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**STATE ENTERPRISE REFORM AND MACRO-ECONOMIC
STABILITY IN TRANSITION ECONOMIES**

by Frances C. Perkins
(Research School of Pacific and Asian Studies,
Australian National University, Canberra, Australia)
and Martin Raiser
December 1994



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I. INTRODUCTION:^{*}

Comparative studies of transition processes in China and Central and Eastern Europe have so far focussed mainly on the striking differences in macro-economic performances between the two regions (Table 1). Arguably such a comparison has only limited policy implications, as counterfactual analyses that would prove the overall superiority of one reform strategy over another (e.g. Naughton, 1993; Jefferson and Rawski, 1992; 1994) must be conducted in abstraction from diverging initial conditions and exogenous factors (Sachs and Woo, 1994; Raiser, 1994b). Nevertheless, some areas of policy interest in transition economies lend themselves readily to a comparative analysis that is less subject to the variability of factors outside direct policy control. This paper is motivated by the attempt to focus on one such area, namely the reform of state owned enterprises (SOEs) in the industrial sector, and establish a link to macro-economic performance indicators in formerly centrally planned economies (FCPEs). The strength of this link will crucially depend on the size of the industrial sector in the economy and on the share of industrial output produced by SOEs. Nonetheless, if the causality can be established, policy conclusions with respect to SOE reforms will have macro-economic repercussions at least in relative terms. The advantage is that the conclusions are specific in contrast to the generality of arguments in favour of "gradual or shock therapies".

Industrial SOEs arguably were the core of the socialist development strategy pursued in all FCPEs. These strategies may have differed in the scale, the coverage and the duration of the planning mechanism. Nonetheless, the effects of distorted relative prices, the absence of profit incentives and the lack of competitive pressures on SOEs left all FCPEs with the daunting task to reform the behaviour of the very core of their economies if a sustained improvement of economic performance was to be achieved. The central argument of this paper is that the continuing subsidisation of inefficient and loss-making enterprises has caused and continues to cause macro-economic imbalances in the course of transition both in the European FCPEs and in China. Because it is SOEs that are most likely to be subjected to a soft budget constraint, the real challenge in all transition economies lies with industrial reforms and the effect they have on the behaviour of agents in the public sector.

^{*} This paper is part of a research project on the role of state-owned enterprise reform in the transition process comparing the experiences of China and Central Eastern Europe. Financial support from the Volkswagen Foundation is gratefully acknowledged. Martin Raiser would like to thank Peter Nunnenkamp for patient reading of earlier drafts and helpful comments and Michaela Rank for efficient research assistance.

Table 1 — Selected Macroeconomic Indicators for Economies in Transition

Country	Period	Growth of GDP, per cent per annum average	Inflation rate, CPI, per cent, per annum average	Fiscal balance, average, per cent of GDP	Industrial production, cumulative change, per cent	Industrial employment, cumulative change, per cent	Growth of value of exports, per cent, cumulative change (in US\$)	Share of investment in GDP, period average, per cent
China ^a	(1978-92)	9.2	6.2	-0.5	462 (13.3) per annum	63.3	709 (17.7) per annum	32.7
Czech Republic ^b	(1990-93)	-4.8	24.5	-4.0 (CSFR) 1990-92	-35.3	-30	-9.2	15.7 (CSFR)
Hungary ^c	(1970-89)	2.8 (NMP)	8.0	-1.5 (1981-89)	100.1 (3.7) per annum	-	483 (8.3) per annum	32
	(1990-93)	-4.6	27.1	-5.6	-28	-40	+20	22.7
Poland ^d	(1982-89)	3.7 (NMP)	46.3	-2.2	29.2 (3.7) per annum	-	22.5 (2.9) per annum	29.5
	(1990-93)	-3.2	182.6	-3.8	-25.5	-31	+78	20.8
USSR ^e	(1985-89)	2.5	3.7	-	17.1 (3.2) per annum	-	16.3 (3.0) per annum	32.5
Russia ^f	(1992-93)	-10.5	604.5	-	-37.8	-	-26.6	20

^a Data for China are from SSB (1992), Harold and Lall (1993) for 1992 figures and IFS (1993) for 1993 for the CPI data. Loans to the Central Government is included under revenues, which biases the fiscal deficit downwards. Investment shares refer to "Accumulation" in SSB (1992). — ^b Data are from PlanEcon (1993), except for fiscal balance and investment for Czechoslovakia as a whole from IFS (1993). Exports excluding shipments to Slovakia increased 20 per cent in 1991-93. — ^c The first row encompasses the period after the New Economic Mechanism introduced in 1968. GDP data are net material product from Marer et al. (1992). Data in the second row are from PlanEcon (1993). — ^d The first row includes the period of partial liberalisation since 1982 (see Gomulka, 1986). Data are from Marer et al. (1992). Fiscal data from IFS (1993). Note that 1982 is a trough year which biases performance upwards. Data in the second row are from PlanEcon (1993). Export performance is overstated by the exclusion of CMEA trade. — ^e Data for the USSR begin with Gorbachev's ascent to power in 1985. No figures for 1990-91 were available in Marer et al. (1992). — ^f Data from PlanEcon (1994). Employment data are highly unreliable for Russia, official unemployment currently stands at 2 per cent of the labour force. Exports exclude inter-republican trade within the former Soviet Union.

The second section of this paper draws on Janos Kornai's (1980; 1986) analysis of socialist economies to develop a number of hypotheses concerning the macroeconomic consequences of soft budget constraints for SOEs in transition economies (see also Kornai, 1993; Raiser, 1993). It also analyses some of the sources of budget softness and derives a set of indicators for the existence of the phenomenon. The third section presents an overview over the experience with hardening budget constraints in three European FCPEs and relates their

achievements to diverging macro-economic factors. The fourth section turns to an analysis of enterprise reforms in China and assesses the extent to which budget hardening has taken place to date. Some quantification of total subsidies to Chinese industry is attempted and its macro-economic consequences are evaluated. The fifth section uses survey data for 300 Chinese enterprises to detect behavioural patterns of SOEs between 1980 and 1992. The sixth section concludes.

II. SOURCES, CONSEQUENCES AND MEASUREMENT OF SOFT BUDGET CONSTRAINTS

1. *Sources of Soft Budget Constraints*

The concept of a soft budget constraint was introduced by Kornai (1980; 1986) to explain the behavioural differences between a capitalist firm and a production unit in a centrally planned economy (CPE). A capitalist firm that fails to cover its costs out of current revenues (or, in the case of borrowing from outside sources, out of expected future income) ultimately is forced to exit the market. In a CPE such an exit-threat is non-existent. As long as a firm has access to implicit or explicit subsidies from the government there are no incentives even to cover the costs of production, let alone behave as a cost minimiser.

The subsidisation of loss-makers in CPEs can take a variety of forms. Kornai (1986) has highlighted four major areas. First, SOEs subject to mandatory planning can negotiate input and output prices and quotas. In the context of the Chinese economic reforms this aspect may have been (and in a few industries may continue to be) crucial, as the two-tier pricing system offers large profit margins to those SOEs able to obtain most of their inputs at below market prices and sell part of their output at free market prices (e.g. Hussain, 1990).¹

Second, explicit subsidies from governmental budgetary funds may help to finance cost overruns in order to maintain the level of material production. Third, firms may enter into political negotiations about the level of effective taxation, lobbying for tax exemptions and reductions in tax rates. Again in China, the contract responsibility system offers ample opportunities for selective tax waivers and discretionary taxation. Fourth, as the banking system takes on a larger role in the financing of investment, soft loans become a way of keeping loss-making SOEs afloat.² A major aim of economic reforms in all transition

¹ As discussed in Section IV, by the early 1990s, the extent of price liberalisation had probably eliminated most implicit price subsidies to SOEs.

² The Yugoslav economic reforms are a case in point, as decentralisation made the banking system pivotal in the allocation of resources. Consequently bank credit at negative real

economies is to reduce subsidies to SOEs, but all four aspects of budget softness are still relevant to FCPEs to a varying extent.

The causes of soft budget constraints for enterprises in CPEs and FCPEs may be analysed at three different levels (Nagaoka and Atiyas, 1990). The first level concerns the incentives for the government to keep loss-making enterprises afloat. Some compensation for losses inflicted by price controls and mandatory output requirements may be judged necessary not merely on the grounds of fairness but also to keep the economy functioning. In the presence of market imperfections or distortions the social value of an enterprise may be higher than its market value determined by the price of its output. Moreover, as long as enterprises shoulder most of the social welfare functions and an independent social security system is not in operation, the social costs of regionally concentrated large scale unemployment may outweigh the net present value of subsidies to the government (Hardy, 1992). Finally, competition by bureaucrats in a rent-seeking environment may lead government officials to extend subsidies to their constituency, regardless of the overall negative welfare effects (Aizenmann, 1991). The competition between provincial governments in China would be a case in point (Herrmann-Pillath, 1991).

The second level at which the causes of budget softness may be analysed is the financial system. In most CPEs, state-owned banks became more and more important in the allocation of resources (for China see Bowles and White; 1992). Even after the introduction of a two-tier banking system (1984 in China, 1987 in Hungary and 1988 in Poland) these banks often continued to be run as monetary counterparts to the SOEs in the productive sector. Their objective was not the maximisation of the asset value in their portfolio, as there was no option for take-overs or trading in assets. Indeed, as bankruptcy laws in CPEs were typically non-existent or remained unenforced, banks merely cared about continuing interest payments by debtors rather than about their underlying performance. Changing the behaviour of state-owned banks in FCPEs in turn encounters severe problems that derive from the legacy of underdeveloped financial markets (Estrin, Hare and Suranyi, 1992a; Buch et al., 1994). Experience and human capital in commercial banking is low, state-owned banks themselves are under little corporate control and the shift of monetary management to indirect control instruments may suffer from credibility defects (Bofinger, 1992; Winiecki, 1993). As a result, commercial banks in FCPEs often

resort to distress lending to loss-making customers and hope for a government bail-out (e.g. Begg and Portes, 1992; Schmieding and Buch, 1992).

The third set of causes for soft budget constraints are found at the level of the enterprise itself. The lack of private property rights reduces the incentives for firm managers to invest in the long-run value of the firm. In CPEs the objective to fulfil the mandatory requirements imposed on an enterprise by the planning authorities mostly superseded profit considerations by SOE managers (Brada, 1992). In FCPEs the lack of corporate control and the insecurity of property rights combines to encourage collusion by workers and managers, leading to excessive leverage and the gradual decapitalisation of the firm through wage and interest payments (Schmieding, 1993).³ Linking managerial compensations and worker remuneration to performance can help to mitigate some of these incentive problems (e.g. Groves et al., 1993). However, the question of concern for an effective hardening of budget constraints is what to do with loss-making enterprises. A strict bankruptcy rule for all enterprises in payment arrears may fail to provide incentives for cost-minimisation if the cause of bad financial performance is an inherited stock problem (Brada, 1992). Recapitalisation, on the other hand, carries a high moral hazard risk. Ultimately, the state as owner of the firm and as holder of most of its debt through the public banking system is responsible for enforcing bankruptcy rules. However, the state's role as a creditor typically conflicts with its other social objectives. An interesting manifestation of budget softness at the level of the firm is the dramatic rise in inter-enterprise indebtedness during periods of monetary restraint in FCPEs (Kornai, 1993).⁴ In China it is estimated that to clear the so-called "triangular debts" one Yuan of fresh money per three Yuan of outstanding debt would be required.⁵

2. *Consequences of Soft Budget Constraints*

The problems discussed in the previous sub-section are not restricted to socialist economies in transition. Price distortions, financial market imperfections and the

³ See the articles by Tybout et al. (in Corbo and de Melo, 1985) for an analysis of corporate control and enterprise financial performance in the Southern Cone of Latin America.

⁴ It should be noted that this partly results from the undercapitalisation of SOEs in FCPEs making them particularly vulnerable to a reduction in working capital credits from the banking system (Calvo and Coricelli, 1992). However, the cases of Romania and Russia demonstrate that while inter-enterprise credits tend to increase when credit growth is reduced they also stay on that level once monetary policy is relaxed again (Balcerowicz and Gelb, 1994).

⁵ By personal communication of Dr. Fan Gang (1993), Institute of Economics, Chinese Academy of Social Sciences.

subsidisation of inefficient public sectors have also characterised a large number of developing countries (and to a lesser extent industrialised countries as well), with serious macro-economic consequences (Raiser, 1994a). The macro-economic spill-overs of soft budget constraints for enterprises are twofold (see Hofman and Koop, 1990). First, while profitable firms may react quickly to incentives for profit maximisation, losses continue to be socialised in economies with soft budget constraints. As a result governments in FCPEs, as well as many developing countries tend to progressively loose control over resource mobilisation in profitable sectors, while at the same time the lack of an exit-threat leads to an increasing absorption of subsidies by loss-makers. To the extent that this process is accommodated by the monetary authorities, economies that fail to harden budget constraints of domestic producers may encounter increasing inflationary pressures. This hypothesis has found substantial empirical support in the hyperinflationary episodes in Poland, Yugoslavia and more recently Russia.⁶

Second, as resources are bound in unprofitable firms, inputs are drawn away from potentially profitable activities. This problem is the more serious the bigger the weight of the inefficient sector in the economy and the smaller the pool of available savings and natural and labour resources (Sachs and Woo, 1994). Soft budget constraints for a large share of the enterprise sector thus tend to put the economy on an extensive growth path that quickly runs into supply bottlenecks. Latent pressures for overheating either provoke recurrent macro-economic boom-and-bust cycles or, once the extensive growth path is exhausted, lead into endemic shortages and stagnation. It follows that the structural adjustment that should follow liberalisation and increasing market orientation in FCPEs and developing countries will be achieved quicker if budget constraints are effectively hardened early on in the reform process (Raiser, 1994a).

3. *Measuring the Soft Budget Constraint*

The discussion in sub-section II.1 pointed out several sources of implicit and explicit subsidies for SOEs. This sub-section presents a set of empirical indicators for the phenomenon. These indicators also form the basis of the empirical work in Sections III through V.

⁶ Raiser (1994a) extends this argument by focussing on the behavioural inertia that may result from extended periods of budget softness. Using seven macro-economic indicators of budget softness in a cross-sectional analysis of 33 developing countries, soft budget constraints are found to have significant inflationary and growth reducing effects. Thereby budget softness serves as a proxy for inflationary expectations in a standard monetary inflation model.

a) Pricing policy: particular sectors may benefit from preferential input pricing in FCPEs pursuing gradual price reform. For China a comparison of sectoral material input and output deflators may help to gauge the extent of implicit protection through price controls. This may then be compared with calculations of effective protection rates at a sectoral level published by the World Bank (1994). In European FCPEs the development of energy prices, for instance, is a crucial indicator of remaining input protection to the manufacturing sector (Hare and Hughes, 1992).

b) Trade and competition policy: unproductive enterprises may be protected from domestic and foreign competition by entry barriers (as in the Chinese case by restrictions on inter-regional factor and goods mobility) and tariff walls or high non-tariff barriers (NTBs). A proposed rough proxy for the overall degree of trade protection are import penetration ratios on a sectoral level (Raiser, 1994a).⁷

c) Tax policy: direct tax subsidies may be measured directly as a share of government expenditure to GDP. Additionally, data on tax waivers may be collected and the share of revenue lost due to preferential tax policies can be quantified for some countries. At the micro-economic level, discretionary taxation may be measured by correlating pre- and post-tax profit rates across firms (Kornai and Matits, 1987).

d) Credit policy: the real rate of interest on loans from the banking sector provides a ready indicator of soft lending policies. At rates of interest below the market clearing level, some form of credit rationing becomes necessary. The share of credit going to SOEs, compared with their contribution to domestic value added may allow one to gauge preferential credit access for public firms. The share of non-performing loans in the portfolio of state-owned banks indicates whether banks were subject to mandatory policy lending in the past. At the micro-level a negative cross-section correlation between leverage (credits to assets) of enterprises and their profit to assets ratios points at distorted credit allocation.⁸

e) Institutional regulations: the existence and enforcement of a bankruptcy law is an essential prerequisite for an effective hardening of budget constraints.

⁷ Of course, since in our analysis a standard of reference is missing, the computation of import penetration ratios merely allows to gauge, whether the overall degree of protection has increased or decreased in a specific sector.

⁸ Within an enterprise and over time, profits and credit flows may be negatively correlated, but at the cross-sectional level, profitability should be an indicator of creditworthiness (see Pinto et al., 1992 for calculations in the case of Poland).

Implementation of such laws may differ, however, as is discussed below. The rate of bankruptcy among the enterprise population is thus not necessarily the best indicator. The share of loss-making enterprises in total industry and by ownership groups may provide a first-hand indication of tolerance of loss-makers. Further, as the Hungarian case shows, inter-enterprise credits tend to be drastically reduced with the enforcement of bankruptcy (Kornai, 1993). The ratio of inter-enterprise debt to total corporate debts or assets may thus represent the degree of institutional softness due to deficient contract and bankruptcy enforcement.

f) Finally, wage drift, the discrepancy between productivity growth and wage increases represents an indirect method of measuring budget softness at the level of the firm. Data on this may be obtained from an analysis of worker remuneration and employment levels. In most FCPEs the phenomenon of soft budgets was linked to the decentralisation of autonomy for management decisions (Jasinski, 1993). This has in many cases enhanced the power of worker councils. If this power is not checked by an efficient system of corporate governance, one would expect workers to claim a larger share of the firm's value added than would be due to them under profit maximisation. Alternatively, the lack of a social security system forces SOEs to keep workers on board that are effectively redundant in the production process. The effect of such overemployment is technically the same as that of excessive worker remuneration, although the policy conclusions may differ. Using enterprise-level data for various ownership groups, we propose to measure the divergence of wage shares from output elasticities of labour, obtained from Cobb Douglas production function estimates, as an indicator of allocative inefficiency resulting from wage drift. Moreover, we measure the degree of adjustment inertia in SOEs' employment levels compared to that of non-state firms (NSFs) as one symptom of overemployment.

III. HARDENING BUDGET CONSTRAINTS IN EUROPE'S FCPEs: THE CASES OF THE CZECH REPUBLIC, HUNGARY AND POLAND

This section aims to provide a first testing ground for the hypotheses presented above and to apply some of the indicators suggested for the measurement of budget softness to the transition experiences of three European FCPEs with

roughly similar starting conditions, namely the Czech Republic, Hungary and Poland.⁹

Macro-economic performance in the Czech Republic, Hungary and Poland has been strikingly similar in the first two years of transition (Table 1). This suggests that the dramatic decline in output in all three countries was largely the result of previous structural distortions (Gomulka, 1991; Siebert, 1991) and the sudden dismantling of public institutions causing a jump in transactions costs (Schmieding, 1993). However, some differences have started to emerge in the area of price level stabilisation and factor market adjustment. Extremely low unemployment and relative price level stability in the Czech Republic contrast with 15 per cent unemployment and an annual inflation rate in excess of 30 per cent in Poland (EBRD, 1994). Hungary contrasts to the other two FCPEs in its huge budget deficit and its protracted financial crisis. Arguably, these differences may be accounted for to some extent by diverging success in credibly hardening budget constraints for SOEs early on in the transition process (Raiser, 1993; 1994c). Let us review the evidence for this contention by turning to the indicators derived above.

No major policy differences are observable concerning the first three indicators of budget softness, namely price controls, trade policy and direct fiscal subsidies. Price controls have ceased to play a role in the subsidisation of SOEs in all three countries. Over 95 per cent of all goods are now traded at market prices, with only few consumer services remaining subject to price controls. For producers the major reduction in implicit subsidies has come from the rapid increase in energy prices. The change in the FCPEs' trade regime has been just as dramatic as price liberalisation. There has been a rapid reorientation of exports and imports to Western trading partners and trade protection is low by international standards (Falk and Funke, 1993). Taxation policies in the Czech Republic, Hungary and Poland since the beginning of reforms have aimed to reduce direct subsidies to SOEs. Furthermore, the dependence of central governments on taxes from SOEs has imposed a relatively high tax burden on most firms in the public sector. In this respect the Czech government seems to have been toughest, while both in Poland and Hungary tax deferrals by SOEs

⁹ Thereby, this section draws substantially on previous work. See Raiser (1993; 1994c) and Buch et al. (1994). We should note that policies aimed at hardening budget constraints are not the only factors affecting macro-economic performance and their effectiveness itself is the function of exogenous influences, such as the initial credibility and public support of the government and the ability of the private sector to exert competitive pressures on SOEs and absorb redundant resources (Kornai, 1993). Our results are thus indicative rather than conclusive.

have at times contributed substantially to budget deficits (Raiser, 1993; OECD, 1993). Generally, however, the impact of subsidisation through the fiscal system is likely to be moderate.¹⁰

The attempt to harden budget constraints in the financial markets found its expression first of all in very tight monetary policies. Here significant policy differences may be detected. While in the Czech Republic the overall monetary restriction was accompanied by a dramatic reallocation of credit away from the public sector (Raiser, 1994c), the banking sectors of Poland and Hungary have remained paralysed by the legacies of non-performing debts (Table 2) and old boys networks, that perpetuated distress lending to SOEs in the first phase of transition. In consequence, particularly Poland has suffered inflation inertia in its transition so far (Raiser, 1993). Moreover, the lack of credibility of monetary policies until the beginning of 1991 opened the room for monopolistic price increases by Poland's industrial conglomerates which delayed the necessary adjustments and increased the initial price level shock (Kulig and Lipowski, 1994). More recently, with the introduction of new banking regulations in all three countries, banks have generally become very cautious lenders and the credibility of monetary policy has improved.¹¹

Turning finally to institutional determinants of budget softness, we may note that substantial progress has been achieved in all three countries. Differences relate mainly to the enforcement of bankruptcy laws and to developments in labour markets (Raiser, 1994c). The Czech Republic limited the profitability crisis in SOEs by imposing tight wage controls in the first two years of reform (Raiser and Nunnenkamp, 1993). Thus, wage drift was avoided at least until 1993. The resulting low unit labour costs have contributed to the rapid creation of new jobs and wage discipline has contained inflation. While the enforcement of bankruptcy has been hesitant the shift of employment out of the public sector has been significant (Raiser, 1994c). By contrast, Hungarian firms have not been

¹⁰ Fiscal deficits in Hungary are mainly the result of increasing transfer payments to pensioners and the unemployed, inspite of the fact that payroll taxes in 1993 added as much as 52 per cent to the wage bill, corresponding to over 17 per cent of GDP (EBRD, 1993, pp. 27-31). The dilemma for Hungary's fiscal policy is that its social security arrangements have increased adjustment incentives in SOEs, but the costs to the budget are passed on to investors in the form of higher taxes and high real interest rates.

¹¹ Due to earlier consolidation efforts, the rise in interest margins typically following in the wake of a financial crisis has been contained in the Czech Republic, and banks have become actively involved in enterprise restructuring and new investment finance. In Hungary and Poland, in spite of recent consolidation attempts, access to credit remains a crucial bottleneck in the recovery process.

able to contain wage increases in the early phase of transition. Consequently, when bankruptcy rules were tightened in 1992, a substantial share of industrial output was affected and unemployment shot up to 12 per cent. However, one success of the Hungarian approach was the sudden drop in inter-enterprise credits (Table 3). In Poland, the initiative for bankruptcy enforcement laid with the tax authorities until recently. Their leniency towards SOEs has not only made wage controls ineffective but also allowed the build-up of a financial black-hole in the public sector which causes continuing inflationary pressures (Gomulka, 1993). The major institutional achievement in Poland is the rapid growth of the private sector, which is currently leading the economy out of recession.

Table 3 — Inter-Enterprise Credit in Czechoslovakia, Hungary and Poland, 1990-93

	1990				1991				1992				1993
	1	2	3	4	1	2	3	4	1	2	3	4	4
Czechoslovakia bln. Ksc.	-	14.5		46.8	88.6	113	147.1	174.3	170.2	-	154.4	-	-
in per cent of bank credit	-	10.1		8.0	13.4	17	21.2	23.0	22.8	-	18.6	-	-
Hungary bln. Ft.	-	90.5			-	159.8 ^a		-	197.0	-	-	104.0	-
in per cent of bank credit	-	14.2 ^a		-	-	20.8 ^a		-	26.5	-	-	13.4	-
Poland ^b trl. zloty	75.1	81.5	77.3	103	109.1	126.1	143	153.3	177	190.6	197.5	217.3	279.5
in per cent of bank credit	234	207	167	184	140	138	135	145	130	127	125	117	105
Memo for Polish enterprises:				<u>1992</u>				<u>1993</u>					
Payables to receivables		Enterprises total		98.1				86.3					
Ratio by profitability in Polish industry		Net profit		60.0				63.4					
		Gross loss		161.5				132.0					

^aEnd-year figures. — ^bLiabilities resulting from the delivery of goods and services (payables).

Sources: Czechoslovakia: 1990: Frydman et al. (1993)

1991-92: Czech Ministry of Finance, unpublished data

Hungary: Kornai (1993); NBH, Monthly Report

Poland: BS (var. iss.); GUS (1994).

The foregoing analysis does not aim to provide a comprehensive interpretation of diverging developments in the Czech Republic, Hungary and Poland. It also leaves out the most plastic cases of reform failures due to remaining budget softness for SOEs, such as in many of the CIS Republics and also Romania (DIW et al., 1994; Rostowski, 1994). What we hope to have shown is that the measures of budget softness suggested have some explanatory value in comparing macro-economic performances in FCPEs, particularly in the area of price level stabilisation. Of course, the determinants and consequences of budget softness must ultimately be sought at the level of SOE behaviour itself. With the set of indicators for budget softness in hand we now proceed to a more detailed examination of the process of hardening budget constraints and the current degree of budget softness in China. The impact on SOE behaviour is subsequently tested in Section V.

IV. SOFT BUDGET CONSTRAINTS AND ENTERPRISE REFORMS IN CHINA

1. *Between Boom and Bust: China's Macro-economic Performance*

The two outstanding features of China's macro-economic performance are the remarkable growth rate of GDP and the large and increasing fluctuations in economic activity, accompanied by substantial price instability (Table 4). The first fact distinguishes the Chinese experience from that of all reform attempts in European CPEs and contrasts sharply with the economic contraction characterising the initial transition phase in the European FCPEs. The second fact, however, is reminiscent of the overheating tendencies in socialist economies analysed in depth by Komai (1980). Here we argue that China's high growth rate of GDP is at least partly attributable to fortuitous exogenous factors (see also Sachs and Woo, 1994; Raiser, 1994b), while its tendency to reproduce costly inflationary episodes may be related to remaining budget softness for industrial SOEs, even after substantial hardening in some areas.

The exogenous factors that have made China's growth success possible are only summarised here. The most important ones include the existence of large pool of natural resources and surplus labour in agriculture, the absence of a macro-economic crisis at the start of reforms in 1978, a relatively decentralised structure of industrial production, facilitating the rapid expansion of non-state activities, and the geographical location in the most dynamic economic region in the world. The hallmark of China's reforms thus has been the ability to mobilise enormous additional resources for industrial growth through the early and very successful reforms in agriculture. Both labour and savings from rural farmers

Table 4 — China's Macro-economic Performance 1978-93, Growth of Gross National Product, Industrial Output and Annual Inflation Rate, in per cent^a

	1978	1979	1980	1981	1982	1983	1984	1985
GNP	11.7	7.6	7.9	4.4	8.8	10.4	14.7	12.8
Industrial output	—	—	9.3	4.3	7.8	11.2	16.3	21.4
Retail prices	—	3.6	22.2	2.6	0.1	3.7	4.8	10.7
	1986	1987	1988	1989	1990	1991	1992	1993
GNP	8.1	10.9	11.3	4.4	4.1	7.7	13.0	13.2
Industrial output	11.7	17.7	20.8	8.5	7.8	14.5	22.0	30
Retail prices	6.2	9.1	26.7	6.4	2.2	4.0	6.7	16

^a All figures are end-year, GNP and industrial output are in current 1980 prices. See IMF (1993) in particular for an in-depth analysis of China's macro-economic cycles.

Sources: IMF (1993); SSB (1993a; 1994).

have fuelled the dynamic development of township and village enterprises (TVEs). These have both exerted competitive pressures on SOEs and provided an investable surplus in the form of their workers' savings that has allowed the state-owned industrial sector to continue its extensive growth path. Finally, relative socio-political stability and the importance of overseas Chinese trade links provided further stimulus for a high rate of investment and in consequence rapid growth of GDP.

Nonetheless both in 1988/89 and more recently since mid-1993 the increasing strains of this development strategy became apparent (Table 4). The structural imbalances inherited from the Maoist planning system were not remedied as long as sufficient surplus resources were available. Clearest evidence for this is the constant share of industry in GDP of slightly below 50 per cent, and the continuing deficit in services, characteristic of socialist economies. China's bottlenecks in infrastructure, particularly energy and transport are causing growing concern to policy makers. The mounting tensions within China's industrial sector are illustrated by the decline in the profitability of SOEs in the wake of accelerated price liberalisation after 1992 (see below).

Through government interventions unprofitable SOEs are enabled to compete with the dynamic non-state firms (NSFs) for increasingly scarce resources. Only the reduction of government support can stop the chronic investment hunger of SOEs subject to soft budget constraints (Kornai, 1980; Woo et al., 1994). Because it takes time to gather the political strength for such a curtailment of customary support to public enterprises, China's economy has repeatedly gone

through an inflationary cycle before a drastic stabilisation attempt and a resulting slump in economic growth set the stage for a new round of economic liberalisation (Naughton, 1991; IMF, 1993). It is hypothesised that with each new round of reforms the burden of subsidies to unprofitable and unclosable SOEs shifted to another policy area. The following subsection reviews the six major areas of budget softness introduced in Section II. We expect to find budget hardening in some but substantial remaining softness in others, that would explain the cyclical pattern of China's macro-economic development since 1978.

2. *Have Budget Constraints on China's SOEs Been Hardened?*

A. *Price Controls and Domestic Competition*

One method which was used in the past to protect some Chinese industrial SOEs (particularly in the consumer goods industries) was to control the price of their inputs at an artificially low level and guarantee deliveries at this price. At the same time output prices were fixed above international levels and the industries concerned were protected from competition by tariff and non-tariff barriers and restrictions on non-state firms' domestic entry. However, during the reform period entry of domestic firms into most sectors has been almost completely liberalised and the two tiered price system of controlled and market influenced prices was introduced in 1984 to allow enterprises to make a gradual transition from plan to market allocation. As can be seen from Table 5, the government has increased the pace of liberalisation over the past 3 years, and by 1993 the great majority of sales were made at market prices. It has been announced that virtually total price liberalisation will be achieved by 1995. In 1994, only a small proportion of industrial sector inputs, including raw materials, energy, utilities, capital goods and transport services were still subject to price controls at levels below market clearing prices.

Consequently, by now the SOE sector overall probably no longer benefits from implicit subsidies through price controls. To the contrary, there is strong evidence that the rising proportion of SOEs making losses is directly linked to the accelerated pace of input price liberalisation in recent years (Table 6). At the same time, profit margins have been reduced by the entry of NSFs into consumer goods markets.

Unfortunately, the sectoral impact of relative price developments within the manufacturing sector is not entirely clear-cut. As Table 7 reveals, input prices have generally increased more rapidly than output prices. However, among those sectors most hurt by a relative cost increase on the input side are producers of

Table 5 — Proportion of output and sales at fixed, guided and market prices, China 1978-1992

	1978	1987	1990	1991	1992
Agricultural output					
fixed prices	92.6	29.4	25.0	22.2	17.0
guided prices	1.8	16.8	23.4	20.0	15.0
market prices	5.6	53.8	51.6	57.8	68.0
Industrial output					
fixed prices	97.0	...	44.6	36.0	20.0
guided prices		...	19.0	18.3	15.0
market prices	3.0	...	36.4	45.7	65.0
Retail sales					
fixed prices	97.0	33.7	29.7	20.9	10.0
guided prices		28.0	17.2	10.3	10.0
market prices	3.0	38.3	53.1	68.8	80.0

Source: IMF, 1993, p27.

Table 6 — Performance of industrial SOEs in central budget, 1985-1994

	1985	1988	1989	1990	1991	1992	1993	1994
Proportion of loss making industrial SOEs¹								
Proportion of loss making industrial SOEs ¹	9.6	10.9	16.0	27.6	25.8	23.4	33.0	50.0
Net pre-tax profit of industrial SOEs as per cent of capital¹								
Net pre-tax profit of industrial SOEs as per cent of capital ¹	23.5	20.6	17.2	12.4	11.8	9.7	na	na
Subsidies to loss making SOEs*³								
Subsidies to loss making SOEs* ³	18.0	44.6	59.9	57.9	50.6	84.4	na	
Subsidies as per cent central government deficit²								
Subsidies as per cent central government deficit ²	439	134	158	158	104	na	na	na
Subsidies as per cent of GNP								
Subsidies as per cent of GNP	2.1	3.2	3.8	3.3	2.6	2.1	3.2	na

* all SOEs

Sources

1. SSB (1993b)

2. World Bank, (1992), p. 95.

3. In billion current Yuan, World Bank, (1992), p. 242.

industrial inputs, such as energy and industrial capital goods producers, such as chemicals and machinery. Here, remaining price controls at the output side have probably served to squeeze profit margins. Indeed, the IMF estimates that 70 per cent of losses in industrial SOEs are due to remaining price controls (IMF, 1993, p. 29). The other two sectors that have suffered overproportional input price increases are the food products and garments sector. Agricultural price liberalisation has driven up input prices in the former while NSF competition has contained output price increases in the latter. Among the sectors less hit by a relative price shift in favour of industrial inputs we should note the textiles, paper and petrol refining industries. All three have highly negative value added at world prices, as Table 7 demonstrates. Here trade protection continues to have a decisive protective impact which allows downstream consumer goods industries in particular to pass on cost increases to consumers (World Bank, 1994; see also IV.2.B. below).

Table 7 — Input and Output Price Deflators and Effective Rates of Protection, Selected Industrial Sub-Sectors, 1992

SECTOR	Ratio of input to output price deflator	(Value Added World Prices)/(Value Added Domestic Prices)
Metallurgy	121	1.62
Electricity	195	-6.10
Coal	133	8.82
Petrol refining	146	-16.10
Chemical	167	0.47
Machinery	185	-0.35
Construction	124	-0.33
Forestry	126	-0.04
Food Products	175	-4.29
Textiles	135	-0.63
Garments	183	-0.65
Paper	137	-1.50
Other	138	-0.94

Source: First Column, Zheng, Yuxin, Chinese Academy of Social Sciences, Institute of Quantitative Economics; second column own calculations based on World Bank (1994, p. 74).

With respect to domestic competition policy there is considerable anecdotal evidence that provinces and smaller localities protect their less efficient enterprises by restricting the entry of products from other provinces and countries into local markets. This either is done physically, with de facto

Table 8 — Freedom of enterprises to sell output, buy inputs, 300 enterprise survey (per cent)

	Sell output in other regions	Choice of input supplier	Choice of trading firms	Chose quantity of inputs
Guangzhou				
State	58.1	95.5	95	77.5
Collective	54.5	100	100	90.1
TV *	100	100	100	0
JV	80	100	100	100
<i>total</i>	61.7	96.8	96.5	80.7
Shenzhen				
State	73.9	100	95	90.5
Collective	75	100	100	100
JV	78.9	94.7	94.3	85.3
WFO *	100	100	100	100
<i>total</i>	77.1	97.1	95.3	89.1
Xiamen				
State	70	100	100	100
Collective	87.5	94.1	94.1	93.8
TV *	100	100	100	100
JV	66.7	100	100	100
WFO	84.6	100	100	91.7
<i>total</i>	79.6	98	97.8	95.8
Shanghai				
State	60.9	93.8	95.3	90.6
Collective*	100	100	100	50
TV	26.3	73.7	78.9	73.7
JV	71.4	92.9	92.9	78.6
<i>total</i>	56.6	89.9	91.9	84.8

Note: * Small number of firms only.

Source: Survey data, own calculations.

customs barriers, or by controlling the purchasing policies of local government owned distribution networks (IMF, 1993, p. 19). Evidence was sought on this issue in the survey of 300 SOE and non-state enterprises analysed more fully in Section V of this paper. Table 8 reports the results of the survey on this and related issues. It found that in the four cities surveyed, between 30 per cent of SOEs and 20 per cent of all enterprises reported restraints on their freedom to sell their output in other regions. These restraints were highest in Shanghai and serious in Guangzhou. Interestingly, firms in the special economic zones of Xiamen and Shenzhen, reported that they were less inhibited by such restrictions. This would imply that these two special economic zones are increasingly losing their distinct policy characteristics.

The most important impact on the degree of domestic competition, however, has come from the growth of the NSFs (Jefferson and Rawski, 1994). The high rate of productivity growth in NSFs and their resulting high profitability has led to some competition in factor markets but more importantly has restrained SOEs in their pricing policies (McKinnon, 1991). Overall, thus price liberalisation and the entry of NSFs have exposed inefficient SOEs to market pressures. The higher the pace of price liberalisation, the higher the resulting losses of SOEs. The question is whether subsidies were available from other sources.

B. Trade Policy

Starting from a position of virtual autarky in the 1960's, China has rapidly increased its integration into the world economy since its reforms commenced in 1978. The ratio of exports plus imports to GNP increased from 12.8 per cent in 1980 to 38.6 per cent in 1992 corresponding to an import penetration of 24 per cent.¹² (IMF, 1993, p. 62). At a sectoral level, data are only available for very broad industrial aggregations. In chemicals and allied products, import penetration rates increased from 15.55 per cent in 1985 to 20.55 per cent in 1992. In machinery and transport equipment the increase was from 20.31 per cent to 23.97 per cent. The third aggregation for which data is provided contains both the light and textiles industries and rubber, mineral and iron. In this very broad category, import penetration has remained constant at 10 per cent since 1985 (SSB, 1993). Indeed, the Hirschman commodity concentration index for imports has remained quite high throughout the 1980s at approximately 43, indicating that import penetration has only occurred in limited categories of commodities. Moreover, accounting for pure processing trade, import volumes

¹² However, these ratios are somewhat exaggerated by the fact that the official exchange rate which is used to convert traded goods into domestic currency has been significantly overvalued (by perhaps 30-40 per cent) for most of this period.

would have to be adjusted downward by up to 40 per cent (von Kirchbach and Aguado, 1994).

Despite a broad range of trade policy reforms, aimed at lowering the protection of Chinese producers (see World Bank, 1994 for details), China's average tariff rate has consistently increased since 1987. China's unweighted and trade weighted mean tariff rates and the standard deviation of its tariffs in fact exceed those of seven of the nine highest protection, large developing countries (World Bank, 1994, pp. 56-57).¹³ Duty drawbacks on imported intermediate goods have further increased effective rates of protection and effectively sheltered local producers of final goods.

There are also significant NTBs associated with the mandatory import plan and the system of giving national Foreign Trade Companies exclusive rights to import particular commodities, as well as with separate systems of import licensing and controls. It has been estimated that non-overlapping NTBs in all these categories apply to 51 per cent of imports (World Bank, 1994, p. 63). Although the increasing openness has exposed Chinese producers to some external competition, tariffs and non-tariff barriers therefore remain high and provide a significant level of protection for Chinese industry. The recent reemphasis on trade reforms, particularly after exchange rate unification in January 1994, is likely to lead to increasing pressures for subsidies from SOEs so far sheltered from international competition.

C. Direct and Indirect Subsidies

Because price deregulation and the entry of non-state owned competitors has exposed the inefficiency of many SOEs, massive direct and indirect government subsidies are being made to this sector to keep loss-makers afloat. As was shown in Table 6, approximately 50 per cent of SOEs were reported to be making operating losses in early 1994 (figures released by State Statistical Bureau, 23/5/94, reported in China News Digest, 25/5/94). In 1985 only 10 per cent of industrial SOEs were making losses, but this had increased to 23 per cent by 1992 and 33 per cent by 1993. SOE losses were expected to total Yuan 84.4 billion (just under US\$ 10 billion) in 1993, which represents 3.2 per cent of GNP and exceeds the central government's budget deficit, which was only 2.5 per cent of GDP in 1992 (World Bank, Dec. 1993, p. 7).

In addition to direct subsidies through the budget, loss making SOEs receive

¹³ These countries were India, Pakistan, Brazil, Argentina, Colombia, Egypt, Hungary, Kenya and the Philippines. Only India and Pakistan had higher protection rates than China.

Table 9 - Net fiscal and banking system subsidies to industrial SOEs, 1980-92 (Yuan billion)

	1980	1986	1988	1990	1991	1992
CAPITAL EMPLOYED BY SOEs						
1 Fixed assets (gross value) of industrial SOEs,	373.0	674.5	879.5	1161	1355.6	1566.9
2 Working capital, of industrial SOEs,	118.3	170.5	238.4	373.0	425.2	939.4
3 Total capital assets employed,	491.3	845.0	1117.9	1534.0	1780.8	2506.3
4 Outstanding working and fixed capital loans	42.8	141.7	208.5	255.6	423.6	495.6
5 Estimated government equity, 3-4	448.5	703.3	909.4	1278.4	1357.2	2010.7
COST OF CAPITAL						
6 Average nominal international interest rates	8.00%	7.90%	8.20%	11.33%		10.37%
7 Plus devaluation of Chinese RMB (av. annual rate 1980-92)	23.71%	23.71%	23.71%	23.71%	23.71%	23.71%
8 Total nominal cost of foreign borrowing	31.71%	31.61%	31.91%	35.05%	23.71%	34.08%
9 Average nominal cost of foreign borrowing, 1980-92	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%
10 Nominal government bond rate	4.00%	10.00%	10.00%	14.00%	10.00%	9.50%
11 Average nominal government bond rate, 1980-92	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%
12 CPI increase	6.00%	6.00%	18.50%	2.10%	2.90%	5.40%
13 Inflation in industrial goods prices	-0.98%	13.70%	9.60%	10.80%	10.97%	15.60%
FISCAL SUBSIDIES						
14 Pre-tax profit industrial SOEs	90.7	134.1	177.5	150.3	166.1	194.4
15 Profit retained by enterprise	0%	17%	19%	16%	15%	14%
16 Estimated profits and taxes remitted	90.7	111.7	144.7	127.0	141.8	167.8
17 - Nominal rate of return on fixed assets	24.3%	19.9%	20.2%	12.9%	12.3%	12.4%
18 Subsidies to loss making industrial SOEs	3.2	5.1	8.1	33.6	35.1	35.4
19 Net remittances (16-18)	87.5	106.6	136.6	93.4	106.7	132.4
20 Estimated taxation due (55% of 14)	49.9	73.8	97.6	82.7	91.4	106.9
21 Estimated equity payments, (19-20)	37.6	32.9	38.9	10.7	15.4	25.4
22 Est. capital charge due to govt. (@ I/N interest rate), (9*5)	146.6	220.5	285.1	400.7	425.4	630.3
23 Est. capital charge due to govt. (@ bond rate), (11*5)	43.0	67.4	87.2	122.5	130.1	192.7
24 Total fiscal subsidy to SOEs @ I/N interest rate, (20+22-19)	103.0	187.6	246.1	390.0	410.0	604.8
25 Total fiscal subsidy to SOEs @ bond rate, (20+23-19)	5.4	34.5	48.2	111.8	114.7	167.2
INTEREST RATE SUBSIDIES						
26 Nominal interest rates, working capital	7.90%	7.90%	9.00%	11.30%	11.30%	11.30%
27 Nominal interest rate, fixed assets	10.80%	10.80%	13.30%	11.88%	11.16%	9.72%
28 Weighted nominal domestic interest rates	10.10%	10.21%	12.38%	11.74%	11.19%	10.31%
29 Average nominal domestic interest rates, 1986-93	9.31%	9.31%	9.31%	9.31%	9.31%	9.31%
30 Implicit subsidy of SOEs borrowing (c/I/N rate), (29-9)	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%
31 Implicit subsidy of SOEs borrowing (c/I bond rate), (29-11)	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
32 Approximate loan default rate of SOEs	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
33 Estimated interest rate subsidy @ I/N rate (30*4 + 9*32*4)	12.1	59.6	87.7	107.5	178.1	208.3
34 Estimated interest rate subsidy @ bond rate (31*4 + 11*32*4)	0.9	28.7	42.3	51.8	85.9	100.5
TOTAL SUBSIDIES						
35 Total subsidy @ I/N interest rate, (24+33)	115.1	247.2	333.8	497.5	588.1	813.2
36 Total subsidy @ govt bond rate, (25+34)	6.3	63.3	90.5	163.6	200.6	267.7

Note on calculation of net subsidies to SOE sector

1. Subsidies will be approximately equal to expected return on the government's equity holdings in the SOE sector (rate of return equal to either the government bond rate or China's international borrowing rate). — 2. Plus tax which should be paid on profits earned by SOE sector, at the rate of 55 per cent (for period 1980-92). — 3. Plus the opportunity cost of outstanding loan funds provided by the Chinese State owned banking system to the industrial SOE sector (the opportunity cost of these funds again equal to either the government bond rate or to China's international borrowing rate). — 4. Minus net transfers to the government budget from the industrial SOE sector, including company income taxes, profit remittances including capital charges for equity capital used and adjustment taxes minus any subsidies paid to loss making enterprises. — 5. Minus interest payments to banks from the industrial SOE sector.

Sources: SSB (1993a; b; 1994); World Bank (1992) Tables 6.10-6.12, pp. 236-8; Zhao (1994); Lardy (1992) p. 148; World Bank (1994) Table A2.8, p. 299.

several forms of indirect assistance. These include relief from paying capital charges for the use of government owned assets, postponement or waiver of taxation, preferred access to subsidised credit through the State owned banking system and tolerance of non-repayment of bad debts by the banking system. Table 9 attempts to estimate the approximate total level of fiscal and banking system subsidies to SOEs. The first part of Table 9 tries to estimate the level of fiscal subsidies to SOEs due to their failure to pay required taxation and an adequate return on capital employed. Two alternative target rates of return on the government's equity in the assets of industrial SOEs' are considered; the average government bond rate and China's cost of international borrowing.¹⁴ The government bond rate could be seen as the financial cost of capital for the Chinese government (or the financial discount rate), as the great bulk of its borrowing is from domestic sources. The international cost of capital for China on the other hand represents the economic opportunity cost of capital for China (or the social discount rate) since China is now borrowing freely abroad for its marginal capital requirements (for a discussion of the method of determining the financial and social discount rates in open economies, see Perkins, 1994c). Table 9 indicates that the implicit financial and economic cost of fiscal subsidies to industrial SOEs has been rising rapidly during the 1980's. By 1992, the financial cost of these subsidies could have been as high as Yuan 167 billion (\$US 30 billion) having risen from only Yuan 5.4 billion in 1980. By 1992, the economic cost of these subsidies, using the international cost of borrowing as the opportunity cost of capital, could have been as high as Yuan 605 billion (\$US 110 billion), up from Yuan 103 billion in 1980.

Substantial indirect subsidies are also received by the SOEs via the banking system. In 1984 the government split the functions of the People's Bank of China making it into a form of central bank, and establishing several separate banks with responsibility for different sectors of the economy. However, these banks were still required to advance policy loans to loss making state enterprises to prevent them from failing and to the preferred projects of local authorities, regardless of their financial viability (IMF, 1993, p. 31). In 1988, the banking system was recentralised in response to the blow out in bank lending in the decentralised system. Interest competition between the different banks was discouraged and the demarcation of lending on sectoral grounds was strengthened (IMF, 1993, p. 21).

¹⁴ Data on international interest rates is drawn from the International Monetary Fund, *International Financial Statistics*, No. 46, 1993. Data on China's domestic interest rates and bond rates is from the *Almanac of China's Finance and Banking*, 1993.

Thus the banks have continued to ration credit by government directive, rather than via higher real interest rates and on the basis of customers commercial viability. In 1993, 80 per cent of bank credit was advanced to the SOEs, although they produced only 48 per cent of output in 1992. The collective sector received only 8 per cent of credit allocated though it produced 38 per cent of industrial output, and others (foreign and individual owned firms) received 12 per cent of credit and produced 13.3 per cent of output.

In most years since the reforms commenced, real bank lending rates have been negative (World Bank, 1992, p. 236-37). In 1989 the People's Bank of China raised nominal borrowing rates for SOEs to 11.3 per cent and they have remained at this level since then, but this was still less than half the inflation rate in urban areas in 1993. On the other hand, nominal borrowing rates for non-SOEs have been over 20 per cent in 1993-94 (Lin, Cai and Li, 1994, Zhang Zhouyuan, 1994). It appears that the government is unwilling to charge positive real interest rates to SOEs because of the negative impact it would have on their profitability.¹⁵ Furthermore, because of the weak implementation of bankruptcy laws approximately 20 per cent of bank loans to SOEs are estimated to be non-performing (reported in China Daily, discussions with IMF Representative, Beijing, October 1994). This represents a further implicit subsidy to industrial SOEs, as presumably no interest was paid on this proportion of outstanding loans.

The second part of Table 9 includes approximate estimates of the total indirect subsidies paid to SOEs via the banking system over the 1980-92 period, measured in financial and economic terms. Again the government bond rate and the international interest rate applying to Chinese borrowings were used as a measure of the financial cost of capital to the Chinese government and the economic cost of capital to China, respectively. The subsidy implied by the gap between these rates and the average interest rates charged on loans to industrial SOEs was calculated. In addition, an approximate estimate of the subsidy to SOEs from defaults on loan interest payments was included. These calculations indicate that the financial cost of the interest rate subsidies to industrial SOEs could have been as high as Yuan 100 billion (\$US 18 billion) in 1992, having risen sharply from Yuan 0.9 billion (\$US 0.6 billion) in 1980. The economic cost of these subsidies, excluding any negative externalities due to the politically

¹⁵ Recent reforms, announced in November 1993, would provide for a decentralised commercial banking system, fully accountable for its lending operations. Policy lending would be branched out to development banks. The legal steps towards such a system have been taken. However, in the recent inflationary episode of 1993-1994, the government still mainly relied on direct credit controls (see Raiser, 1994b).

induced segmentation of capital markets, was estimated to be Yuan 208 billion (\$US 38 billion) by 1992, up sharply from Yuan 12.1 billion (\$US 8 billion) in 1980. Adding these banking system subsidies to the fiscal subsidies calculated above, the total financial value of subsidies to industrial SOEs could have been as high as Yuan 268 billion (\$US 49 billion) in 1992, having risen from Yuan 6 billion (\$US 4 billion) in 1980. This represented approximately 11 per cent of GDP in 1992. If the cost of international borrowing is used as the opportunity cost of capital employed in the industrial SOEs, the economic cost of these subsidies could have been as high as Yuan 813 billion (\$US 148 billion) in 1992, or a staggering 34 per cent of GDP.¹⁶ Clearly the banking system and tax authorities have come to shoulder the major burden of keeping afloat those SOEs which are not fit to face hardened budget constraints in other areas.

D. Loose Financial Discipline

i) Tax enforcement

Prior to 1983, SOEs were not charged company income tax. All surplus income after the payment of production costs was transferred to the government. In 1983 the government tried to provide SOE workers and managers incentives by allowing them to retain some of their profits. At this stage a company income tax rate of 55 per cent was levied on the profits of all large and medium sized SOEs. In addition, a variable adjustment tax was imposed to maintain remittances to the government from individual enterprises at approximately the 1982 level (Takahara, 1992, p. 50). Joint ventures were charged a tax rate of only 33 per cent tax. As no distinction was made between taxes and capital charges levied on SOEs, the higher enterprise tax level and adjustment taxes for SOEs was supposed to include some form of capital charge. However, the 55 per cent tax rate was only rarely applied. Instead enterprise by enterprise deals were struck on the level of taxes and profits which would be remitted to the government. As part of the November 1993 reforms, a uniform tax rate of 33 per cent was introduced for all enterprises. However, it has not yet evident if this will be uniformly applied.

In July 1994, the State Taxation Administration Vice Minister, Xiang Huaicheng indicated that taxation arrears by the SOE sector reached Yuan 16.3 billion in June and that the sector would no longer be given tax breaks (China News

¹⁶ The estimates in Table 9 do not attempt to value the net financial impact on SOEs of their obligations under the remains of the planning systems. These include, inter alia, the provision of community and welfare services, the surrender of a part of foreign exchange earnings and the taxation of enterprise deposits by repressed interest rates. The overall impact would tend to reduce the net social loss associated with SOE subsidiaries.

Digest, 9/8/94). However, the analysis in Table 9 indicates that implicit fiscal subsidies due to loose tax and capital charge enforcement were indeed much higher even in 1992. In this respect the 1993 tax reforms may face their biggest test as yet.

ii) Involuntary inter-enterprise credits

Involuntary inter-enterprise credits, mainly between SOEs, termed debt chains or triangular debt, are again becoming a major problem in China. In 1991 they were estimated at Yuan 300 billion, corresponding to one sixth of total bank credit. In 1991-92, a government campaign headed by Zhu Rongji, now the head of the People's Bank of China, sought to eradicate the problem of chain debts by injecting Yuan 55.5 billion into the system. Loans were provided to indebted SOEs, who were required to pay off their most pressing debts. This process eventually cleared debts of Yuan 183.8 billion. However, Zhu Rongji pointed out at its completion in December 1992 that this was only a temporary measure and the basic causes of triangular debt still remained. This prediction has proved to be correct. By 1994, triangular debt in the north-eastern province of Liaoning had increased from Yuan 32 billion (US\$ 4.6 billion) to Yuan 47 billion. In Inner Mongolia, debt chains total Yuan 10 billion, and violent incidents have been reported in the coal and iron and steel industries as workers who are not being paid have demanded that enterprises owing their firms' cash pay up (South China Morning Post, 21/3/94).¹⁷ Both provinces are particularly heavily industrialised and face a pressing need for structural adjustment. Inter-enterprise credits have been used as a cushion against resource reallocation due to relative prices changes.

E. Institutional Reforms: Bankruptcy, Corporate Governance and Privatisation

While a bankruptcy law was introduced in 1986 and became effective in 1988, it has only rarely been enforced in the SOE sector, despite the chronic losses which many are making. In 1988 a law was enacted making firms into independent legal entities that were responsible for their own profits and losses and expected to restructure or accept bankruptcy if making losses. However, up until 1992 there were practically no bankruptcies reported in the SOE sector, though it is now common in the non-state sector. Since 1992 there has been an increased resolve by the government to force unviable SOEs into bankruptcy. Regional case reports indicate that the process of restructuring is starting to

¹⁷ Rostowski (1994) argues with reference to Russia and Romania that any government financed bail-outs carry substantial moral hazard risks and proposes a scheme for securitising inter-enterprise debts as part of a market-based solution to the problem.

accelerate (e.g. IMF, 1993, p. 24-28). Nonetheless, the total number of bankrupted SOEs since 1988 may not exceed a few thousand out of over 100 thousand large and medium scale SOEs (Singh and Gelb, 1994, p. 14).

After so many years of providing subsidies and protection to the SOEs, the government is likely to face a credibility problem in attempting to implement its bankruptcy policy. Experience from Eastern Europe indicates that SOEs are unlikely to accept that the government will really enforce a hard budget constraint and tend to act on the assumption that it will continue to bail them out. Conservative economic forces within the government and vested interests in the SOEs recognise that in the absence of a universal social security system the government will be unwilling to risk the social unrest which could result from the widespread bankruptcies of loss making state enterprises (see also Hardy, 1992). The November 1993 Central Committee announcement that China will move towards implementing such a social security system, funded out of taxes, may give the government more scope to allow SOEs to go bankrupt and for individual enterprises to dismiss workers.¹⁸

To date, one of the most popular ways of dealing with chronic loss making enterprises, particularly in the service sector, has been to merge them with profitable SOEs. This policy is likely to continue in line with the November 1993 reform package (World Bank, 1993, p. 7). However, most mergers have been initiated by the enterprises' line departments to overcome the problem of having to declare losses, rather than by the more successful SOEs themselves, acting on market signals (interview with Cai Xing Huo, Deputy Director, Economic System Reform Committee, Shanghai, 20/4/94). Consequently, unless managements of the newly merged enterprises are permitted to sack redundant workers, reorganise work practices and improve product quality and marketing, this process may result in little rationalisation of inefficient enterprises. Instead it will merely enable the losses of inefficient plants to be offset against the profits of the more efficient SOEs with which they are merged.

In the area of corporate governance, the Chinese government has continuously opted against the privatisation of SOEs. The 1993 reform package announced that all large-scale SOEs will eventually be transformed into joint-stock companies, whose shares would be held by workers, management and other

¹⁸ The Eastern European examples caution against generous social safety nets with universal coverage. On account of China's continuing fiscal problems a large increase in revenue would be required to finance such a scheme without risking on acceleration of inflation. An employment restructuring fund, along the lines of the National Renewal Fund recently introduced in India, that is available only to workers from bankrupted SOEs may be more affordable option for China, given its fiscal constraints.

SOEs, presumably including institutional investors. However, even in Eastern Europe privatisation has proved to be the most time consuming reform step, often encountering the biggest resistance from SOE insiders. This is likely to repeat itself in China, if a serious attempt at changing corporate governance structures was made.

In sum, although economic reforms have subjected Chinese SOEs to increasing competition budget constraints are still softened due to cheap credit and a deficient tax system, but also due to the lack of far-reaching reforms in the area of contract and bankruptcy enforcement. What effects has this operating environment had on Chinese SOEs?

V. BUDGET SOFTNESS AND ENTERPRISE BEHAVIOUR: MICROECONOMIC EVIDENCE

1. *Enterprise Autonomy and Budget Softness*

This subsection turns to micro-economic evidence of SOE behaviour using sample survey data. Before the start of the empirical analysis of the effects of budget softness it should be noted that industrial reforms in China have also provided positive incentives for behavioural changes in SOEs, particularly in the area of productivity linked worker remunerations and SOE manager autonomy (Groves et al., 1994; Hong and McMillan, 1994). It has been shown that those measures were quite successful in raising individual SOEs productivity. However, profit incentives only work in firms that are potentially profitable. Loss-makers may still exhibit adjustment inertia, partly because administrative and legal constraints impede a reallocation of resources at the firm level, partly because it is cheaper to lobby for subsidies (see also Hay et al., 1994).

The nature of the interaction between positive profit incentives and deficient sanctions in shaping SOE behaviour is particularly debated in the labour market. While supporters of China's gradual industrial reforms argue that rising worker incomes have led to a dramatic increase in worker effort and hence productivity (see Jefferson and Rawski, 1994), others argue that excessive wage payments in SOEs are the chief reason for their declining profitability (Woo et al., 1994). The latter position might also point at the factual inexistence of an unemployment threat in most SOEs, setting incentives for workers' councils, with some influence over the enterprise management, to maximise worker income in each period. As Hardy (1992) has pointed out, the absence of an unemployment

insurance¹⁹ causes SOEs to overman or overpay, thus increasing the likelihood of future losses.

The micro-economic data set analysed in this section may be used to determine whether SOEs have tended to experience wage drift (overpayment of workers) or overemployment as lined out in Section II.3.f. above. First, however, we proceed to an examination of SOE autonomy in our enterprise sample and to a quantification of two indicators of budget softness that were identified as important in the Chinese context, namely subsidised bank credit and discretionary taxation. Only if SOEs enjoyed some degree of autonomy can differences in their economic behaviour be attributed to the existence of soft budget constraints. Similarly, only if the softness of budget constraints for SOEs is confirmed by the sample data does a comparison of enterprise behaviour make sense.

The data in the remainder of this section come from a survey of 300 state-owned, collective, and foreign funded enterprises, surveyed 1993 in four coastal cities in China, namely Guangzhou, Shenzhen, Xiamen and Shanghai. The ownership, industrial and provincial distribution of the surveyed enterprises is given in Table 10.²⁰

A) *Autonomy*

As part of the survey, managers were asked to indicate who had primary responsibility for decision-making over a range of issues related to production and distribution: the firm's director, management or board of director's; the enterprise's supervisory authority; or jointly between the enterprise management and supervisory authority.

As Table 11 reveals, in all four cities surveyed, the SOEs had less autonomy in decision making than joint ventures (JVs), wholly foreign owned (WFO) enterprises and township and village enterprises (TVEs), but in Shanghai and Shenzhen, collective enterprises (COEs) had even less autonomy than SOEs. In general the degree of autonomy in the surveyed SOEs was quite high, with the exception of Xiamen where only 10 per cent of SOEs reported that the firm

¹⁹ Unemployment insurance was introduced in China in 1986 and nominally covers around 70 million employees (IMF, 1993). However dismissals have been rare as the insurance is typically paid out of the SOEs' welfare fund, which also covers pensions and other transfers to existing workers and their families. The insurance element for the firm rather than the worker is thus inexistent.

²⁰ This survey was conducted by Perkins in conjunction with Professor Zheng Yuxin, of the Institute of Quantitative Economics, Chinese Academy of Social Sciences, Beijing, from May to September, 1993. An overview of the results of the survey regarding the impact of enterprise and market reforms on productivity growth is given in Perkins (1994a).

alone was responsible for decision making. Overall, less than 20 per cent of SOEs were subject to their supervisory authorities concerning most decisions, although the divergences between the four coastal cities indicate, that this may not be typical for the whole of China. For our purposes, Table 11 indicates that behavioural comparisons may be used to make inferences on the impact of budget softness, as SOEs do appear to be relatively free to make their own decisions.²¹

²¹ Remarkably, workers committees had no influence over decision making in the SOEs in our sample. This is unexpected and would *ceteris paribus* reduce the pressures for wage drift

Table 10— Industrial Sector, Locational and Ownership Distribution of Enterprises Surveyed, Numbers of Firms

	INDUSTRY:	Textiles	Garments	Household appliances	Machine tools	Iron & steel	Metal products	Other	
Guangzhou									
	State	11	3	6	2	8	0		
	Collective	0	11	1	1	0	1		
	Joint Venture & Foreign	0	0	2	0	2	0		
	Total	11	14	9	3	10	1		
Shenzhen									
	State	1	4	9	0	0	0		
	Collective	0	5	4	0	0	0		
	Joint Venture & Foreign	7	15	12	0	1	1		
	Total	8	24	25	0	1	1		
Xiamen									
	State	7	0	1	1	0	0		
	Collective	0	10	0	1	1	2		
	Joint Venture & Foreign	4	11	3	0	1	1		
	Total	11	21	4	2	2	3		
Shanghai									
	State	4	10	5	2	2	2		
	Collective	1	9	0	0	0	0		
	Joint Venture & Foreign	1	2	0	0	0	0		
	Total	6	21	5	2	2	2		
	Grand total	36	80	43	7	15	7		188

Source: Survey data, own calculations.

B) *Sources of finance*

Table 12 outlines the reported sources of investment finance of the surveyed firms. Although only a small proportion of SOEs reported that they had access to Plan allocations of investment finance, no other ownership type received any such allocations. However, in recent years the SOEs and collective enterprises appeared to have had better access to bank finance than the TVE and foreign funded enterprise sectors. Self financing is a much more significant source of funds for JVE, JV, WFO and even collective enterprises than for SOEs. Finally, shares and bonds still formed an insignificant source of investment funds in all the surveyed enterprises in 1990-92.

In order to determine whether the higher reliance of SOEs on bank financing was due to soft loans provided by state-owned banks to ailing SOEs, a simple regression was run to establish the relationship between access to bank finance and enterprise profitability. The proportion of total investment provided by bank loans (LFI) was regressed on profits as a ratio to capital (profitability). The results for all firms surveyed and for SOEs and non-state firms (NSFs) separately are given in Table 13. They indicate that for SOEs there was a significant and negative relationship between access to bank loans for investment and profitability. When the regression was run for NSFs, the relationship between profitability and reliance on bank funds was not significant. In the light of the massive share of bank funds going to the public sector it may be concluded that, among the surveyed SOEs, distress lending by state-owned banks does appear to be a phenomenon.²²

²² Of course, it may also indicate that profitable SOEs simply did not need bank loans. As long as real interest rates remained negative, however, and the credit plan was prominent in the allocation of bank funds, this interpretation is less plausible. Clearly, SOEs with soft budgets should demand as much credit as they can get. Government fiat largely determined how much that was.

Table 11 — Locus of Decision Making in Surveyed Firms

	Director, board of directors, firm management	Supervisory authority	Joint with supervisor	Workers committee
Guangzhou				
State	50.1	15.2	34.8	0
Collective	60	0	40	0
TV	0	0	100	0
JV	75	25	0	0
WFO	0	0	0	0
<i>total</i>	52.4	13.1	34.4	0
Shenzhen				
State	72.3	5.6	22.2	0
Collective	55.5	0	33.3	11.1
TV	0	0	0	0
JV	92.9	4.8	2.4	0
WFO	100	0	0	0
<i>total</i>	83.1	4.2	11.3	1.4
Xiamen				
State	10	30	60	0
Collective	43.8	18.8	37.5	0
TV	100	0	0	0
JV	77.7	11.1	11.1	0
WFO	100	0	0	0
<i>total</i>	59.1	14.3	26.5	0
Shanghai				
State	69.9	8.1	22.1	0
Collective	50	0	50	0
TV	80.6	3.9	10.7	4.9
JV	91.4	4.9	3.7	0.0
<i>total</i>	74.1	6.8	17.3	1.9

Source: Survey data collected by author

* small sample: one or two firms only.

Table 12 — Sources of Investment Finance of Surveyed Enterprises, by Ownership, per cent, 1980-92

Ownership	FROM PLAN ALLOCATION			FROM BANK LOANS			FROM SHARE/BONDS			FROM SELF FINANCING		
	1980-84:	1985-89:	1990-93:	1980-84:	1985-89:	1990-93:	1980-84:	1984-89:	1990-93:	1980-84:	1984-89:	1990-93:
State	12	9	12	82	72	76	0	1	3	6	18	9
Collective	0	0	0	80	67	78	0	0	0	20	33	22
TVE	n.a.	0	0	n.a.	81	53	n.a.	0	0	n.a.	19	47
JV	0	0	0	25	24	47	0	0	6	75	76	47
WFO	n.a.	0	0	n.a.	37	27	n.a.	0	0	n.a.	63	73

Source: Survey data collected by author.

Table 13 — Evidence of Adverse Selection in the Financial System, Relationship of Bank Lending to Profitability

	Total firms		State firms		Non-State firms	
	Coeff	t-statistic	Coeff	t-statistic	Coeff	t-statistic
Profitability	-0.066	-1.359	-0.236	-2.440	-0.042	-0.501
Constant	0.337	22.907	0.790	28.124	0.810	33.844

Source: Survey data collected by author.

C) Discretionary Taxation

The relationship between post and pre-tax profitability for SOEs and NSFs was examined to determine if this is another area where soft budget constraints are evident. An insignificant relationship between post- and pre-tax profitability in the SOE sector would imply a high level of intervention from SOEs' line authorities related to adjusting the tax and capital charge payment liabilities of SOEs to protect them from low profitability or losses. The results of a simple regression of the log of pre-tax on the log of post-tax profits are given in Table 14. A significant and positive relationship was found between the two variables for both SOEs and NSFs. However, the coefficient on the log of pre-tax profitability was lower for SOEs (0.76) than for NSFs (0.85). This indicates there was a closer relationship between post- and pre-tax profitability for non-state than for state owned enterprises possibly because there is a greater degree of intervention by line departments in SOEs, driving a bigger wedge between post and pre-tax profitability. To some extent this would have reduced the incentives for profit maximisation in SOEs. However, since the coefficient on SOEs is both positive and significant, these results indicate that there does not appear to be a very serious level of distortion introduced by authorities tailoring tax and capital charge payment liabilities of SOEs to their profitability.

Table 14 — Relationship between Post- and Pre-tax Profitability, State and Non-State Firms

	Total firms		State Owned firms		Non-State firms	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Log Pre-tax profit	0.82	36.40	0.76	22.50	0.85	31.80
Constant	-0.43	-3.51	-0.24	-1.26	-0.60	14.11
Adj. R2	0.615		0.49		0.66	
No of observations	941		597		344	

Source: Survey data collected by author.

Overall, budget constraints for the SOEs in our sample are softer than for NSFs. However, the differences seem to be smaller than suggested by the macro-economic evidence, possibly due to the special policy conditions in China's coastal provinces. To what extent has budget softness affected SOE behaviour in our sample?

2. *Consequences for Enterprise Behaviour*

The starting point for our analysis in this subsector is the neo-classical theory of the firm. This arguably is not a very appropriate framework for the study of enterprise behaviour in transition economies as it is not clear what marginal conditions and profit maximisation should imply in a regime of distorted prices and limited managerial responsibility. However, NSFs have been subjected to market prices much earlier than SOEs and their budget constraints may generally be considered to be substantially harder (Byrd and Lin, 1990). If NSFs behave in a manner consistent with the neo-classical theory of the firm, a comparison with the behaviour of SOEs may allow one to identify deviations from profit maximisation in the latter.

A. *Allocative Efficiency in Chinese Industry*

To begin with, we assume Cobb Douglas technology in each sector of Chinese industry. Under the additional assumption of constant returns to scale, profit maximisation at the level of the firm implies by Euler's theorem that the output elasticities of factor inputs are equal to the factor shares in total output. If technological change is neutral, output elasticities will be constant over time and factor shares should also be constant. Allocative inefficiency may then be measured as the deviation of factor shares from estimated output elasticities. More specifically, the hypothesis of wage drift in SOEs implies that labour share should be higher than the output elasticity of labour in the state sector.

In an economy where factor mobility is ensured and factor prices are set exogenously in the market, profit maximisation would also imply that factor returns should be equalised across firms. Thus Jefferson and Xu (1991) calculate the coefficient of variation of marginal returns to labour in a cross-section of firms in 1980 and 1987 to test whether some convergence of factor returns has taken place.²³ Jefferson, Rawski and Zheng (1992) test for the convergence of factor returns between SOEs and collective enterprises using aggregate data. In our sample, we can compute both measures to see whether some kind of inter-ownership labour market has developed and the extent SOEs are subject to soft budget constraints.

We start by summarising the data on labour shares in our sample. Table 15 gives the ratio of total worker compensation in the value of net and gross output (NVO and GVO) of the firms in our sample subdivided both by industrial sub-sector

²³ Full convergence will never be fully measurable because of heterogeneity of inputs. A sufficiently exact measure of the quality and quantity of labour inputs is typically unavailable.

and ownership.²⁴ Total worker compensation was measured as the sum of wages plus bonuses plus total welfare payments. The latter item was available only in some cases and did not include in kind benefits, most importantly worker housing. Particularly for SOEs, for which these elements of workers incomes are very important Table 15 gives a lower bound estimate of labour shares. Additionally, the number of observations was very unequal for each year. In order to ensure a meaningful sectoral and ownership disaggregation, only the years 1980, 1985, and 1990-92 are presented. Bearing the shortcomings of the data in mind, we can identify the following trends:

Table 15—Labour Shares (Broad Measure) in Gross and Net Value of Output by Ownership and Industry^a

Industry	Gross Value of Output					Net Value of Output				
	1980	1985	1990	1991	1992	1980	1985	1990	1991	1992
SOEs	0.097	0.099	0.134	0.129	0.138	0.329	0.388	0.523	0.577	0.548
Textiles	0.069	0.089	0.125	0.127	0.182	0.298	0.355	0.615	0.682	0.811
Garments	0.141	0.140	0.208	0.217	0.226	0.284	0.349	0.622	0.909	0.753
Electrical appl.	0.124	0.068	0.101	0.073	0.065	0.418	0.316	0.427	0.293	0.254
Machine tools	0.132	0.179	0.224	0.238	0.221	0.341	0.478	0.690	0.746	0.638
Iron+steel	0.078	0.074	0.064	0.062	0.061	0.379	0.528	0.409	0.422	0.400
Heavy metal	0.018	0.022	0.044	0.043	0.049	0.066	0.076	0.380	0.256	0.325
NSFs	0.203	0.188	0.186	0.166	0.162	0.520	0.540	0.600	0.527	0.615
Textiles	—	0.018	0.036	0.050	0.065	—	—	0.190	0.624	0.379
Garments	0.179	0.207	0.224	0.221	0.196	0.491	0.546	0.689	0.564	0.747
Electrical appl.	0.180	0.103	0.122	0.092	0.108	0.303	0.513	0.357	0.329	0.356
Machine tools	0.352	0.443	0.152	0.152	0.177	0.864	0.598	0.585	0.490	0.590
Iron+steel	0.127	0.099	0.094	0.099	0.090	0.497	0.384	0.536	0.4663	0.292
Heavy metal	0.239	0.253	0.294	0.261	0.239	0.478	0.642	0.968	0.730	0.837

^a Labour shares are calculated as $(W+W^S) \times L/Q$, where W is average wage + bonuses, W^S is average welfare payments per worker and Q is gross or net value of output.

Source: Survey data collected by author.

²⁴ Net value of output is a Chinese statistical category corresponding to value added in the SNA methodology. It is gross output net of material inputs and depreciation.

First, labour shares have increased in SOEs during the 1980s and have remained roughly constant since the early 1990s. The increase in labour shares is much more accentuated in textiles, garments and machine tools. In the iron and steel, heavy metal products and electrical appliances sectors, labour shares have either declined or are still at a very low level. Second, labour shares in NSFs have remained more or less stagnant during the entire reform period. This would suggest that our initial assumption of Cobb Douglas technology with neutral technical change was appropriate. Again, at a sectoral level, NSFs display an increase in labour shares in garments, textiles and also heavy metal products. Third, labour shares in NSFs overall have exceeded those in SOEs for most of the reform period. Only in 1991 did the share of labour in NVO in SOEs exceed that in NSFs. On a sectoral level, SOEs in textiles garments and machine tools have higher labour shares in SOEs than NSFs. The converse is true for electrical appliances and heavy metal products, while iron and steel displays no clear pattern.

Overall, Table 15 yields a contradictory picture of wage and employment developments in SOEs. The increase in labour shares mirrors Woo et al.'s (1994) results and could indicate wage drift. However, the diminishing gap between labour shares in SOEs and NSFs could also indicate convergence of factor returns. Clear conclusions concerning allocative inefficiency require the comparison of labour shares with estimated output elasticities.

The estimated constrained Cobb Douglas production functions, allowing for neutral technological change were specified as follows:

$$1) \quad \ln VA_{it} = \ln A + \alpha_1 \ln L_{it} + \beta_1 \ln K_{it} + \lambda t + eit$$

where: VA = net value of output, deflated with sectoral producer price deflators

α_1 = output elasticity of labour

β_1 = output elasticity of capital

λ = rate of technical progress

L = end-year total workforce

K = end-year total capital stock²⁵

eit = random error term

and the "i" and "t" denote individual and time subscripts respectively.

$$2) \quad \ln Q_{it} = \ln A + \alpha_2 \ln L_{it} + \beta_2 \ln K_{it} + \gamma_2 \ln Mit + \lambda t + eit$$

²⁵ The capital stock was computed from accumulated real investment data as outlined in Jefferson, Rawski and Zheng (1992). The deflator used was computed by Zheng Yuxin and taken from Perkins et al. (1993).

where: Q = gross value of output, deflated with sectoral producer price deflators
 $\alpha_2, \beta_2, L, K, \lambda$ as before
 γ = output elasticity of material inputs
 M = materials used, deflated by sectoral material price deflator, from Zheng Yuxin, CASS
 eit = random error term

and the " i " and " t " are individual and time subscripts as before.

Models 1) and 2) were estimated for six industrial sub-sectors, using pooled cross-sectional data from 1980 to 1992. For the textiles, garments, electrical appliances and iron and steel industries, pooling over time allowed separate estimation by ownership also. Table 16 gives the results of the Ordinary Least Squares estimates of the output elasticity of labour "alpha". We can see that in the two factor case (alpha1), the output elasticity of labour is around 0.60 across all industries. This implies a profit share of 40 per cent, not inconsistent with data from other developing countries. Significant differences may be observed in the heavy metal products sector which has a lower "alpha1" of only 0.43. In all sectors except the garments sector, the output elasticity of labour is higher in SOEs than in NSFs. Chow tests for parameter constancy, also displayed in Table 16, show that this difference is statistically significant at the 5 per cent level. This confirms the importance of computing output elasticities from enterprise level data if data on labour-shares are to be properly interpreted.

For the three factor case, there is considerably more cross-sectoral variation in the output elasticities of labour. The standard errors are higher (indicated by lower t-values) which suggests a problem of multicollinearity of the regressors. Significant differences between state and non-state firms are also evident except for the electrical appliances sector. The values for alpha2 are significantly higher for SOEs in the iron and steel sub-sector, while they are lower in garments and textiles.

Before we proceed to comparing these results with those on labour shares in Table 15 one further complication should be noted. The OLS regressions were run assuming constant and similar technologies in all firms in a given sub-section. However F-tests and a Chi-Square test for equal variance, both reported in Table 16 reject the null-hypothesis of equal variance across individuals for

Table 16 — Output Elasticities of Labour, Constrained Cobb Douglas Production Function, Two and Three Factor Inputs, by Ownership and Industrial Subsectors

SECTOR	Two factors				Three factors			
	Ownership							
	All α_1^a	SOEs α_1	NSFs α_1	F-test for constant parameters across ownership	All α_2	SOEs α_2	NSFs α_2	F-test for constant parameters across ownership
Textiles	0.60 (12.7)	0.83 (13.8)	0.41* (1.80)	8.65	0.11 (4.7)	0.16 (6.32)	0.29 (2.1)	3.82
Tests for equal variance time	5.4	2.7*	1.6*		2.99	3.97	0.19*	
individual	9.1	6.1	13.4		28.6	20.1	16.4	
X ² -test	303.4	218.6	56.9		361	204.1	94.1	
Garments	0.66 (15.4)	0.62 (8.9)	0.72 (13.3)	3.89	0.28 (8.52)	0.06 (1.30)	0.32 (7.6)	5.23
Tests for equal variance time	0.28*	1.4*	1.2*		0.22*	0.33*	0.30*	
individual	10.3	8.5	11.6		11.5	10.6	10.6	
X ² -test	818	125	649		941	148	705	
Electrical applic.	0.58 (10.3)	0.83 (8.6)	0.45 (6.00)	3.54	0.13 (4.5)	0.14 (2.61)	0.12 (3.17)	1.95*
Tests for equal variance time	2.6*	0.31*	2.6*		4.29	3.8	1.5*	
individual	7.8	2.07*	10.7		5.9	7.7	6.5	
X ² -test	329	133	210		316	123	190	
Machine tools	0.65 (13.6)			—	0.35 (7.2)			—
Tests for equal variance time	0.62*				3.4			
individual	8.03				5.1			
X ² -test	110.2				105.2			
Iron & Steel	0.67 (8.5)	0.69 (4.6)	0.61 (7.71)	3.17	0.46 (6.9)	0.55 (4.61)	0.33 (5.1)	9.79
Tests for equal variance time	0.7*	0.7*	0.27*		1.0*	0.3*	0.22*	
individual	12.6	15.2	1.13*		21.0	16.0	0.15*	
X ² -test	177	118.4	9.54*		229.8	164.6	5.11*	
Heavy metal products	0.43 (3.40)			—	0.14 (2.9)			—
Tests for Equal variance time	0.9*				0.6*			
individual	13.9				3.34			
X ² -test	78.9				50.9			

^a α_1 -statistics in brackets. A star indicates not significant at 5 per cent level.

most sectors.²⁶ It appears that the error term is picking up the effect of sample heterogeneity. This could be due either to non-homogenous factor inputs, such as different qualities of labour or to variations in overall technical efficiency. In the latter case OLS estimates will not correctly measure technical progress but output elasticities should be unbiased. By contrast, heterogenous labour inputs could lead to biased estimates of α and β . To test for the robustness of the OLS results, we re-estimated models 1) and 2) allowing for fixed or random individual effects.²⁷ Whether fixed or random effects are present can be tested using a Hausman specification test. The results of this test and revised estimates of the output elasticities of labour (α_3 and α_4) in models 1) and 2) are given in Table 17. Rejection of the Hausman test is indicated by an insignificant P-statistic. In this case random effects estimates are given. Except for the heavy metal producing sector the output elasticities are not significantly affected. We conclude that sample heterogeneity is probably not input related and that OLS estimates may be used.

What do these calculations imply for the behaviour of SOEs in comparison to NSFs? The strongest result emerging from Tables 15 through 17 is that SOEs by the early 1980s were paying workers only a fraction of their marginal revenue product. Much of the wage increase during the 1980s was in this sense an improvement in allocative efficiency. However, by the early 1990s labour shares in NVO in SOEs exceeded the output elasticity of labour (α_1 or α_3) in some sectors. This is most evident for the garments sector, but also for machine tools using the pooled output elasticity (All) in the latter case. Moreover, had worker housing and in kind payments to employees, which are much more prevalent in SOEs, been included, labour shares by the 1990s may well have exceeded the output elasticity of labour in SOEs in the textiles industry, too. In the three factor case, SOEs in garments and textiles have labour shares exceeding the output elasticities of labour. For NSFs, the output elasticities of labour are more or less equal to the labour shares except for heavy metal products, where they are much lower. This is also the only sector where the fixed effects estimates of the output elasticity of labour differ significantly from

²⁶ Note, that the F-tests for equal variance over time cannot reject the null hypothesis that technology is time invariant in most sub-samples. Thus labour shares can be compared to output elasticities gained from cross-sectional data pooled over time.

²⁷ Technically, this implies letting the constant "lnA" in 1) and 2) vary across individuals or across individuals and time, i.e. "lnAi" for fixed and "lnAit" for random effects.

Table 17 — Output Elasticities of Labour, Constrained Cobb Douglas Production Function, Two and Three Factor Inputs, Fixed and Random Effects Estimation, by Ownership and Industrial Subsectors^a

SECTOR	Two factors			Three factors		
	Ownership					
	All α_3	SOEs α_3	NSFs α_3	All α_4	SOEs α_4	NSFs α_4
<i>Textiles</i>	0.71 (9.63)	0.94 (10.6)	0.79 (2.5)	0.15 (2.44)	0.12 (2.9)	0.31* (1.69)
P-stat ^b	0.008*	0.05*	0.40	0.14	0.03*	0.89
<i>Garments</i>	0.77 (13.6)	0.28* (1.51)	0.89 (14.4)	0.22 (5.5)	0.08* (1.42)	0.24 (3.8)
P-stat	0.018*	0.29	0.018*	0.037*	0.39	0.07
<i>Electrical applic.</i>	0.64 (7.5)	0.62 (5.4)	0.59 (4.7)	0.22 (6.2)	0.11 (1.59)	0.27 (5.6)
P-stat	0.37	0.15	0.32	0.006*	0.51	0.0018*
<i>Machine tools</i>	0.87 (11.8)			0.51 (8.75)		
P-stat	0.18			0.03*		
<i>Iron & steel</i>	0.78 (7.3)	0.67 (6.2)	0.71 (6.16)	0.50 (6.0)	0.45 (4.88)	0.64 (3.41)
P-stat	0.87	0.91	0.05	0.50	0.77	0.27
<i>Heavy metal</i>	1.08 (6.7)			0.32 (3.28)		
P-stat	0.01*			0.14		

^a t-statistics in brackets. A star indicates not significant at 5 per cent level. - ^b P-stat is computed for the null hypothesis that fixed effects are dominant over random effects. A star indicates rejection of the null hypothesis at the 5 per cent level.

the OLS results. Using the figure in Table 17, the labour share in NSFs does not exceed the output elasticity even in this sector. Hence we cannot reject the hypothesis that NSFs in all sectors except for the latter are allocatively efficient. In conclusion, it seems that wage drift may have become a problem in some SOEs since the late 1980s but the phenomenon is not accentuated enough to draw firm conclusions about the macro-economic consequences of inefficient behaviour. While falling profitability in SOEs is certainly related to rising labour shares in the GVO and NVO, this development has to some extent remedied dramatic allocative inefficiencies prevailing at the beginning of the reform period.

Table 18 summarises the above results in a form that allows direct inferences to be drawn about the degree of convergence of factor returns in Chinese industry.

It gives the average marginal revenue product of labour, calculated as $\alpha \times \text{NVO}/\text{workforce}$ for each industry. The right hand side part of Table 18 additionally presents the average nominal wage in each sector. We first note that there has been little variation in nominal wages across sectors over the whole reform period. The standard deviation of average worker compensation across the whole sample is much lower than for any other variable. In the light of continuing government intervention in relation to average wage guidelines, we may interpret the increase in labour shares reported above as part of a conscious government strategy (Hay et al., 1994). Moreover, the tendency of firms to pay excessive bonuses has been strongly (but often not successfully) opposed by the government. Table 18 also implies that wages may in fact be the exogenous variable in the determination of factor intensities at the level of the firm. Thus the positive difference between labour shares and output elasticities in SOEs in some sub-sectors may be due more to overemployment than wage drift.

Table 18— Marginal Revenue Product and Average Wage by Ownership and Industry in 10 000 Yuan

	MRPL = $\alpha \times \left(\frac{\text{NVO}}{\text{workforce}} \right)$					Average nominal wage				
	1980	1985	1990	1991	1992	1980	1985	1990	1991	1992
SOEs										
Textiles	0.280	0.370	0.458	0.433	0.316	0.088	0.145	0.335	0.364	0.436
Garments	0.223	0.289	0.376	0.268	0.444	0.092	0.138	0.332	0.370	0.491
Electrical appl.	0.201	0.774	0.822	1.371	1.820	0.087	0.171	0.378	0.461	0.525
Machine tools	0.195	0.262	0.424	0.432	0.661	0.088	0.155	0.345	0.376	0.495
Iron+steel	0.242	0.539	0.770	0.888	1.182	0.091	0.168	0.387	0.425	0.572
Heavy metal	0.640	0.820	0.380	0.709	0.874	0.098	0.145	0.290	0.348	0.554
NSFs										
Textiles	—	—	1.101	0.437	1.342	—	0.397	0.551	0.548	0.895
Garments	0.137	0.176	0.346	0.481	0.342	0.100	0.153	0.363	0.407	0.467
Electrical appl.	0.177	0.338	0.423	0.668	0.897	0.079	0.268	0.391	0.450	0.566
Machine tools	0.093	0.178	0.372	0.511	0.594	0.116	0.132	0.269	0.325	0.397
Iron+steel	0.150	0.259	0.376	0.499	1.009	0.109	0.159	0.469	0.6243	0.708
Heavy metal	0.069	0.094	0.167	0.232	0.197	0.068	0.143	0.446	0.549	0.553

Source: Survey data collected by author.

With respect to the convergence hypothesis the results in Table 18 are ambiguous. There is some indication of convergence in marginal revenue products between SOEs and NSFs in the garments, machine tools and iron and steel sectors and to a lesser degree in electrical appliances, where NSFs seem to close the productivity gap from below. By contrast in textiles and heavy metal products no convergence is achieved. Moreover, at the level of inter-firm comparisons, the standard deviation of marginal revenue products (not shown in Table 18) is large enough to strongly reject the hypothesis of convergence. This points at large efficiency differences across firms and reveals that these have so far not been eroded by factor mobility. In the case of SOEs, average wages exceed the marginal revenue product of labour in the textiles and garments subsectors, confirming the above indication of allocative inefficiency in these two sectors. Overall, allocative inefficiencies in SOEs are apparent but not dramatic. This suggests that behavioural differences over the whole reform period might be better detected by looking at the dynamics of employment adjustment.

B. *Soft Budget Constraints and Adjustment Inertia in the Labour Market*

No enterprise will consistently deviate from profit maximisation all the time, if at least some incentives in that direction are present. However, with soft budget constraints, an adjustment to an exogenous shock, such as an increase in factor prices or a fall in demand, may take much longer. Factor market imperfections affecting all firms may further increase adjustment inertia. This final sub-section thus attempts to measure the speed of adaption of SOEs to a change in factor prices and output. Similar studies have been provided for the case of SOEs in FCPEs by Estrin, Schaffer and Singh (1992b) and are suggested by Earle (1993).

Starting from the assumption of Cobb Douglas technology with constant returns to scale, the profit maximising condition that the marginal revenue product of labour should equal the average wage may be written as follows:

$$\alpha \cdot \frac{VA \cdot p}{L} = w$$

3)
$$\ln L_{it} = \ln \alpha - \sigma_0 \ln \left(\frac{w}{p_{it}} \right) + \sigma_1 \ln VA_{it} + eit$$

where σ_0 and σ_1 are elasticities of factor demand with respect to the factor price $\left(\frac{w}{p} \right)$ and real output (VA). For Cobb Douglas technology σ_0 and $\sigma_1 = 1$.

Assuming a partial adjustment process of L in 3), the model can be written as:

$$4) \quad \ln L_{it} = \varepsilon \left(\ln \alpha - \sigma_0 \ln \left(\frac{w}{p_{it}} \right) + \sigma_1 \ln VA_{it} \right) + (1 - \varepsilon) \ln L_{it(t-1)} + eit$$

where ϵ is the adjustment coefficient to the long-run equilibrium in 3).

Estimation of 4) using time pooled cross-sectional data for the years 1980-1992 suffers from the complication that the lagged endogenous variable is likely to take over any existing autocorrelation in the error terms. Hence, dynamic models in the recent literature have been specified as Error Correction Models (ECM), yielding consistent estimates of both the long term parameter coefficients and a short term adjustment coefficient.²⁸ The Cobb Douglas technology assumed here requires that the long run elasticity of labour demand with respect to the real wage and to the value of output be unity. The ECM specification of 4) can be written as:

$$5) \Delta \ln L = C - d \left[\ln L(i_{t-1}) - \sigma_L \ln \left(\frac{w}{p} \right)_{i(t-1)} + \sigma_q \ln V A_{i(t-1)} \right] - S_L \Delta \ln \left(\frac{w}{p} \right)_i + S_q \Delta \ln V A_i + \epsilon_{it}$$

where: d = adjustment coefficient
 σ_L = long-run real wage elasticity of labour demand
 σ_q = long-run output elasticity of labour demand
 S_L, S_q = short-run elasticities.

The term in brackets is the long-run equilibrium relationship. Thus σ_L and σ_q are obtained by dividing the estimated coefficients through "d".

Table 19 reports the results of estimating model 5) for four of the six industrial sub-sectors, where a subdivision by ownership was feasible. Standard errors of the long-run coefficients were obtained using the Bewley transformation. Table 19 clearly reveals a substantial degree of adjustment inertia in Chinese labour markets. An adjustment coefficient of 0.1 implies that equilibrium is only reached after 10 years. Moreover, this extremely long adjustment period is even longer for SOEs, and the difference to NSFs is statistically significant at the 1 per cent level except for the electrical appliances sector.

Unfortunately, the implied long-run elasticities reported in Table 19 deviate quite substantially from unity and some coefficients are not statistically significant. The results of our dynamic model should thus be interpreted cautiously. As a final test for the robustness of our conclusion concerning a higher degree of adjustment inertia in SOEs, we estimated the relationship in 3) using first differences. The results not presented here for reasons of space

²⁸ Running an ECM in principle requires testing for the co-integration of the endogenous variable and the regressors. Our time period was too short to provide a robust test for co-integration. We report the ECM results and leave it to the reader to judge its quality by the plausibility of the long-term coefficients.

Table 19 — Results of ECM of Labour Demand, by Ownership and Four Industrial Subsectors, 1990-1992^a

SECTOR	Textiles		Garments		Electrical appliances		Iron and steel	
	SOE	NSF	SOE	NSF	SOE	NSF	SOE	NSF
Variable adjustment coefficient "d"	0.044 (4.79)	0.152 (2.10)	0.051 (2.97)	0.137 (5.46)	0.075 (2.26)	0.117 (2.43)	0.038 (2.74)	0.097 (1.89)
Long-term coefficient σ_L	0.540 (1.52)	3.303 (2.25)	0.496 (1.25)	0.460 (2.77)	0.915 (1.62)	0.614 (0.87)	2.709 (2.58)	0.910 (2.41)
σ_d	0.857 (9.32)	0.637 (3.98)	0.298 (1.77)	0.758 (14.58)	0.584 (3.32)	0.762 (3.95)	0.678 (5.67)	0.948 (12.90)
R ²	0.18	0.76	0.23	0.37	0.30	0.33	0.25	0.25
F-test for d SOE=NSF	134.7 (0.00)		26.69 (0.00)		1.79 (0.18)		20.20 (0.00)	

^a t-statistics in brackets.

confirm the hypothesis of adjustment inertia in SOEs, as reflected in a lower correlation of the difference in employment levels with changes in real wages and the value of output.

VI. CONCLUSIONS

This paper has drawn a link between the reform of SOEs in economies in transition and their macro-economic performance. The theoretical basis for this link is Janos Kornai's analysis of soft budget constraints in centrally planned economies. In FCPEs the soft budget constraints may persist for some time, if the reform of property rights and accountability in SOEs is delayed. An analysis of transition processes in Central and Eastern Europe reveals that financial legacies in capital markets, the lack of corporate control in decentralised SOEs, and deficient bankruptcy enforcement are the primary causes of remaining budget softness. A comparison of reform achievements in these areas in the Czech Republic, Hungary and Poland suggests that the failure to harden budget constraints on SOEs effectively and early in the transition process carries

substantial macro-economic costs, particularly in terms of persistent inflationary pressures.

Macro-economic performance in China has been remarkably good since the start of its transition process. Nonetheless, inflationary pressures continue to threaten the sustainability of reforms and macro-economic control seems to be considerably more difficult now than 15 years ago. Inflationary pressures currently being experienced in China may represent the beginning of a structural shift to higher levels of inflation unless remedies can be rapidly introduced into the SOE sector. The analytical framework chosen in this paper helps to reconcile a satisfactory growth performance with remaining bottlenecks in the reform process. While we acknowledge the positive role that increasing autonomy, competition with the NSF sector and incentives for profit maximisation have played in the improvement of SOE performance, a review of a set of indicators for remaining budget softness reveals that loss-makers still face substantial protection in China. The financial costs of this protection in the form of direct and indirect subsidies are estimated to have reached as much as 10 per cent of GNP by 1992, and the economic opportunity cost of subsidies are likely to be considerably higher than this. It is only because of the dramatic growth of private savings and the dynamism of the non-state sector has China been able to finance subsidies of this order of magnitude. However, recent inflationary episodes reveal the limits to this strategy. The current policy challenge is to further improve the efficiency of SOEs and particularly to reduce the waste of resources by perpetual loss makers.

With respect to the consequences of Chinese industrial reforms for the behaviour of SOEs, micro-economic evidence from sample survey data suggests that the majority of SOEs have improved their allocative efficiency over the course of the 1980s. Since the 1990s there is some indication that the pressures from workers have tended to result in excessive increases in average remunerations compared to the rate of growth of labour productivity. More important for the future development of SOEs in China is the extremely slow pace of adjustment in employment levels which suggests that SOEs may be facing an increasing overemployment problem, as market pressures from domestic and international competitors increase. It is essential that the Chinese government permit SOEs to shed redundant workers rapidly if a further deterioration of their profitability is to be avoided.

Apart from these policy conclusions our micro-economic analysis supports the validity of micro-economic theory in the analysis of enterprise adjustment in China. For the case of NSFs, the hypothesis of profit maximisation was strongly supported and even for SOEs it could not be rejected out of hand, at least in

recent times. In this respect, we should note that the empirical results were gained from an analysis of firms exclusively located in the coastal regions of China. More research including SOEs from inland provinces, less subject to competitive pressures from imports and NSFs is clearly needed if firm conclusions about the effects of budget softness on SOE behaviour are to be drawn. Moreover, a separate analysis of the behaviour of loss-makers along the lines suggested by Hay et al. (1994) would be helpful in further strengthening the hypotheses about the behavioural consequences of budget softness at the firm level. Finally, our work provides a basis for a more comprehensive analysis of profitability decline in SOEs which will be the subject of future research. The distinction of behavioural and exogenous causes of profitability decline would clearly enable an improvement in the formulation Chinese economic policy in the future.

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