform}_1$$
$$+ \ldots a_R \, \text{reform}_R)A_i + \eta_i,$$

where S_i is immediate and observable cost saving obtainable through privatization or liquidation; $a_1 \, \text{industry}_1 \ldots$ are industry dummies; $\text{reform}_1 \ldots$ are reform dummies, preprivatization; A_i is the value of asset of the enterprise; and η_i is the error term due to omitted variables, which is assumed to follow a normal distribution with standard deviation proportional to employment of the enterprise (an index of enterprise size), since for larger firms the estimation formula is likely to be disproportionately inaccurate.

T_i, which is the negative cash flow of the SOE borne by the government before privatization or liquidation, is estimated by two methods. The first alternative uses the average negative profit plus sale tax incurred by the enterprise for three years, 1992 to 1994. The other alternative is the total accumulated delayed bank loan and interest payment, which is a measure of cumulative poor financial performance. The advantage of using delayed bank loan and interest payment is that this reflects a longer-run problem than negative profit.

After using each of these variables in the regressions, we redo the regressions, multiplying them by an index of how much burden the poor performance of the enterprise created for the government. We call this sbc_i, which takes a value of zero if the manager of the SOE enterprise said that he did not get any help from the government in the case of dealing with delayed payment of bank loan. This is a case in which accumulated financial loss had not become a problem for the government. The value of sbc_i is 4 if the manager answered that he had obtained the most important help from the government on the issue. It takes a value of 1 , 2, or 3 in the intermediate cases. The higher the value of sbc_i, the more burden the government felt facing each unit of financial loss of the enterprise.

ΔL_i, which is the reduction in employment due to the privatization or liquidation of the state enterprise (thus, it is mostly negative), can be calculated based on observed variables. For each case of privatization and liquidation, the survey has specific information on what happened to the workers; e.g., a certain percentage of workers were transferred to a unemployment agency and a certain percentage of workers were provided with new employment in the privatized enterprise. For those enterprises without identity changes, we use the total number of surplus workers as a proxy of ΔL_i, since those workers would most likely have been cut had the SOE been dumped.

Finally, for the political benefit of control associated with an SOE, B_i, we again have to parameterize due to the inability to observe. We suppose that B_i depends on the preprivatization size of employment, total value of fixed asset, and the level of the supervising government agency (central, provincial, or county). That is, we assume

$$B_i = c_i L_i + c_i V_i + c_i \text{Central}_i + c_i \text{Province}_i + c_i \text{County}_i + \rho_i,$$

where L_i is employment; V_i value of fixed asset; $\text{Central}_i, \dots$, are government-level dummies; and ρ_i is the error term due to omitted variables, which we assume to have a standard deviation proportional to the size of employment.

In summary, we estimate the following probit regression:

$$(10) \quad \text{prob}\{y_i = 1\} = \text{prob}\{\alpha\gamma\Delta e_i + \beta\gamma[S_i + (a_1\text{industry}_1$$
$$+ a_2\text{industry}_2 + \dots + a_J\text{industry}_J + b_1\text{reform}_1$$
$$+ \dots a_R\text{reform}_R)A_i] - \gamma\beta_S D(T_{Si})T_{Si} + \beta\Delta L_i$$
$$- \gamma(c_i L_i + c_i V_i + c_i \text{Central}_i + c_i \text{Province}_i$$
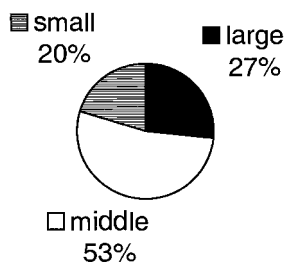$$+ c_i \text{County}_i) + \delta_i > 0\},$$

where δ_i is the combined error term, which still follows a normal distribution with standard deviation proportional to the size of the enterprise (indexed by the size of employment).

122 Privatized or Liquidated Enterprises
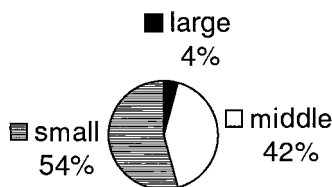
559 Remaining State Enterprises

Fig. 8.2   The sample distribution

8.4   Results of the Empirical Test

Among the 681 sample enterprises, 122 were either privatized or liqui-
dated at any time between 1995 and 2000. The rest remained SOEs (see fig.
8.2 for details). Comparing the two groups of sample enterprises, one ma-
jor difference is size. Among those privatized or liquidated, about 4 percent
were large enterprises, while 27 percent of those remaining SOEs were
large enterprises. This is consistent with the government policies of "let go
the small and medium and grab tight the large," which has been imple-
mented since the early 1990s with regard to SOE reform. Our test takes this
into account.

Table 8.1 lists the summary statistics of the independent variables. Sev-

Table 8.1   **Summary Statistics of Regression Sample**

	Mean	SD
Privatized or liquidated enterprises		
Difference in rate of return on assets with/without privatization	0.07	0.28
Labor productivity improvement by cutting surplus labor	0.54	0.57
Difference in total employment with/without privatization	−234	1,049
Total assets used in unprofitable production	583.50	2871.40
Delayed loan and interest payment	133.14	365.49
(Index of the burden of subsidies) * (delayed loan and interest payment)	318.78	854.64
Profit loss	75.90	105.65
(Index of the burden of subsidies) * (profit loss)	130.59	236.06
Total employment, preprivatization	822	1,039
Total output, preprivatization	1,781.66	3600.84
Net fixed asset, preprivatization	913.76	1438.90
No. of observations	122	
Remaining state enterprises		
Difference in rate of return on assets with/without privatization	−0.07	0.26
Labor productivity improvement by cutting surplus labor	1.56	11.35
Difference in total employment with/without privatization	−641	1,192
Total assets used in unprofitable production	1,076.39	3,474.93
Delayed loan and interest payment	241.90	1,006.94
(Index of the burden of subsidies) * (delayed loan and interest payment)	450.10	1,904.59
Profit loss	96.66	261.81
(Index of the burden of subsidies) * (profit loss)	146.73	466.08
Total employment	2,214	3,740
Total output	10,633	32217
Net fixed asset	5,363.9	2,230.9
No. of observations	559	

Note: Unit = RMB 10,000 (wherever applicable). SD = standard deviation.

eral patterns are noticeable. Total employment, value of output, and fixed asset value are bigger for an average remaining SOE than for a privatized or liquidated enterprise. Likewise, the same pattern holds for such variables as change of employment, delayed loan payments, and total wage bill of surplus workers. However, the difference in the latter set of variables between the two groups of sample enterprises is proportionately much less than those of the former set of variables. Intuitively, using one of the former sets of variables as the weight, a regression using the latter group of variables should provide predicative powers. This is the statistical essence of the test results, which we explain below.

The estimation results of the probit regressions are given in table 8.2. There are a few consistent findings across the regressions. First, the results show that efficiency, whether measured by increases in the rate of return on assets or by improvements in labor productivity, is not a significant factor in the decision on privatization or liquidation. Second, the variables

Table 8.2   **Heteroskedastic Probit Regressions: The Determinants of State Enterprises' Privatization or Liquidation Decisions**

	Regression 1	Regression 2	Regression 3	Regression 4
Difference in rate of return on assets with/without privatization	−222.20*** (1.64)	−222.20***	−222.22*** (1.45)	−222.22***
Labor productivity improvement by cutting surplus labor		0.95 (0.19)		1.34 (0.26)
Difference in total employment with/without privatization	1.37*** (4.38)	1.42*** (4.56)	1.32*** (4.18)	1.28*** (4.05)
Corporatization-reform dummy	0.11 (0.69)	0.12 (0.75)	0.11 (0.69)	0.13 (0.79)
Mining and utility industry	0.04 (0.21)	−0.03 (−0.13)	0.08 (0.35)	0.02 (0.08)
Light manufacturing industry	0.24 (1.32)	0.22 (1.27)	0.27 (1.45)	0.27 (1.46)
Chemical industry	−0.22 (−1.04)	−0.25 (−1.18)	−0.24 (−1.09)	−0.24 (−1.11)
Heavy manufacturing industry	0.01 (0.07)	−0.006 (−0.03)	0.05 (0.29)	0.06 (0.35)
Enterprise-size dummy	0.30*** (2.58)	0.33*** (2.77)	0.33*** (2.79)	0.36*** (3.01)
Total assets used in unprofitable production	0.11* (1.86)	0.12** (1.98)	0.05 (0.81)	0.04 (0.65)
Delayed loan and interest payment	−0.47 (−1.35)	−0.48 (−1.37)		
(Index of the burden of subsidies) · (delayed loan and interest payment)	0.35** (2.26)	0.35** (2.29)		
Profit loss			−0.82 (−0.79)	−0.37 (−0.39)
(Index of the burden of subsidies) · (profit loss)			0.93* (1.88)	0.86* (1.78)
Total employment, preprivatization	−0.37** (−2.15)	−0.29* (−1.73)	−0.39** (−2.22)	−0.38** (−2.15)
Total output, preprivatization	−0.16*** (−4.38)	−0.18*** (−4.81)	−0.15*** (−4.02)	−0.16*** (−4.25)
Net fixed asset, preprivatization	−0.34* (−1.81)	−0.31* (−1.73)	−0.39** (−2.03)	−0.39** (−2.05)
Central-government dummy	−67.10 (−0.27)	−88.27 (−0.36)	−74.77 (−0.31)	−72.05 (−0.30)
Province-government dummy	−328.55** (−2.14)	−318.44** (−2.14)	−370.02** (−2.43)	−364.83** (−2.47)
City-government dummy	−58.80 (−0.58)	−70.83 (−0.70)	−84.57 (−0.84)	−93.26 (−0.93)
Constant	417.09*** (3.91)	400.32*** (3.75)	443.86*** (4.21)	429.15*** (4.07)
No. of observations	652	657	652	651
R^2	0.2889	0.2864	0.2842	0.2824

Notes: Dependent variable = 1 if privatized or liquidated, 0 otherwise. We assume the standard deviation of the error term is proportional to size of employment. Z-ratios are in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 8.3   **Increases in the Probability of Privatization or Liquidation Due to Increments in Independent Variables**

	Regression 1	Regression 2	Regression 3	Regression 4
Difference in total employment with/ without privatization	0.6127	0.5901	0.5962	0.5732
Enterprise-size dummy (from large to small or medium)	0.0002	0.0001	0.00005	0.00005
Total assets used on unprofitable production	0.0827	0.1042		
(Index of the burden of subsidies) · (delayed loan and interest payment)	0.0555	0.0340	0.0493	0.0405
Total employment, preprivatization	–0.0663	–0.0441	–0.0758	–0.0610
Total production value, preprivatization	–0.0681	–0.0466	–0.0774	–0.0621
Net fixed assets, preprivatization	–0.0681	–0.0466	–0.0774	–0.0621
Province-government dummy (from having a nonprovincial to a provincial supervising government agency)	–0.0388	–0.0275	–0.0475	–0.0391

Notes: Probability change under standard normal distribution assumption. Omitted are those independent variables which are not statistically significant. Except for the dummy variables, the amount of increase in all independent variables is 1 standard deviation of the variable.

measuring changes in available cash flow for the government and workers are mostly positive and statistically significant, supporting the hypothesis that the privatization or liquidation decision is driven by increasing government revenue. Third, although the total delayed loan plus interest payment is not statistically significant, it becomes significant when multiplied by the index of the burden of financial subsidies, which is zero if the enterprise obtained no help from the government in dealing with loan payment and 4 if it received the most important help from the government. In other words, the accumulated dept per se is not a cause pushing for privatization or liquidation. But when a high level of bad debt becomes a major financial burden to the government, it is effective in inducing the privatization or liquidation decisions of the government. Finally, the regressions show that the larger the unemployment associated with privatization or liquidation, the less likely the government will be to dump the SOE, as the coefficients on the unemployment term are negative and statistically significant.

How economically significant are the variables in affecting the decision of privatization or liquidation? Table 8.3 calculates the increases in the probability of privatization or liquidation due an increase in those statistically significant variables. It shows that a 1-standard-deviation increase in layoff due to privatization or liquidation decreases the probability of privatization or liquidation by 57 to 61 percent. A similar change in total assets used in unprofitable production increases the probability by 8 to 10 percent. Similar changes in delayed loan and interest payment multiplied

by the index of the burden of subsidies increases the probability by 3 to 5 percent.

8.5   Concluding Remarks

The enormous amount of literature on privatization has mostly focused on the question of whether and how governments should privatize SOEs as well as on the impact of existing privatization programs. We argue that an equally important question is why governments in reality (do not) choose to dump SOEs through privatization or liquidation. The lack of research on this question leaves us with three general theories, explaining that governments dump SOEs in order to maximize economic efficiency, government revenue, and political benefits.

Utilizing panel data from China, in which some SOEs were dumped and others remained state owned, we are able to test the efficiency and revenue theories of why governments privatize or liquidate SOEs. The tests reject the efficiency theory and provide support for the revenue theory. In addition, the findings reveal that the motive of getting rid of the financial burden of subsidizing poorly performing SOEs is important. Moreover, we find that avoiding unemployment and losing the government's political benefits of control of SOEs are important considerations preventing privatization or liquidation decisions.

On privatization issues, economists tend to propose the first-best programs, aiming at maximizing social efficiency. However, the findings in the paper show that, in reality, the key decision maker, the government, takes revenue maximization as an objective and is concerned with unemployment. First-best programs are often blocked by the government. Therefore, in order for a privatization program to be feasible, it might be sensible to advocate second-best programs of privatization or liquidation that take government concerns into account while enhancing social efficiency.

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Comment   Deunden Nikomborirak

This paper tries to explain the underlying governments' motivation in privatizing public enterprises by using empirical data from over 600 SOEs, about 120 of which "disappeared" during the 1994–2000 period. The conclusion is that governments privatize SOEs mainly to generate revenue rather than to promote efficiency and that the government is particularly concerned about the loss of political benefits associated with public enterprises. While I find the attempt to conduct empirical tests on government motivation for privatization interesting, the lack of sufficient data on post-privatization enterprises renders the empirical support for said conclusions quite weak.

First, one must be careful in trying to form conclusions with regard to *ex ante* motivation by using *ex post* data. Motivations are based on expected rather than actual results. Second, the classification of privatized enterprises on the basis of state equity shares may not be appropriate. According to the authors, privatized enterprises include state enterprises that are liquidated, bankrupt, or sold to private individuals. It is not certain, however, whether the selling of state enterprises always translates into transfer of corporate control to the private sector. For example, if the government retains a minority share, does that mean that the privatized entity functions completely like a private enterprise? If not, we cannot expect the privatized entity to operate any differently simply from the partial transfer of

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state equity ownership to the private sector. Third, proxies used to capture the three different motives for privatization—namely, efficiency, revenue generation, and political benefits—have several flaws, as will be elaborated below.

The use of financial performance (i.e., gross rate of return) as a proxy for efficiency may not be appropriate if the market is not competitive such that higher profit does not mean lower cost. It is also possible that the privatized state enterprises lose their privileges so that, while they may become more efficient, their profit levels fall as a result of greater competition. Due to the lack of information on the privatized enterprises, the paper assumes that the ex-SOEs' level of efficiency matches those of competing private companies. This is quite a strong assumption given that former SOEs may retain some of their former privileges or corporate practices.

The paper also tries to estimate the change in the size of cash flow as a proxy for the revenue-generation motive. Again, due to the absence of data on privatized companies, the authors assume that extra revenue is generated from the one-time sale of the loss-generating portion of the business, which is estimated by the percentage of output associated with losses. For example, if 20 percent of the output constitutes the loss-generating portion, it is assumed that 20 percent of the asset will be sold off. The additional revenue, then, is generated by the perpetual flow of interest earnings from the asset sale. I find this method of estimating additional cash flow rather crude. First, for firms that produce many products or services, it is almost impossible to determine which products or services generate losses. Second, assuming that assets can be divided up in proportion to output is unrealistic. Finally, asset valuation is one of the most difficult processes. Thus, one should avoid using asset values as proxies unless a very thorough method of asset evaluation is undertaken.

Besides the sale of assets, the authors assume that there are unobserved flows of additional revenues generated from privatization that are proportional to the remaining assets. The proportion depends on the observed attributes of the enterprise, such as the industry to which it belongs and how much reform has been implemented before. These are extremely vague proxies and there are no clear explanations of how these variables add to the additional flow of revenue.

Another variable that represents the revenue motivation is the reduction in government subsidies. Two proxies were used: One is the average actual subsidy during 1992–1994, which is valid; the other is the accumulated bank loan and interest payment, which is supposed to reflect the level of financial burden of the government. The latter is multiplied by an "index of burden to the government." This index takes the value of zero if the manager of the particular SOE claims that the enterprise does not receive assistance from the government in case of delayed payments of loan, and a value of 4 if the

manager claims that government financial assistance is readily available. I find this method of estimating government perceived financial burden rather arbitrary and subjective, undermining the validity of statistical results.

Finally, the proxies used for the political benefits associated with an SOE include the size of employment, total value of fixed assets, and level of supervising government agency. While regression results show that these variables are statistically significant, it is not certain that the chosen variables necessarily contribute to political benefits. For example, the fact that large SOEs are less likely to be privatized may be because of the more complicated nature of the privatization, the limited size of the capital market, or the government's unwillingness to generate large-scale unemployment, rather than the loss of political benefits.

The final point I would like to comment on is the lack of time dimension. All variables are estimated and compared on a per-period basis, while in reality government needs and demands are more immediate, due to future uncertainties and various short-run constraints. In fact, short-sightedness has been quoted as one of the reasons governments are likely to forgo potential long-term efficiency gains that are uncertain and dispersed, while favoring immediate financial gains from sales of SOEs by ensuring that the privatized SOEs maintain privileges that they used to enjoy.

Comment   Yun-Wing Sung

The authors of the article have a unique data set covering Chinese SOEs throughout twenty years of the reform era (1980–1999). The data are used to test two theories of privatization: whether governments privatize to enhance enterprise efficiency (efficiency theory) or to increase government revenue (revenue theory). The test rejects the efficiency theory and supports the revenue theory. The authors have used a unique data set to address the *positive* question, "Why do governments privatize?" It is a very valuable contribution to the literature.

The authors distinguish between enterprise efficiency and government revenue enhancement, which are quite different. However, the authors do not distinguish between enterprise efficiency and social efficiency, which also can be quite different, especially under the conditions in China. For instance, given arbitrary prices, which were quite prevalent in China in the 1980s, an enterprise suffering losses nevertheless may be socially efficient. The losses may be due to artificially inflated prices of input, or depressed

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prices of output. In such a case, closing down the enterprise may lead to a loss of social welfare.

For the purpose of the paper, enterprise efficiency is the appropriate concept to use. As the authors have correctly argued, gains in enterprise efficiency are reflected in increase in rates of return to total assets after privatization. Unfortunately, the authors have a tendency to use the concepts of "enterprise efficiency" and "social efficiency" interchangeably. For instance, in their discussion on the measurement of "efficiency gain, which should refer to gains in enterprise efficiency, the authors argued that "Cutting a surplus worker does increase *social efficiency* [italics added], as captured by Δe_i." Cutting a surplus worker will increase enterprise efficiency. Whether it increases social efficiency is quite uncertain. If the worker remains unemployed after layoff, there is no change in social efficiency.

In the concluding section of the paper, the authors again refer to social efficiency. They seemed to have assumed that gains in enterprise efficiency would automatically lead to gains in social efficiency. The authors should have distinguished between the two concepts and spelled out the conditions under which gains in enterprise efficiency would lead to gains in social efficiency.