

**Soft Budget Constraint and Productivity
of Chinese State Enterprises
(preliminary)**

Sarah Yueting Tong
Hong Kong Institute of Economics and Business Strategies
University of Hong Kong
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Section one. Introduction

When the financial performance of an enterprise deteriorates then typically it will experience a reduction of internal funds available to finance operations or investment but also find it harder to raise external finance. Providers of both loan or external equity funds will regard the enterprise as more risky and will tend to reduce or even eliminate the amounts they are prepared to provide. However, if the state is prepared to some degree to alleviate these problems by supplying funds which would not otherwise have been available then the enterprise faces a soft budget constraint.

Soft budget constraint is considered common phenomena in socialist economy. It is general believed that soft budget constraint result in inefficient operation. One central issue during the economic reform is to transform state firms from production units under state planning to self functioning market identity. It is important to study how effective various reforms measures aiming at tightening state firms' budget constraint and improving their low productivity have been. Many believe that soft budget constraint is ultimately caused by public ownership and the paternalistic role of the state and thus will likely be carried over to the transitional economy. There are a fair amount of study concerning soft budget constraint in socialist economies. However, most of them have been done from a theoretic stand, very few involve any empirical evidence. This is one motivation for the present study.

Reform of nearly two decades has moved China away from a typical planning economy toward a market system. During the transition, the share of state sector has been shrinking relative to total economy. Nevertheless, unlike many counterparts in other traditional socialist economies, the productivity of China's state-owned enterprises have improved significantly . The question became, is the budget constraint tighter or the same, and what effect has the change brought about. This is another motivation for the project.

The data I used in this study come from surveys conducted by Institute of Economics, Chinese Academy of Social Science (CASS). Annual data for 1980-1989 for 769 enterprises give details for the firms' operation, at the same time, some answers to the qualitative questions given by managers indicate firms' operating environment. There are 769 valid responses which cover 39 two-digit industries. The sub-sample I used in this study includes 6 six industries which have relatively large sample size.

Section Two. Literature Review

The soft budget constraint (SBC) refers to the phenomenon that a firm expects to survive in the future when it is financially insolvent. This phenomenon appears in mixed economies and it is conspicuously apparent in socialist systems. It is usually associated with the paternalistic role of the state towards economic organizations, especially towards the state-owned enterprises. As Evan Kraft put it, "soft-finance results ultimately from government action", and "that the constraint is not intrinsic to the firm, but rather intrinsic to the financial and legal systems". David Li also said that public ownership is a sufficient condition for the soft budget constraint. He showed that under public ownership of capital, the firm retains its control right regarding the disposition of the capital. The ex post termination decision of the firm's investment project is socially inefficient. It suggests that so long as the financial loss is not as big as the potential loss of human capital due to the termination of the firm, the firm should survive. This gives rise to the soft budget constraint. However, the soft budget constraint is ex ante inefficient while the "hard" budget constraint can be efficient, which is the only way to discourage the firm from proposing bad projects.

Soft budget constraint has many interrelated consequences. Janos Kornai argued that the soft budget constraint is the fundamental source of shortages in socialist economies, and he further surveyed three main consequences of soft budget constraint. First, the softness of the budget constraint decreases the elasticity of demand of all

alternative inputs, of all factors; the general price responsiveness of the firm declines. Second, soft budget constraint has a great impact on efficiency, since allocative efficiency cannot be achieved when input-output combinations do not adjust to price signals. "The price mechanism loses much of its significance in the reallocation of resources". The third consequence of the soft budget constraint syndrome may appear in the formation of excess demand. Qian further showed that when firms face soft budget constraint, if a consumer good is also demanded by firms as an input, and the seller cannot separate firms from household, shortages result. David Li similarly concludes that public ownership of capital causes excessive demand for investment in socialist economies. Evan Kraft also asserts that the enterprise investment is autonomous; consequently, the level of credit taken on by the firms is determined by, rather than the determinant of, the level of investment. Bajt argued, however, that soft budget constraint is irrelevant in explaining excess demand; and it is the "excess of budget flexibility over price flexibility" that indicates direction in which softness of the budget constraint and with it demand expansion and shortage is likely to develop in the future". Begg and Portes also pointed out that "the normal process of exit in a market economy been suspended, entry is impeded by the disproportionate share of bank credit being allocated as refinancing of incumbents. This could crown out emerging private sector to small-scale activities."

The concept of soft budget constraint was first introduced by Janos Kornai. He argued that in socialist economies the financial constraint on the enterprise is ex ante "soft". In other words, when making economic decisions the socialist firm is not concerned with negative profit in the future, since it can expect to get financial subsidies in the future in case of economic failure. He later clarifies further that "the budget constraint is not a book-keeping identity nor a technical relation, but a rational planning postulate. Two important properties must be underlined. First, the budget constraint refers to a behavioral characteristic of the decision-maker: he is used to cover his expenses from the income generated by selling his output and/or by earning return on his assets. Therefore,

he adjusts his expenditures to his financial resources. Second, the budget constraint is a constraint on ex ante variables and first of all on demand; it is based on expectations concerning his future financial situation when the actual expenditure will occur". "The softening of the budget constraint appears when the strict relationship between expenditure and earnings has been relaxed, because excess expenditure over earnings will be paid by some other institution, typically by the state. A further condition of softening is that the decision-making expects such external financial assistance with high probability and the probability is firmly built into his behavior." He also classified various ways and means to soften the budget constraint of the firms into four categories as soft subsidies, soft taxation, soft credit, and soft administrative prices.

During the past decades, nearly all socialist countries have been undergoing dramatic economic reforms, with state enterprise reform at its center stage. Studies involving soft budget constraint in transitional economy are trying to answer basic questions: first, what impacts have the various reforms had soft budget constraint faced by the state-firms; second, what need to be done or should be done in this concern.

Some have suggested that because large scale privatization is difficult in practice at present, market socialism could be the solution. Bardhan and Roemer argue that public or state ownership, need not to be "negated to achieve a successful economic system". They outlined a feasible economic mechanism of "competitive socialism" in which "there would be competitive politics and competitive allocation of most commodities and resources -- but in a major part of the economy public ownership of the principal means of production would be maintained", and claimed that "competitive markets are necessary to achieve an efficient and vigorous economy, but that pervasive private ownership is not necessary for the successful operation of competition and markets." However, Sachs, on the basis of his recent experience in Poland, has claimed that market socialism involving "liberalization without privatization" is particularly pernicious, because it gives the

managers and workers of a public firm autonomy without responsibility, and this often leads to their joint cannibalization of the firm's assets. Bardhan and Roemer argued that this only means that the key incentive and agency problems in the management of a public firm have to be addressed. They claim that privatization is not the only or even the better way of handling those problems. They further suggested that, although capital market discipline is difficult to reproduce without private ownership, the agency problem for public firms could still be solved by reproducing the managerial labor market (both within and outside the firm).

On the contrary, Michael Keren claims that market socialism is (at least) as inefficient as the centralized model and therefore creates political pressures for central intervention, and that it is this central intervention which per force turns the “market socialism” into something very similar to the Soviet-type economy. The commitment to social ownership of capital, in effect, is a commitment to an exclusion. It excludes the private sector from the ownership of productive resources and, in effect, removes productive firms from the jurisdiction of the capital market. It puts the firm under the control of a public hierarchy. The bureaucratic hierarchy can not simulate the capital market, and will necessarily lead to soft budget constraint, moreover, entry and investment decisions are impossible to decentralize. Qian also suggested that "financial discipline together with the corresponding institutional changes is needed at the time of price liberalization". "Price liberalization without hardening the budget constraint of the firms may induce adverse welfare consequences."

Some people, such as Daniel Hardy have shown that soft budget constraint will likely to be carried on to transitional economy since governments are unable to credibly threaten not to bail out loss makers (concerning the costly unemployment problem). He also suggested that the institution of a suitable social safety net can strengthen commitment to a hard budget constraint. Mark Schaffer has made a similar argument. He

showed that under perfect information the center cannot prevent itself from rescuing the enterprise with additional resources or a lower output target. However, under imperfect information, by acquiring a reputation for toughness, the center can credibly threaten not to bail out the enterprise. Similar argument was also made by K. Staehr. He also suggested that one reason that the soft budget constraint of the socialist economy might be carried into the transition economy is the government's concern for employment. Two ways to remedy the problems of the soft budget constraint have been proposed in the study. The government might be able to commit its subsidy policy to a rule. In this case the government will still pay subsidies, but it will also manage to increase average employment. This kind of commitment might require some kind of external pressure for it to be credible. Another option is to proceed with the privatization of the firms.

Section III. How Soft is the Budget Constraint in China

As in other socialist countries, Chinese state enterprises accounted for the majority of the total economy. Before 1978, state firms operated like production units of a unified national economy. They produced according to the production plan given from their supervisory industrial bureaus. The inputs needed for production were provided by government agencies according to the production plan, and the output was sold to the government, all at the state fixed prices. Practically, these firms were not separate business units and thus did not have a budget constraint. Since 1978, a series of measures have been adopted to restructure the economy. The poorly performed state sector is a major target of the reform. Unlike some other socialist economies in transition, China's economic reform in industry has been focusing more on decentralization and granting operation autonomy than privatization. Various reform measures throughout the 1980's have led to the majority of prices becoming market determined, with the central planning activities of the government becoming largely indicative. Most state-owned enterprises have been given a substantial degree of autonomy at least in relation to production activities

including input purchase, production arrangement, and output marketing. Various contract arrangements have been introduced to establish powerful incentives for managers to generate strong financial performance. At the same time, firms remain state-owned and the state agencies kept control over all external financing of enterprises, be this in the form of bank loans or state grants and subsidies, and the state has also tight control over firms' investment decisions. In the middle of 1980's, a bankruptcy law was also introduced by which, theoretically, financially insolvent enterprises could be closed down. All the above measures were aimed at creating a tighter budget constraint on the state firms.

It is shown in comparison with the pre-reform era, the productivity of state-owned enterprises increased substantially during the 1980's. However, institutional changes would not guarantee a tight budget constraint. The effectiveness of budget constraint is to a large extent depend on how the government authorities operate viz-a-viz ailing enterprises within the reform environment. For example, the bankruptcy law has to date largely failed to be effective. Although there are a substantial portion of state-owned enterprises which are persistently making loss, very few firms have actually been closed down.

One fundamental reason for the continuing existence of soft budget constraint lies in the political and social considerations. Since the state retains ownership of enterprise as the representative of the population as a whole then it may commit itself to maintain and ensure production and employment. Typically, China's state enterprises provide not only employment but a wide range of other services and facilities to its employees, including housing, educational and medical services. With no established alternative system for providing basic living standards and social services, the consequences for the employees of an enterprise if the latter were closed down would be extremely grave.

Another factor is that economic power in China is, within the structure of state control, highly decentralized. Very few enterprises are controlled directly by central agencies of the state, most are controlled locally, by provincial, city or county authorities.

Local authorities are believed to have great influence on the allocation of available financial resources. At the same time, they have incentive to promote and maintain good financial performance for the enterprise which they control because of the extra resources, over and above those remitted to the center.

It is the interplay of the remnants of the traditional centralized planning system, the economic reforms affecting enterprise behavior and control, the highly decentralized political power structure in China and the social and economic responsibilities of state-owned enterprises which determine the extent of the soft budget constraint in China.

In a study done in 1993, Derek Morris and Shaojia Liu analyze the fund flow of firms with different profitability. What they found is that, soft budget constraint is very common for state enterprises. The worse firms' performance, the more government subsidies they received. However, budget constraint in general have been significantly tightened. State funding as a share in enterprise operation was greatly reduced. One conclusion they draw from the study is that soft budget constraint has not in general worsen firms' performance, on the fact that firms usually return profitable after receiving government for making loss.

Soft budget constraint is general referred to an environment in which enterprise operate. However, during the economic transition, firms may under different operation arrangement and, based on their past experience, form different expectation. One question I examined in the survey asked what loan payment scheme was specified in the contract. The three choices are pretax loan payment, after-tax loan payment, or the combination of the two. The answer to the question could be an indication of a firm's budget constraint. The reason is, if pretax loan payment is used, the firm could appear low profit or making loss due to pre-tax loan payment and thus avoid paying tax or even get government subsidy. Conversely, if the firm has to pay tax before paying the loan, they would have to work harder since a higher loan outstanding will put them in a less advantageous position

in future operation. As we could see from the Table 1, among the valid responses, about half of the firms are in the category of pre-tax loan payment. There is little variation across the six major industries studied in the paper. However, the number of firms in after-tax loan payment arrangement vary across industries.

The question I just reviewed could be seen as a ex ante indication of the softness of budget constraint. Another variable I looked at is an ex post soft budget constraint indication. The question asked, "since 1985, when you had trouble repaying loans, how important is the help from your superiors?" Answers 1 through 5 range from "very important" to "absolutely no help". Seen from Table 2, all valid responses are divided somewhat equally into three groups. The first third indicated that government help is rather important in helping them with loan payment, the second third felt government did help somewhat, but not very important, and the last group showed no or very little help was provided. A follow-up question then asked as to what kind of help was provided by the firms' supervisory government agency. Here, about 80% of all firms reported received government help of some sort. The three major forms of help are loan extension; new loans to pay back old loans; and allowing for pre-tax loan payment. In industries where a higher portion of firms are in after-tax loan payment arrangement, a higher portion of firms are allow to pay loans before paying taxes.

Another aspect of soft budget constraint I looked at concerns the dual-price arrangement. The more a firm purchase at state fixed price, the more indirect state subsidies the firm obtained. The question asked what is the fraction of firm investment made on the state fixed price for the years of 1984 to 1989. For all 769 firms, the mean fraction of firm investment made on the state planning price decreases from 58.59% in 1984 to 28.33% in 1989, a drop of more than one half. However, significant deviations exist across industries, indicating firms operate under different environment. Electronics and machinery have incurred the fastest decrease while textile has the slowest.

After examining the input side of firms' operation, we can also check how important the government has been in deciding firms' production plan. One question asked the portion of output under government compulsory planning in total output. Between 1984 and 1989, the fraction decreased from 63.5% to 56.4%, a much smaller change compared to the change in input side. This indicates that firms have to purchase various input more and more on market price but still have to fulfill government production plan, many firms will operate at low profit or even running losses. Answers to another show half of the firms name "government planning" as an important or very important reason in firms' loss making operation. One interesting thing is that although the portion of production by planning in total production has not changed much over the later part of the 1980s, the majority of firm managers feel they played important role in bargaining with the government supervisors about the planned production.

From the above review, a few conclusions can be drawn. First, many reform measures which are aiming at tightening the budget constraint of state owned enterprises have been adopted. However, soft budget constraint is still a prevailing phenomena among state firms. Second, even when various reform arrangements are specifically written in the contract, its effectiveness is still questionable. In many cases, government or government banks tend to help out the troubled firms rather than fail them. Third, while firms have to face the market price more and more, as well as the competition from non-state enterprises, government planning still accounts for the major part of firms' production. This is in fact a primary reason for many firms' loss making operation.

Section Four. How soft budget constraint affects performance

As we have seen from the previous section that state-enterprises in China are facing a rather soft budget constraint. This is consistent with what many would expect for a transitional economy. The next question posted is how the difference in the softness budget constraint affect the firm's behavior and performance.

Although there is a quite large amount of literature concerning soft budget constraint in planning or transitional economy, very little of it have incorporated any empirical study. Several factors attribute to the difficulty associated with empirical work. First, many believe that soft budget constraint indicates an environment in which firms operate, there should not be any deviation among firms in terms of the softness of their budget constraint. If that is the case, it is hard to isolate and study the effect of soft budget constraint. I agree that overall economic environment is crucial in forming firms' expectation. But more important, I think during the economic reform or transition, various institutional arrangements as well as firms' past experience are also very important. If we can identify and study the effects of these individual factors, we might gain some insight about soft budget constraints and their effect. The second difficulty arises when we search for independent indicators of soft budget constraint. Accounting data about government subsidies a firm obtained are ambiguous. It could indicating the softness of budget constraint for its expectation effect, it could also be a consequence of poor performance.

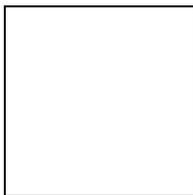
In formulating my analytical model, I choose variables that would as much avoid the above problems. Per employee output value in constant price relative to the industry average (for year 1985-1989) are used as firms' performance indicator, or dependent variables. Both the level and the change are used in estimation. One reason that I used productivity is that productivity of state owned enterprises have been shown to have improved substantially during the 1980s. The introduction of various incentive structures have proved to be important in the process. It would be interesting to see what role have the soft budget constraint or the tightening of the budget constraint has played in productivity change. Another consideration is that it is not unusual that profit maximization is not taken as the sole or prime goal for the managers of state-owned enterprises. Total output and its value, per capita output, and so on could also be important goals of firms' operation. The table below summarizes the first and second quota specified in the contract. More than a quarter of all valid responses show that production is the

number one goal in the contract. Another 30% of the responses show quota concerning output production is the number two goal. Other operational goals are also important in fulfilling contract. Finally, productivity is less likely to cause ambiguity in this study.

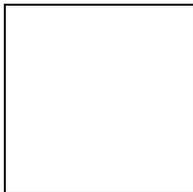
It is apparent that many factors attribute to the productivity changes. As mentioned above, various incentive structures introduced during the reform have played a very important role. In a sense, the tightening the budget constraint could be thought of as another aspect of incentive reform. In this study, however, I will confine the analysis to the budget constraint. Other variables which might be important in explaining productivity changes, such as firm autonomy, profit retention rate, wage structure, will not be introduced into the model. Two explaining variables are used in the model as indicators of soft budget constraint. The first is the loan payment arrangement specified in the contract. As explained earlier, the presence of a pretax loan payment scheme indicates ex ante (relative) soft budget constraint. The second is the importance of government help managers felt when firm had trouble repaying the loans. The variable take the value one if manager thought government help were important or very important, and zero otherwise.

Three models are estimated for each of the six industries.

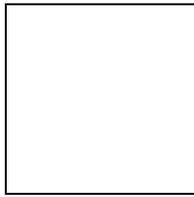
Model one:



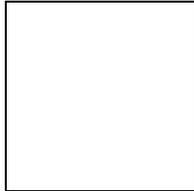
Model two:



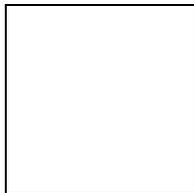
Model three:



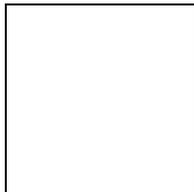
Where



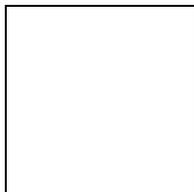
per employee output in constant price relative to industry average of firm i at year t.



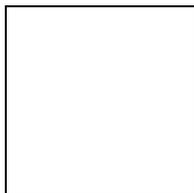
Pretax loan payment arrangement for firm i.



government help important when running into trouble repaying loans for firm i.



firm size relative to industry average of firm i at year t.



The results of estimating the three models are summarized in the three tables. The first thing we notice is that all three models are not significant in explaining productivity variation in chemical industry. For the remaining five industries, although most of the coefficients estimated are quite significant, they are not always consistent. Another thing worth mentioning here is that in estimating the three models, the sizes of the firms all have positive coefficient, and in most cases, significant. However, I did not report

the coefficient on the size variables in order to focus the results on the soft budget constraint study.

In model one, variables indicate both ex ante and ex post soft budget constraints are used. An interaction term of the above two is also introduced because joint effect may not be the simply sum of the individual effects. From the first two rows, we could see that all coefficients on pretax loan payment arrangement (X1) are positive except that of building material. Among the remaining four, three are significant at 99% level. The next two row shows that the estimated coefficients on important government help (X2) are significantly positive for all five industries. Lastly, the coefficients on the interaction term are negative and relatively large in magnitude compared to the first two, four out of five are significant. There are a few conclusions we could possibly draw from the model. (1) In absence of the relatively softer budget constraint arrangement, the ex post government assistance in firm's survival from financial distress in fact helps improve firms performance. (2) If a firm is under a relatively softer budget constraint arrangement but do not get much government help ex post, this arrangement in general do not worsen firms performance. (3) However, when a firm is under a relatively softer budget constraint arrangement and getting important help from government ex post, significant negative effects arises. The joint effect of the two are far less than the sum of the two individual factors, and in some cases, they nearly canceled out each other.

In the second model, the interaction term is dropped to see how sensitive the data are to the specification. The results for the last three columns are consistent with the previous model, although the magnitude and significance of the coefficients differs. In building material and chemical, it seems like the pretax loan payment arrangement has significant negative impact on firms' performance, with or without the government ex post financial assistance. In both cases, the coefficients on ex post government help are

significantly positive. Model one also showed that coefficients on the interaction term for these two industries are not significantly different from zero.

During the economic reform, state-owned enterprises are experiencing the transformation from government production units to functioning business entity, while at the same time, the direct government planning is gradually replaced by market system. What we learned from the first two models is that the relative softness or softener of firms' budget constraint do not provide negative impact on performance per se. Relatively softer budget constraint arrangement alone may be helpful in assisting a firm's transformation process. On the other hand, ex post government help in general have positive impact on firms' performance, especially for those that have relatively harder budget constraint arrangement.

However, these conclusions should be taken with caution. It is quite possible that the indicators we used for soft budget constraint are in fact outcome of their performance. For example, it may be the case that well performed firms are more likely to get beneficiary loan payment arrangement or ex post government help. Table 5 summarizes the correlation between the soft budget constraint indicator and firms' relative productivity in 1985. In two industries, building material and chemical, pretax loan payment arrangement are negatively correlated with firms' relative productivity, while ex post government help are positively correlated with firms' relative productivity. For the last three industries, food, machinery and textile, relative productivity are positively correlated with pretax loan payment arrangement but has no significant correlation with ex post government help. This result proved that we should be in careful drawing conclusions from our earlier model. It is possible this model only picked up the correlation, especially for the first two industries.

To tackle this potential misspecification, a third model is estimated. Rather than the relative productivity, the change of firms' relative productivity is used as dependent

variable. The same two independent variables are also used. The results are not uniformly consistent with the earlier ones, but do not in general contradict the former. For the ex post government help, the coefficients for three industries are significantly positive, only that for building material changes to negative. For ex ante loan payment arrangement, the coefficients for two industries are significantly positive, that for textile is negative.

Section Five. Conclusion

Nearly two decades of economic reform has move China from a traditional central planning system toward a market economy. During this gradual process, state-owned enterprises, although remain in the state's hand, are facing increasing market discipline as well as competition from other sectors. However, since there have not been substantial privatization, soft budget constraint are still a prevailing phenomena among Chinese state enterprises. Nonetheless, the magnitude has significantly decreased.

What we learned from this study is that, during the transition, relatively softer budget constraint do not necessarily have negative impact on firms productivity improvement. When bankruptcy is not a practical option, ex post government help could prove have a positive effect. This result have provided some evidence against the general impression that soft budget constraint will always cause inefficient behavior. However, the conclusion should not be taken without caution. The model estimated could be spurious. When changes of firms' relative productivity is used in the model rather than levels, the results is less significant but however do not contradict the earlier ones.

So, this study does provide some evidence that during economic transition, the budget constraints of state-owned enterprises are far from tight. However, relative soft budget constraint does not necessarily result in inefficient behavior. Given that there exist strong incentive structures, market disciplines, and competitions from non-state sectors,

ex ante softer budget constraint or ex post government help may prove to be helpful improving firms' performance.

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Table 1: Ex ante loan payment arrangement

	NA	Pretax payment	Pre-tax & after-tax loan payment	After-tax loan	Number of firms
All firms	26.4%	54.4%	22.6%	23.0%	769
Building material	28.8%	48.6%	16.2%	35.1%	52
Chemical	32.9%	68.4%	22.8%	8.8%	85
Electronics	11.4%	51.3%	23.1%	25.6%	44
food	16.2%	58.6%	24.1%	17.2%	37
Machinery	30.4%	51.8%	26.4%	21.8%	158
Textile	16.5%	46.5%	20.9%	32.6%	103

Table 2.1: Importance of ex post government financial help while firm were having trouble repaying loans

	NA	very important	average	not very	absolutely no	Number of firms	
All sample	6.8%	6.0%	28.6%	30.5%	21.1%	13.8%	769
Building material	7.7%	2.1%	35.4%	18.8%	27.1%	16.7%	52
Chemical	11.8%	4.0%	22.7%	37.3%	25.3%	10.7%	85
Electronics	2.3%	2.3%	34.9%	27.9%	23.3%	11.6%	44
Food	10.8%	18.2%	33.3%	36.4%	9.1%	3.0%	37
Machinery	4.4%	6.0%	22.5%	31.8%	22.5%	17.2%	158
Textile	2.9%	6.0%	31.0%	35.0%	18.0%	10.0%	103

Table 2.2: Types of government help received by the firms

	NA	1	2	3	4	5	No.
All sample	18.1%	34.8%	24.1%	1.9%	2.1%	37.1%	769
Building material	19.2%	38.1%	14.3%	0.0%	2.4%	45.2%	52
Chemical	20.0%	42.6%	26.5%	2.9%	4.4%	23.5%	85
Electronics	9.1%	47.5%	20.0%	2.5%	0.0%	30.0%	44
Food	16.2%	38.7%	25.8%	3.2%	3.2%	29.0%	37
Machinery	17.7%	36.2%	25.4%	0.8%	1.5%	36.2%	158
Textile	11.7%	29.7%	24.2%	2.2%	2.2%	41.8%	103

Notes: 1--extension of existing loans, 2--receive new loan to pay back the old ones, 3--financial assistance added to the lending bank, 4--debt reduction, 5--permission to perform pre-tax loan payment.

Table 3: Fraction of investment firms made using planning price

	1984	1985	1986	1987	1988	1989	No.
All sample	58.59	49.57	44.46	36.92	31.41	28.33	769
Building material	40.44	37.10	36.27	27.36	25.11	24.46	24
Chemical	55.39	51.07	44.93	38.57	29.45	27.50	37
Electronics	51.52	47.12	38.38	25.77	17.38	16.61	25
Food	47.16	43.84	38.65	25.63	22.01	21.20	13
Machinery	59.29	53.34	46.35	38.97	31.50	26.66	96
Textile	65.03	60.73	56.09	49.32	43.98	40.05	57

Table 4.1 Fraction of output firms produced under state compulsory planning**Table 4.2 Importance of managers' role in deciding the compulsory production plan for the firms**

	NA	Completely not important	Not important	important	very important	Number of firms
All sample	22.1%	10.3%	26.5%	48.9%	14.2%	769
Building material	26.9%	7.9%	34.2%	42.1%	15.8%	52
Chemical	21.2%	6.0%	23.9%	64.2%	6.0%	85
Electronics	25.0%	15.2%	24.2%	54.5%	6.1%	44
Food	29.7%	0.0%	46.2%	38.5%	15.4%	37
Machinery	22.2%	15.4%	26.0%	44.7%	13.8%	158
Textile	21.4%	4.9%	33.3%	43.2%	18.5%	103

Table 4.3: Managers' first and second goals in fulfilling the contract

Note: 1--quantity, variety, and value of output and output per employee;
 2--profit plus tax;
 3--remitted profit and tax;
 4--profit plus tax per output value, profit plus tax per unit of assets, and profit plus tax per employee;
 5--production cost and working capital return ratio;
 6--loss reduction and loan payment;
 7--foreign currency earning;
 8--other.

Estimation results: Model one

Dependent variable: per employee output value in constant price relative to industry average, 1985-1989

	Building Mat	Chemical	Electronics	Food	Machinery	Textile
Pretax loan	-0.5146	0.0182	0.2415	0.7361	0.5230	0.3507
paymt	[-2.28]**	0.25	1.04	[3.95]***	[7.66]***	[2.58]***
Importance of	0.6988	0.1231	1.6065	0.6204	0.1792	0.2673
government help	[2.72]***	0.98	[5.65]***	[3.03]***	[1.62]*	[1.77]*
Interaction term	-0.5373	-0.1779	-1.9874	-0.9163	-0.5565	-0.4141
	-1.51	-1.11	[-5.08]***	[-3.47]***	[-4.05]***	[-1.84]*
R-square	0.1555	0.0789	0.2602	0.1452	0.1062	0.0296
N	185	275	190	140	531	415

Estimation results: Model two

Dependent variable: per employee output value in constant price relative to industry average, 1985-1989

	Building Mat.	Chemical	Electronics	Food	Machinery	Textile
Pretax loan	-0.7302	-0.0202	-0.4467	0.2739	0.5239	0.2052
paymt	[-4.18]***	-0.32	[-2.23]**	[2.02]**	[7.66]***	[1.85]*
Importance of	0.4242	0.0112	0.5533	0.0778	0.2108	0.0796
government help	[2.33]**	0.15	[2.67]***	0.57	[1.93]**	0.71
R-square	0.1449	0.0746	0.1565	0.0685	0.1021	0.0215
N	185	275	190	140	531	415

Estimation results: Model three

Dependent variable: change in per employee output value in constant price relative to industry average from 1985 to 1989.

	Building Mat.	Chemical	Electronics	Food	Machinery	Textile
Pretax loan	0.2738	0.0922	0.0267	-0.0480	0.1519	-0.1556
paymt	[3.40]***	1.53	0.23	-0.94	[4.63]***	[-1.71]*
Importance of	-0.1514	0.0958	0.2982	0.1521	-0.0591	0.2353
government help	[-1.81]*	1.36	[2.45]**	[3.02]***	-1.61	[2.56]***
R-square	0.1167	0.0157	0.0332	0.1646	0.0402	0.0411
N	185	275	190	140	525	415

Table 5: Correlation between firms' productivity and soft budget constraint indicators.

	Building Material	Chemical	Electronics	Food	Machinery	Textile
corr(pretax_lp, pout85)	-0.251	-0.004	-0.238	0.191	0.156	0.101
corr(ex_post_help,pout85)	0.142	-0.116	0.279	-0.002	-0.067	0.035
corr(pretax_lp,ex_post_help)	0.188	-0.039	0.055	-0.033	0.210	-0.055