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Macroeconomic Stability:
Lessons from China

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Abstract

Using a survey of 300 state-owned enterprises (SOEs), we argue that the acceleration of inflation in China after 1984 was caused by the decentralization reforms in the state sector. These reforms allowed the SOEs to realize their innate tendencies to over-consume and over-invest. The evidence suggests that the increasing government budget deficits were caused by an upward "wage drift"; and that there has been a decline in production efficiency in the 1984-88 period. The latter implies that the efficiency improvements in SOEs immediately after 1978 (found by earlier studies) was only a temporary phenomenon; and that the higher aggregate growth rate of 1984-88 came from other sources.

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Section 1: Introduction

There are three dimensions to the economic reforms that China has initiated since 1978: decentralization of the state sector; diversification of ownership patterns¹; and the opening of China to international trade and investment. The result has been an impressive acceleration of growth. National income² grew at the annual average of 7.0 percent in the 1975-79 period, 8.6 percent in the 1980-84 period and 9.2 percent in the 1985-89 period, see Table 1.

The higher growth rates have come at the price of greater macroeconomic instability, however. The annual average inflation rate in 1985-89 was 12 percent compared with 4 percent in 1980-84 and 1 percent in 1975-79. The combination of fast growth and high inflation caused China to suck in imports vigorously, turning the current account surplus from 1.1 percent of GNP in 1980-84 to -1.7 percent in 1985-89. The government responded to the two disconcerting trends of worsening inflation and deteriorating external position by reducing credit expansion and budget deficits, but it reversed policies whenever growth slowed down. The outcome was a rather volatile pattern of output expansion.

The classic example of this stop-go posture of macroeconomic management is the 1984-86 episode. The money supply (M2) grew 42 percent in 1984, and prices began rising quickly in 1985. The

¹ This mainly refers to the development of non-state enterprises such as private and cooperative businesses in urban areas, and village and township enterprises in rural areas.

² This is the only aggregate output measure that goes back beyond 1979. This is the standard socialist definition of national income not the international (IMF) definition.

Table 1: Chinese Economic Performance (1975-90)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real National Income (%)	8.3	-0.3	7.8	12.3	7.0	6.4	4.9	8.3	9.8	13.4	13.1	7.9	10.2	11.1	3.5	
Real GNP (%)					7.6	7.9	4.4	8.7	10.3	14.6	12.7	8.3	11.0	10.8	3.6	3.5
Retail Price Index (%)	0.2	0.3	2.0	0.7	2.0	6.0	2.4	1.9	4.4	2.8	8.8	6.0	7.3	18.5	17.8	2.5
Employee's Cost-of-Living (%)	0.4	0.3	2.7	0.7	1.9	7.5	2.5	2.0	2.0	2.7	11.9	7.0	8.8	20.7	16.3	2.0
Current Account Balance (% of GNP)					-0.1	0.3	0.9	2.1	1.5	0.8	-4.0	-2.6	0.1	-1.0	-1.0	1.9
Current Account (in millions of US\$)								5,823	4,487	2,509	-11,417	-7,034	300	-3,802	-4,317	11,998
M2 Growth Rate (%)					9.7	24.1	19.7	13.1	19.2	42.4	17.1	29.3	24.2	21.0	18.4	26.2
Budget Deficit (% of GNP)**					5.2	3.3	1.2	1.4	1.7	1.5	0.5	1.9	2.0	2.6	1.8	1.5
Fixed Investment (% of GNP)						20.4	20.1	23.1	23.6	30.8	31.4	32.7	34.0	33.5	28.3	26.9
Gross Domestic Investment (% of GNP)					34.1	26.5	27.0	28.2	28.7	35.8	40.1	40.4	39.2	39.7	39.2	33.4

* 1990 data are estimates.

** This is the IMF definition of budget deficit.

Data Sources:

National Income Growth, Retail Price Index and Employee's Cost-Of-Living data are from China Statistical Yearbook (1991).

Current Account data in millions of US\$ are from International Financial Statistical Yearbook (1991).

Other data are from an International Monetary Fund document.

government reacted by slowing the money growth to 17 percent in 1985 and reduced the budget deficit to 0.5 percent of GNP from 1.5 percent in 1984. The inflation rate dropped but it was accompanied by an economic slowdown. The growth rate in 1986 was only 8 percent compared with 13 percent in 1984 and 1985. The government then relented on its tight macroeconomic policies, allowing the money supply to grow by 29 percent and the budget deficit to widen to 2 percent of GNP. This loosening restored growth to 10.2 percent in 1987 but it also raised inflation to 7.3 percent, thus laying the groundwork for the policy-induced economic crunches in 1989 and 1990.

We will argue in this paper that the observed stop-go phases of the economy were neither the result of a deliberate stop-go style of macroeconomic management nor the result of incompetent macroeconomic management. Our explanation is that the institutional mechanisms within the economic system created the go-phases, and that the stop-phases occurred because these institutional mechanisms made it difficult for contractionary economic policies to have a soft touch. To paraphrase a well-known phrase among Chinese scholars and policymakers,³ post-1979 China has found itself with the dilemma of the economy leaping into chaos whenever macroeconomic control was loosened, and plunging into deep recessions whenever macroeconomic control was tightened.

We will trace the origin of this dilemma (and the rise in inflation since 1978 and its acceleration after 1984) to the decentralization reforms in the state sector. The brief for our case

³ "Yi zhua jiu si, yi fang jiu luan" -- (the economy,) once gripped, is dead; and, once loosened, is unstable.

is based on data collected in a survey of 300 large and medium-sized state enterprises. These firms were asked to provide information of their activities in 1980 (as a reference point) and for every year in the 1984-89 period. We shall refer this data-set as the Survey.

This paper represents the first look at the Survey. The empirical approach adopted is based on the representative agent rationale that dominates theoretical modelling in macroeconomics. The representative agent procedure permits us to rely mainly on the sample means of the different variables to support our analysis. We stress that we do not regard the results reported here as definitive. We are now starting to test the robustness of our findings with more traditional micro-econometric methods (e.g. panel estimation).

The organization of the paper is as follows. Section 2 outlines the relationship between a typical public ownership economy and the level of desired labor compensation as suggested by theory. Section 3 summarizes the decentralization reforms in China in terms of the changes in the constraints that different agents optimize under. Section 4 states our hypotheses of how different agents would react under the new set of incentives. Sections 5 to 8 uses the Survey to support our hypotheses. Section 9 pulls the microeconomic evidence together and shows how it could have been responsible for the observed macroeconomic instability. Section 10 relates our findings to the existing literature, and concludes with a few observations.

Our terminology is as follows. An economy where most of the capital stock is state-owned is called a public ownership economy (POE). We will refer to non-financial state enterprises as state-owned enterprises (SOEs) and to financial state enterprises as state-

owned banks (SOBs).

Section 2: Public Ownership and Labor Compensation

In a pure POE, the national income (Y) is distributed as personal income (W , wages and other payments to individuals) and state revenue (T , taxes, profit remittances and the retained profits of the state enterprises). Because of the institutional absence of a capital market and the presence of a state-run social security program, capital accumulation (I , investment) is the sole responsibility of the state. For simplicity, we will limit our theoretical discussion to the case where government consumption is small and the state budget is balanced, i.e investment (I) equals state revenue (T), and consumption (C) equals personal income (W).

One key characteristic of all existing forms of POE is that they actively seek to minimize differences in the personal income of workers in different firms. The result is that the effective rate of taxation and the absolute amount of taxation differ vastly across firms.⁴

Suppose that the state, acting as the Agent of Public Ownership, solves the social welfare maximization problem and finds the optimal I to be I^* and the optimal C to be C^* . We define

$$\begin{aligned} d^* &= I^*/C^* \quad (\text{the optimal distribution of expenditure}) \\ &= T^*/W^* \quad (\text{by assumption}) \end{aligned}$$

We recognize three reasons why managers and workers in a POE will an investment-consumption ratio d_c that is smaller than d^* . The

⁴ Even after a decade of decentralization, the Chinese planning agency still set the wage standard for the whole country, and many regulations are in place to implement it.

first reason is that these individuals see investments as "public goods" from which everyone would benefit but to which no one would like to make contributions. This "free-rider" aspect of capital accumulation is peculiar to a POE. It is only in such a setting that an ordinary investment that generates no positive technological externalities has the broad social benefit of a public good.

The second reason comes from the inequity felt by the big contributors to state revenue. They correctly perceive that the government will use the state revenue to benefit others (including government officials), so they will attempt to consume as much of their output as possible in order to minimize the profits that the state can tax.⁵

The third reason for the proclivity to over-consume comes from the special institutional arrangements of a POE. In practice, a portion of the personal income received by the individuals in the POE comes from the return on capital.⁶ This capital income, however, is not given to an individual as "returns on capital" (profits or dividends), but lumped in as part of "returns on labor". As a result, in the eyes of individuals, the return on labor is higher and the return to capital lower than they are in fact. In other words, individuals perceive a production function that differs from the true one. This kind of distorted perception leads individuals to discount the contribution of capital accumulation to growth and therefore to

⁵ As will be pointed out, this tendency would weaken with decentralization which allows an SOE to keep a larger portion of the return to capital.

⁶ This is entirely appropriate since all individuals are equal co-owners of the capital stock.

prefer a lower investment-consumption ratio.

Under a centralized POE, all decisions on the distribution of expenditure come from the state. Individuals' requests for higher personal income and consumption may have some influence on the decision-making, but by definition the central planner's choice will dominate. One could think of situations where the planner's choice will differ from the optimal ratio, but generally speaking, the planner will choose a ratio higher than d_c because she is responsible for capital accumulation and has more complete information about the role capital plays in economic growth. In fact, the history of socialist economies suggests that the actual d under the central planning system was usually higher than d^* despite the inherent desire to over-consume.

In a decentralized POE, where local governments and SOEs have autonomous decision-making power, the individuals' requests for higher personal income and consumption become much more influential than before. The result is that the investment-consumption ratio will be closer to d_c , and in general lower than the d in a centralized POE. Our prediction is that the higher the degree of autonomy, the higher the proportion of personal income to total enterprise revenue.

Section 3: The Decentralization Reforms in China

"Decentralization reforms" refers to the devolution of decision-making powers from the central government to various levels of the local governments, the SOBs and the SOEs. It is, in essence, changes in the managerial system and not of the ownership structure.

There were two stages in the decentralization of the Chinese state industrial sector. The first stage was from 1979 to 1984. The "fiscal responsibility system" was adopted to reshape central-local fiscal ties. Local governments at various levels were given greater autonomy in making decisions concerning local economic development (see Wong, 1987 and 1991).

The bonus system was introduced to provide incentives for workers in SOEs to improve labor productivity. Other than this, little discretionary power was given to the enterprises.

The second stage of the decentralization program was from 1984 to 1989. SOEs started operating under the "contract responsibility system." An SOE would enter into a contract with the state (the owner) that would specify the amounts (instead of "rates") of taxes and profits that it would pay each period. In return, the SOE would have much greater autonomy in production mix, production level, labor compensation, investment, and use of the retained profits.

The local banks began playing a more important role in 1983 when the state stopped providing circulating capital to the SOEs and gave this function to the SOBs. At the same time, SOBs were allowed to make long-term investment loans. (The state continued to be a source of investment funds, albeit decreasing in importance over time.) The big institutional change occurred in 1984 when the local banks were granted greater autonomy in their loan decisions.

However, the administrative structure of the financial system remained unchanged. A local bank was still required to promote the development of the local economy and subordinate itself to the local government's "guidance". It was common for a local bank to have

various administrative ties with the local government, and for the manager of the local bank to be appointed on the basis of the local government's recommendation or approval.

Section 4: The Macroeconomic Consequences of the Decentralization Reforms

To understand the relationship between inflation and the decentralized system (in which the local governments, the SOEs and the SOBs have been given wide autonomy) we need to understand the behavior of these decentralized units.

When an SOE is simply viewed from the supply side, the expansion of autonomy could result in some improvements in economic efficiency (though perhaps only in the short-term). But an SOE is also in the position to use public resources, including borrowed financial resources, to claim a larger share of the national income. SOEs are not only suppliers of goods, they are also demanders for goods. With the expansion of enterprise autonomy, an SOE is in a better position to realize its inherent proclivity to over-consume.

The circumstances are such that an SOE perceives that it could increase both present and future consumption without any tradeoff between them! The increases in future consumption are to be guaranteed by enlarging present investment spending. The reason why an SOE sees itself as being able to raise consumption and investment spending simultaneously is because it is now not only allowed to retain more of the profits but it is also more likely to be able to

increase its bank liabilities.⁷

This second source of funds comes from the greater autonomy of the local governments and local banks. Although the credit quotas set by the central financial authority were pretty much left intact by the 1978-89 reforms, the local banks after 1984 faced greater incentives and pressures to expand credit beyond their quotas. The incentives follow from the fact that the personal incomes of the local banks became dependent on the volume of their lending, and the overall prosperity of the local economy. The pressures come from the local governments who are often co-investors of the local SOEs and who also oversee the management of the local SOBs.

This confluence of self-interest and external pressures resulted in many SOBs not only ignoring the credit quotas when they had excess reserves but also resorting to ingenious ways to "squeeze" more reserves from the central bank. A common method was to lend to local enterprises the funds designated for projects in the central plan. When a centrally-directed project began to draw on its centrally-allocated credits, the local bank would present the central bank with the dilemma of supporting or stopping the fulfillment of the central plan. The usual central bank response was to provide more credit to enable the completion of the central plan projects.

Another common way of squeezing the central bank for funds was to present the central bank with the fait accompli that the local bank had extended credits beyond its reserve base. Since many banks were doing this, the central bank opted for accommodation rather than

⁷ Section 8 will give additional reasons for the SOEs' proclivity to over-invest.

closure.⁸

It is this combination of actions by the local governments, SCEs and local banks that has raised aggregate demand continuously and caused inflation to accelerate since 1984.

The Survey easily found evidence consistent with the inherent tendency to over-consume. In response to the question:

"How much pressure are you under from the workers to increase their income in various forms?"

30 percent of the enterprise managers said that they were under very high pressure, 43 percent under quite high pressure, 21 percent under moderate pressure, 5 percent under little pressure and 1 percent felt no pressure.

This finding, of course, cannot be taken to be unique to the decentralized socialism in China. Economics assumes as a matter of course that utility-maximizing agents everywhere desire ever-increasing wage compensation, and make their desire clear to their bosses in a manner that is consistent with continued employment. However, wishing for higher labor compensation and getting it are two different things. We shall show that SOE personnel in China have been extremely successful in realizing their desire. This may explain why the government has responded with many regulations in the 1980s to control wage compensation. Our evidence will suggest that SOEs have been able to skirt these regulations by increasing other forms of personal income.

We define personal income to consist of cash income and income

⁸ Our conclusion that the banks have gotten less prudent is shared by Bowles and White (1989) who wrote that "after eight years of reform,....the credit constraint may have become softer" (p.487-488).

in kind, or direct income and indirect income, respectively.

Section 5: The Effects on Direct Income

Cash (direct) income is the sum of the basic wage and the different types of bonuses. Table 2 shows that the direct income of workers increased by 117 percent over the 1984-88 period, while output increased only 59 percent. Cash income rose because of the near doubling of the basic wage and near tripling of the bonus. This caused a significant rise in the real level of direct labor compensation because the rise in direct income exceeded the rise in the retail price level by 7 to 15 percentage points every year. The rise in net output value on the other hand exceeded the inflation rate by only 1 to 5 percentage point.⁹

It is noteworthy that direct labor compensation continued growing in real terms when real profits fell in 1987 and 1988 (see Part B of Table 2). Real direct income of SOE personnel rose 8 percent and 10 percent respectively, while real total profits fell 38 percent and 8 percent respectively.

The point that clearly emerges from Table 3 is that the big increases in direct labor compensation occurred not only because of the introduction of bonuses but also because of the financial decentralization. Bonuses were introduced in 1979, and they were dispensed so generously that a bonus tax was introduced in 1984 to discourage SOEs from giving big bonuses. An annual bonus of up to 4 months of basic wages was exempted from the bonus tax; but a fifth

⁹ It was negative in 1986 and 1988 if the cost of living index were used instead.

TABLE 2: DIRECT INCOME, OUTPUT, PROFITS AND TAXES

Level of variable is expressed in nominal terms.

Part A: Direct labor compensation, direct income=basic wage+bonus

	Level of direct labor compensation (Normalised by 1984 direct income=100)			Rate of increase, %		
	direct income	basic wage	bonus	direct income	basic wage	bonus
1984	100.0	79.0	21.0			
1985	124.3	96.7	27.7	24.3	22.5	31.4
1986	146.4	111.2	35.2	17.7	15.0	27.2
1987	168.7	125.4	43.3	15.2	12.8	22.9
1988	216.9	156.6	60.3	28.6	24.8	39.4

Part B: Output, Profits and Taxes

	Net output value	Total profits	Retained profits	Income taxes & profit remitted	Total taxes & profit remitted	Inflation (retail price)
Indices of level, 1984=100						
1984	100.0	100.0	100.0	100.0	100.0	
1985	114.1	110.1	161.2	91.9	113.4	
1986	121.7	160.8	168.6	83.5	114.9	
1987	133.6	111.7	186.8	77.3	116.5	
1988	159.4	123.7	225.5	86.6	135.3	
Rate of change, %						
1985	14.1	10.1	61.2	-8.1	13.4	8.8
1986	6.7	46.1	4.6	-9.1	1.3	6.0
1987	9.8	-30.6	10.8	-7.4	1.5	7.3
1988	19.3	10.8	20.8	11.9	16.1	18.5

Net value output is the sum of value-added, it is identical to national income at the aggregate level.

TABLE 3: DISTRIBUTION OF NET OUTPUT VALUE (VALUE-ADDED)

	direct income	retained profits	total taxes & profits remitted	pre-tax debt service deducted from profits	others	net output value
Part A: Share of Net Output Vale, %						
1980	11.6	4.5	78.3	0.7	4.9	
1984	11.7	11.2	66.3	3.6	7.2	
1985	12.7	15.9	65.9	5.4	0.1	
1986	14.0	15.6	62.9	5.4	2.1	
1987	14.7	15.7	57.8	6.0	5.8	
1988	15.9	15.9	56.3	4.3	7.7	
Part B: Level of each item, normalised by 1984 direct income =100						
1984	100.0	96.3	568.6	30.9	61.8	857.6
1985	124.4	155.3	644.7	53.0	1.1	978.4
1986	146.3	162.4	656.2	56.7	22.1	1043.7
1987	168.7	179.9	662.6	68.2	66.5	1145.8
1988	216.9	217.2	769.3	58.7	105.4	1367.5
Part C: Rate of Change, %						
1985	24.4	61.2	13.4	71.8	-98.3	14.1
1986	17.7	4.6	1.8	6.9	1956.0	6.7
1987	15.3	10.8	1.0	20.3	200.3	9.8
1988	28.6	20.7	16.1	-14.0	58.6	19.3

month bonus would require the SOE to pay a 100 percent bonus tax, a sixth month bonus would be subject to a 200 percent bonus tax, a seven month bonus would be subject to a 300 percent bonus tax, and so forth.

But in retrospect, the 1979-84 bonuses granted in the absence of the bonus tax were still quite restrained. The share of direct income in net output value in 1984 was virtually identical to that in 1980. When wide financial autonomy was given to the SOEs in 1984, the share of direct income rose from 12 percent in 1984 to 16 in 1988 despite the presence of the steeply progressive bonus tax, see Table 3.

Section 6: The Effects on Indirect Income

There were three components to the indirect income received by SOE personnel: collective consumption, distribution of private consumer goods, and housing. The first two items were treated as production costs and the third as investment expenditure.

Collective consumption came from the myriad services supplied by the SOEs to their employees. The range of services provided was so broad that an SOE resembled a self-contained social community: kindergartens, hospitals, transportation, recreational facilities, dining facilities, funeral facilities and relief work. The welfare fund paid for all these services. The size of the welfare fund allowed by state regulations was proportional to the amount of cash income (wages plus bonuses) and retained profits. The (perhaps unintended) result of the higher labor costs was that fewer profits were remitted to the state. Our sample showed a 240 percent increase

in the size of the welfare fund over the 1984-88 period, a finding consistent with the large increases in cash income and retained profits documented in Table 2 and 3.

The distribution of consumer goods occurred at two levels: the common level and the elite level. It took place at the common level in order to avoid the bonus tax. Many SOEs bought grain, fruits, meat, eggs, fish, clothes, furniture and housewares and distributed them to the employees. The costs of these items were charged mostly to 'material costs' and 'non-production expenditure.' This is part of the reason why the former rose 82 percent in the 84-88 period and the latter 234 percent -- see Part A of Table 4. Studies by Zhang (1990) and Zhao (1989) suggest that the distribution of consumer goods accounted for 25 to 33 percent of the total personal income of SOE employees.

The distribution of consumer goods at the elite level was mainly in the management office and the sales department. Consumption took the form of lavish banquets, tourist travel, high-class hotels, luxurious official cars and expensive office furniture. The Survey showed that net management cost rose 165 percent in 1984-88, and sales cost rose 300 percent -- see Part A of Table 4. Management costs expressed as a proportion of the "GNP"¹⁰ of the sample rose steadily as well: 2.8 percent in 1980, 3.9 percent in 1984, 4.4 percent in 1985, 4.8 percent in 1986, 5.4 percent in 1987 and 5.9 percent in 1988.

The third component of the indirect income paid by SOEs was housing. SOEs used a significant portion of the retained profits to

¹⁰ "GNP" equals net output value plus capital depreciation.

TABLE 4: SOURCES OF INDIRECT INCOME

Part A: Indices of non-wage cost (1984=100, average of 300 enterprises)

	Net output value	Total cost	Total produc- tion cost	Material cost*	Net management cost**	Sales cost	Net Non- production expendi- ture***
1984	100.00	100.00	100.00	100.00	100.00	100.0	100.00
1985	114.08	120.62	121.34	120.75	129.58	157.00	92.92
1986	121.70	139.37	139.69	135.48	159.43	178.15	141.24
1987	133.60	161.20	158.13	151.51	204.13	263.80	226.11
1988	159.45	189.16	190.61	181.64	265.03	403.27	333.73

Part B: Composition of Capital Stock (average of 300 enterprises)

	Total Value of Fixed Assets at original book value ('000 Rmb.)	Total Value of Productive Fixed Assets ('000 Rmb.)	Total Value of Non-productive Fixed Assets ('000 Rmb)	Proportion of Non-productive Assets to Total Assets (%)
1980	59357.0	50421.5	8935.5	15.1
1984	80851.5	67474.6	13376.9	16.5
1985	87448.8	71432.1	16016.7	18.3
1986	98370.9	81050.9	17320.0	17.6
1987	112243.9	91230.8	21013.1	18.7
1988	120307.0	97047.7	23259.3	19.3

* = Expenditure on raw materials, intermediate goods and energy.

** = Total management cost - cost for new product research -
technological research cost - training cost.

*** = Total non-production expenditure - labor insurance - expenditure
on enterprise-run schools.

build apartments (and physical structures for kindergartens and employees club) and rented them to their workers at low rates that would cover only maintenance costs. This diversion of investment funds is clearly seen in Part B of Table 4. The value of non-productive fixed assets increased 160 percent in the 1980-88 period, while the value of productive fixed assets increased only 92 percent. The upshot was that the proportion of non-productive fixed assets to total fixed assets went up from 15 percent in 1980 to 19 percent in 1988.

Section 7: The Effects on Labor Productivity, Retained Profits and State Revenue

Table 2 shows that there was an 8.7 percent increase in the real net output value over the 1984-88 period. Although this is not very impressive growth, it is still tempting to argue that the generous increases in personal income were necessary to induce this positive output growth. But this is a hard argument to make because there were extremely large investments over this period. The real stock of productive capital in 1988 was 35 percent larger than in 1984.¹¹ As there is no reason to believe that this additional capital stock was left unused, this massive infusion of capital rather than increases in labor efficiency was responsible for the output growth.

Assuming constant returns to scale technology and a capital

¹¹ This is calculated from adding the deflated incremental changes in the productive capital stock, see Table 4 for nominal stock figures. The deflator used was the retail price level.

share of income that was 30 percent¹², we would expect an output growth of 10.5 percent. But since the actual output growth was only 8.7 percent, this suggests either negative growth in total factor productivity or that labor efficiency might have actually fallen in the 1984-88 period! In either case, it indicates serious problems in the SOEs. If we were to use the finding of Chen, Wang, Zheng, Jefferson and Rawski (1988) that the share of capital income is 0.54 under the Cobb-Douglas specification of the production function, and 0.72 under the translog specification, then the SOE situation is simply calamitous.

Our conclusion is that the 45 percent increase in real cash income in 1984-88 did not induce any noticeable gains in labor efficiency. We also conclude, in light of the survey finding that over 70 percent of managers faced strong workers' pressure for higher pay, that the explanation for the large real personal income gains is that the managers caved in to the consumption demands of the workers. The decentralization reforms gave the managers the financial room to cave in.

Tables 2 and 3 show that the total taxes paid and profits remitted to the state by SOEs fell as a proportion of net output value: from 78 percent in 1980, to 66 percent in 1984 and 56 percent in 1988. This fall in proportion was, of course, expected; this is the essence of decentralization. What might not have been expected, however, was the drop in the amount of real resources transferred from the SOEs to the state. Inflation exceeded the increase in taxes

¹² This figure is reasonable by international standards. Alternatively, we can assume Cobb-Douglas technology where the exponent of the capital variable is 0.3.

and profits received by the state by 5 percentage points in 1986, 6 percentage points in 1987 and 2 percentage points in 1988, see Part B of Table 2.

There were five reasons for this decline in the real revenue from the SOEs. The first reason was the economic slowdown in 1986 that helped to decrease nominal profits by 31 percent in 1987.

The second reason came from the change in 1985 when centrally-allocated investment grants to SOEs were replaced by investment loans. SOEs were allowed to deduct the debt services as cost, hence reducing the amount of profits to be taxed. The debt service went from 1 percent of net output value in 1980 to 6 percent in 1987 before falling to 4 percent in 1988, see Part A of Table 3.

The third reason for the decline in revenue from SOEs was the large increases in direct labor compensation which further decreased total profits. Direct income absorbed 16 percent of net output value in 1988 compared to 12 percent in 1980.

The fourth reason was the large increases in indirect labor compensation that raised production costs and hence reduced profits. The misdirection of investment funds into housing meant that output and profits would not increase in the future.

The fifth reason was the increasingly large proportion of profits being retained by SOEs. They retained 5 percent of profits in 1980, 11 percent in 1984 and 16 percent in 1988 (see Part A of Table 3). The result was that the amount of retained profits increased 126 percentage over the 1984-88 period.

Our point is that decentralization has weakened the fiscal base of the central government without necessarily achieving the desired

goal of rationalizing the allocation of investment spending. A significant portion of what would have been state revenue was diverted into consumption and non-productive investments. Furthermore, the decline in real state revenue from the SOEs exacerbated the budget deficit, and, consequently, the printing of money.

Section 8: The 'Hunger for Investment'

Ever since the decentralization began in earnest in early 1980, a new term "hunger for investment" appeared in discussions on the economy. The term refers to the surge in demand for investment funds in every economic sector in every province. This generalized "hunger for investment" is the product of three factors, the first two being mutually-reinforcing.

The first factor is that investment was the vehicle by which the SOEs could increase their levels of future consumption.

The second factor is that SOES realized that, being a part of the government, they would not be closed even if an imprudent investment were to result in bankruptcy. Since SOEs could count on being bailed out during adversity, they perceived negative rates of return as zero rates of return. The upshot of this perceived truncated distribution was that an SOE's expected rate of return on an investment was higher than the actual expected rate of return, biasing the SOE toward investment activities. This second factor has been called the soft budget by Kornai (1980).

The Chinese have summed up the above two causes of the "hunger for investment" very aptly with:

"The losses of SOEs are socialized but the profits of SOEs are privatized."

The third factor behind the "hunger for investment" is the career considerations of the SOE manager. She realizes that her promotion to a larger SOE would be helped if she has a record of engineering large expansion in output, and adding production capacity is one sure way of doing so. As long as credit can be gotten, the additional investment will not occur at the expense of employee consumption. In fact, it would be optimal if she could get a loan larger than the investment. She could then use the extra funds for employee (and self) consumption to solidify her popularity with them -- a reputation that, according to Walder (1988), will stand her in good stead during promotion deliberations. The revelation is that the career considerations of the SOE manager bias her toward over-investment and over-consumption.

Table 5 presents evidence of the "hunger for investment." Part A shows that the proportion of loan applications by SOEs that was approved fell steadily in the 1987-89 period.¹³ In 1988, only 20 percent of firms got 75-100 percent of their loan applications approved compared to 65 percent in 1986. The main reason for the "tougher" acceptance criteria was that the number of loan applications multiplied even faster than (what we shall see) the explosion of bank credit.

Part B of Table 5 reports the managers' response to the

¹³ The original draft of the Survey questionnaire had asked for the amount of investment funds applied for in each year. On the advice of the State Statistical Bureau (SSB), this question was changed to ask the number of projects that were proposed and the number that were funded. The SSB felt that managers would not remember the value of the projects denied.

TABLE 5: HUNGER FOR INVESTMENT

Part A: Distribution of SOEs by Percentage of Approved Loan Applications

% =	Approvals ----- Proposals	1987	1988	1989
		-----	-----	-----
	75-100%	65.3	42.4	20.3
	50- 75%	21.9	38.3	36.1
	25- 50%	8.0	11.4	25.1
	below 25%	4.9	7.9	18.6

Part B: Interest Elasticity of Demand for Loans

Extent of Expenditure Reduction	Frequency	Percent	Cumulative percent
---------------------------------------	-----------	---------	-----------------------

B.I: Response to a 5 percentage point increase in the interest rate

1. No cut	240	84.8	84.8
2. cut 10-20%	20	7.1	91.9
3. cut 20-30%	15	5.3	97.2
4. cut 30-50%	2	0.7	97.9
5. cut 50% or more	6	2.1	100.0

B.II: Response to a 10 percentage point increase in the interest rate

1. No cut	184	65.7	65.7
2. cut 10-20%	42	15.0	80.7
3. cut 20-30%	19	6.8	87.5
4. cut 30-50%	14	5.0	92.5
5. cut 50% or more	21	7.5	100.0

question:

"How much would you reduce your demand for loans if the interest rate were to increase by 5 to 10 percentage points?"

The average interest rate for loans in this period was about 12 percent.

The Survey indicates that the interest rate elasticity of loans was very low. 85 percent of managers would not change the amount of investment they would undertake if the interest rate were to increase by 5 percentage points, and 65 percent would still not change their investment plans if the rise were 10 percentage points instead.

The flip-side of the earlier discussion of the increase in consumption is that the amount of internal funds available for investment have fallen; and the flip-side of the discussion on the increased provision of low-rent housing is that the internal funds available for productive investment has fallen further. The interesting issue is how this decentralization-generated "hunger for investment" was accommodated as decentralization reduces the availability of SOE funds. The answer lay in the institutional character of the financial system discussed in Section 4. The combination of profit motive on the part of the local banks and the local development motive on the part of the local governments led to the bulk of the demand for funds being accommodated by the expansion of bank credit.

Table 6 details the sources of investment funds. The amount of internal funds available for investment (naturally) increased with the decentralization reforms. It went up by a factor of 2 in the 1984-88 period, see item (2). What is remarkable is that the amount

Table 6: Sources of Investment Funds

(average of 300 SOEs)

	1980	1984	1985	1986	1987	1988
(1) Index of total investment	70.09	100.00	141.42	186.25	277.68	322.10
(2) Index of internal funds available for investment	47.43	100.00	158.24	184.64	233.68	229.11
(3) Internal funds as % of total investment	26.01	36.72	41.09	36.40	30.907	26.12
(4) Internal funds as % of total productive investment	24.97	37.51	35.73	33.07	31.03	26.68
(5) Internal funds as % of total non-productive investment		61.85	71.71	68.37	63.40	52.80
(6) Index of total external funds available * for investment		100.00	142.51	170.55	239.67	370.01
(7) External funds as % of total investment **	56.01	41.07	41.38	37.60	35.44	47.18
(8) Index of state grants for investment		100.00	114.35	150.20	281.32	165.90
(9) State grants as % of total investment	57.33	18.10	13.30	13.42	18.40	9.39
(10) State grants as % of investment in productive capital	64.71	21.48	16.15	15.44	20.93	10.57
(11) Index of bank borrowing for investment ***		100.00	160.62	183.64	212.88	501.28
(12) Bank borrowing as % of total investment	5.33	24.99	28.38	24.65	19.17	38.90

(continued next page)

Notes to Table 6

* "External funds" is the sum of state grants from governments at all levels and bank loans, and does not include funds from unspecified "other sources". The "state grants" include those grants distributed through banks as loans.

** The sum of shares of "Internal funds" and "External funds" does not equal 100% because it does not include the share of funds from unspecified "other sources".

*** "Borrowing" here refers to true banking loans, and does not include state grants distributed in the form of loans.

of external funds increased even more rapidly: it rose by a factor of four, see item (6). The amount of external funds literally exploded in 1988, raising the ratio of external to internal funds from 1 in 1987 to 2 (see items (3) and (7)). Another indicator that easy bank credit was responsible for the three-fold jump in investment spending over the 1984-88 is the rise in the ratio of bank lending to total investment, particularly in 1988 (see items(1) and (12)).

The result of this easy bank credit was the boom in productive (physical capital) investment and non-productive (housing) investment, as evidenced by internal funds being able to cover less and less of the investments in each category over time (see items (4) and (5)).

Section 9: The Effects at the Aggregate Level

The evidence in Sections 5 to 8 reveals two routes through which the individual optimizing behavior of the SOEs resulted in expansion of the money supply. The first route went from the increases in labor compensation to the widening of the budget deficit, a large proportion of which was immediately monetized. Our finding that the amount of real resources transferred to the state fell in the 1986-88 period has its parallel at the aggregate level: total real government revenue fell throughout the 1986-89 period, see Part C of Table 7.

What widened the budget deficit was that total expenditure growth did not slow down to be in line with the slower revenue growth. The proportion of expenditure that could be covered by revenue fell from 94 percent in 1984 to 90 percent in 1989. One major reason that expenditure growth could not be reduced was that

TABLE 7: GOVERNMENT REVENUE AND EXPENDITURE

	total revenue	price subsidies	enterprise subsidies	total expenditure	memo items
Part A: Levels (billions of yuans)					budget deficit
1978	124.8	1.1	11.5	123.7	-1.0
1979	126.4	7.9	11.7	147.0	20.6
1980	130.1	11.8	14.1	147.1	17.1
1981	130.2	15.9	12.6	140.1	9.9
1982	140.9	17.2	19.7	152.2	11.3
1983	160.7	19.7	24.0	173.0	12.3
1984	184.3	21.8	20.0	196.5	12.2
1985	229.7	26.2	25.9	236.5	6.8
1986	244.7	25.7	32.5	265.6	20.9
1987	257.6	29.5	37.6	282.5	24.9
1988	280.4	31.7	44.7	315.3	34.9
1989	324.5	37.0	60.0	361.4	37.0
Part B: Proportion of Total Expenditure, %					
1978	100.8	0.9	9.3		
1979	86.0	5.4	7.9		
1980	88.4	8.0	9.6		
1981	93.0	11.4	9.0		
1982	92.6	11.3	12.9		
1983	92.9	11.4	13.9		
1984	93.8	11.1	10.2		
1985	97.1	11.1	10.9		
1986	92.1	9.7	12.2		
1987	91.2	10.4	13.3		
1988	88.9	10.1	14.2		
1989	89.8	10.2	16.6		
Part C: Growth Rate, %					inflation (retail)
1979	1.3	613.5	1.3	18.8	2.0
1980	2.9	48.6	20.5	0.1	6.0
1981	0.1	35.4	-10.2	-4.8	2.4
1982	8.2	8.0	55.8	8.7	1.9
1983	14.0	14.6	21.8	13.6	4.4
1984	14.7	10.6	-16.7	13.6	2.8
1985	24.7	19.9	29.5	20.4	8.8
1986	6.5	-1.8	25.5	12.3	6.0
1987	5.3	14.8	15.9	6.4	7.3
1988	8.8	7.5	18.6	11.6	18.5
1989	15.7	16.7	34.3	14.6	17.8

The Chinese definition of Total Revenue was adjusted to exclude borrowing, and include price subsidies (until 1985) and enterprise subsidies.

The Chinese definition of Total Expenditure was adjusted to include price subsidies (until 1985) and enterprise subsidies. We ignored principal repayments and extra-budgetary capital construction as they are small items.

These adjustments made the concepts closer to the IMF definitions.

large increases in subsidies went to enterprises to cover their mounting losses after the decentralization reforms. Enterprise subsidies soared from 20 billion yuan in 1984 to 60 billion yuan in 1989, raising subsidies as a share of total expenditure from 10 percent to 17 percent.

In a nutshell, the large personal income increases of SOE personnel enlarged the budget deficit by denying the state (owner) of its revenue, and, in some cases, bankrupting the firms, which then required the state to disburse subsidies in order to maintain employment. This first route through which SOEs destabilized the economy can be described as the "over-consumption/money creation" mechanism.

The second route is the "over-investment/money creation" mechanism. The Survey found a great "hunger for investment" and that this hunger was satisfied by external funds. The easy availability of credit is confirmed by the balance sheet of the central bank (the People's Bank of China, PBC), see Table 8.¹⁴ Part C shows that "loans to SOBs" was the biggest factor behind the expansion of the money supply, and that this was the item reined in whenever the state needed to cool down the economy. In the expansionary phase,¹⁵ "loans to SOBs" expanded about 20 percent annually, making this item responsible for 80 percent of the 24 percent increase in high-power money. In the contractionary phase,¹⁶ the growth of "loans to

¹⁴ Data are available only from June 1985 because PBC assumed the traditional bank functions in 1984.

¹⁵ 1986, 1987 and 1989

¹⁶ 1987 and 1990

Table 8: Components of High-Power Money (1985-90)*

	1985	1986	1987	1988	1989	Sept 90
Part A: Balance Sheet of the People's Bank of China. (in billions of Yuan, end of period)						
Foreign reserve	12.4	3.7	15.0	20.9	32.9	68.3
Loans to SOBs	224.9	269.4	277.4	338.8	420.7	440.5
Loans to SOEs	8.6	13	22.7	30.6	34.5	37.5
Loans to Gov't	-9.3	5.8	20.8	30.5	24.7	37.0
Others	-7.9	-9.3	-13.6	-15.3	-11.1	-8.8
<u>Total Assets</u>	<u>228.6</u>	<u>282.7</u>	<u>322.2</u>	<u>405.5</u>	<u>501.7</u>	<u>574.3</u>
Liabilities to bank	96.4	120.1	127.4	145.4	208.1	273.3
Currency in circulation	98.8	121.8	145.4	213.3	234.2	229.8
Deposits	33.4	40.8	49.4	46.9	59.3	71.3
<u>Total Liabilities</u>	<u>228.6</u>	<u>282.7</u>	<u>322.2</u>	<u>405.5</u>	<u>501.7</u>	<u>574.3</u>
Part B: Change from preceding year(%)						
Foreign Reserve		-70	305	39	57.4	106
Loans to SOBs		19.8	3	22	24.2	4.7
Loans to SOEs		51.2	74.6	34.8	12.7	8.7
Loans to Gov't		163.4	259	46.6	-19	49.8
Others		-17.8	-46	-12.5	27.5	20.7
High-power Money		23.7	14.0	25.9	23.7	14.4
Part C: Contribution of each component to high-power money growth rate (in percentage points)						
Foreign reserve		-3.8	4.0	1.8	3.0	7.0
Loans to SOBs		19.5	2.9	19.0	20.2	3.9
Loans to SOEs		1.9	3.4	2.5	1.0	0.6
Loans to Gov't		6.7	5.4	3.1	-1.4	2.4
Others		-0.6	-1.5	-0.5	0.9	0.5
High-Power Money Growth(%)		23.7	14.0	25.9	23.7	14.4

SOBs" would be reduced to about 4 percent, and, given its large share in the composition of high-power money, this would lower high-power money growth to about 14 percent.

The primary importance of "loans to SOBs" to overall credit availability supports our story of macroeconomic instability originating from local firms being helped in their quest for capital formation by the local banks. The incentives for over-investment at the firm level are clear, and what Table 8 has confirmed is that the local banks were able to squeeze the central bank for more reserves.

The decomposition of GDP growth in the 1981-89 period confirms our analysis, see Table 9. Consumption and investment spending leapt forward with the decentralization reforms in 1984, 11 and 21 percent growth respectively. However, with a given output capacity at any point in time, the tendencies to over-consume and over-invest cannot both be realized on a prolonged basis unless massive external borrowing were to occur. Which tendency would dominate, and be seen in the data, depends on the stance of monetary policy.

The 1984 change in the incentives to the financial system is the reason why investment exceeded consumption as the leading expenditure category in the 1985-87 period. The burst of bank credits in 1985 allowed domestic investment spending to contribute 11 percentage points to the overall growth rate. The credit expansion allowed investment to crowd out consumption in the competition for the use of resources. This is why consumption grew only 3 percent in 1986.

However, with the reining in of credit in late 1988, the over-consumption tendency asserted itself. Consumption grew 9 percent in 1989 despite the slowdown in GDP growth to 3 percent.

Table 9: National Account Analysis (1980-89)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<u>A: In Constant 1987 Prices (in billions of Yuan)</u>										
Private Consumption	391.3	412.8	429.9	470.5	522.2	570.4	585	621.9	685.4	746.2
Government Consumption	34	45.4	48.1	52.5	58.1	61.2	64.3	70	78.4	85.6
Domestic Investment	191.4	182.1	200.5	225.6	272.4	368.5	404.2	445	491.1	477.3
Net Exports	-14.8	-9	5.3	2.1	-2	-43.7	-21.5	-1.1	-7	-21.8
Gross Domestic Product	601.8	631.3	683.7	750.7	850.7	956.8	1032	1135.7	1247.9	1287.3
<u>B: Contribution of Each Component (in percentage points)</u>										
Private Consumption		3.6	2.7	6	6.9	5.6	1.6	3.6	5.8	4.9
Government Consumption		1.9	0.4	0.6	0.7	0.4	0.3	0.5	0.6	0.6
Domestic Investment		-1.6	2.9	3.7	6.2	11.3	3.7	4	4	-1.1
Net Exports		1	2.3	-0.5	-0.5	-4.9	2.2	1.9	-0.5	-1.2
Gross Domestic Product		4.9	8.3	9.8	13.3	12.4	7.8	10	9.9	3.2

Data Source: Part A--World Tables 1991, A World Bank publication.

Section 10: Conclusions

We have provided what we deem to be reasonable evidence in support of the "over-consumption/money creation" and the "over-investment/money creation" mechanisms. We argued that the decentralization reforms have allowed the innate tendency to over-consume and over-invest to realize themselves. The managers now have the financial autonomy to accommodate the demands for higher personal income and they have no incentive to resist. Furthermore, it is in the interests of the local governments and local banks to help the SOEs to attain credit they need to increase (local) output.

We found two results that are at odds with several recent papers. The evidence in Section 5 and 6 suggested that the increasing budget deficits were caused by the upward "wage drift" at the enterprise level. Naughton (1991) is in agreement with us that the budget deficit was due to lower revenue from the SOEs rather than to deliberate expansionary fiscal policy. He differs from us in claiming that the lower profits of the SOEs were caused by the competition provided by the emergence of non-SOEs. By the logic of Naughton's analysis, the deficit should be reduced by policing the non-SOEs more strictly to prevent tax evasion and imposing a consumption tax to regain the transfer given to the consumer through the lower prices fostered by competition.

We have three problems with Naughton's explanation (in addition to its being contradicted by the Survey data). The first is that there are many heavy industries with rapidly falling profits that had little or no entry by non-SOEs. The best examples are the steel industry and the automotive industry.

The second problem is that there are not too many examples of prices having fallen with the emergence of non-SOEs. Non-SOEs, in fact, tended to enter into light industries where prices had risen. Admittedly, it is hard to find instances of falling prices in the mixed situation of price liberalization to ease persistent shortages, and of general inflation. There have been some big shifts in relative prices but it is not clear whether they were due to competitive pressures provided by the non-SOEs or to the natural corrections to the distortions created by the price controls.

The third problem with Naughton's view is that available evidence suggests that the SOEs have been the biggest tax evaders and not the non-SOEs.¹⁷

Our finding in Section 8 that there has been a decline in either labor efficiency or total factor productivity¹⁸ in the 1984-88 period implies that the increase in the production efficiency of SOEs found by Chen et al (1988), Dollar (1990), Granick (1990) and Jefferson (1990) in the period immediately after the 1978 reform was only a temporary phenomenon.¹⁹ The deterioration in the production

¹⁷. The article "Who are the biggest tax evaders?" Economic Daily, January 1, 1992, summarized the data from several studies on taxation.

¹⁸ Or, a fall in both factors.

¹⁹ Chen et al (1988) found that aggregate multifactor productivity growth went from 0.4 percent in the 1957-78 period to 1.9 percent in the 1978-83 period. Jefferson (1990) found that the multifactor productivity growth of the largest 120 iron and steel enterprises (out of a total of 1318) went up from -1.6 percent in 1957-80 to 1.8 percent in 1980-85. Dollar (1990), examining a sample of 20 firms, found suggestive evidence of total factor productivity being 0.2 percentage points higher in 1979-82 than in 1975-78 period. Granick (1990), using the same data set as Dollar, found that the frequency which Chinese firms achieved or exceeded the various quotas increased after the reforms. The Dollar-Granick sample is biased

efficiency of the SOE sector in the second half of the 1980s is supported by the research of Wang (1990)²⁰ and Stepanek (1991).

Our explanation for why the productivity increase was not sustained is that the managers bowed to egalitarian pressures and discontinued the link between worker performance and bonus. The workers realized over time that collective action was more "cost effective" than mutual competition in securing a higher general level of consumption. In fact, even the local industrial bureau could not impose a link between firm performance and bonus. This is why Jefferson and Xu (1991) found, in their sample of 20 SOEs in Wuhan over the 1984-87 period, that there was "a convergence of returns to labor . . . [despite] the relatively unreformed nature of labor markets" (p. 63). The result of the discontinuation of the performance-bonus link was that labor efficiency growth sputtered out over time.

Our finding of poor SOE productivity performance in the 1984-88 is at odds with the claims of Jefferson and Xu (1991) and Groves, Hong, McMillan and Naughton (1991).²¹ They found that labor productivity was positively correlated with various indicators of reforms (e.g. bonus payments, proportion of employees on contracts).

toward the best performing SOEs: three of their firms were among the ten firms that were selected in 1983 to receive "national awards for distinction in management" (Granick, p.13); and, "the sample enterprises were, throughout [1976 to 1982].., 40 to 120 per cent more profitable than were Chinese state-owned industrial enterprises as a whole" (Granick, p.180).

²⁰ But we do not agree with Wang that this is the most important reason for why SOE profits fell and hence widened the budget deficit.

²¹ The data set used by Groves et al (1991) spanned 10 years, and the size of the sub-sample they used appears to be about 300.

The problem with the regressions in these two studies is that they do not control for changes in the capital stock. We do not find it plausible to assume that the labor productivity was unaffected by the large amount of investment undertaken after 1984.

Our finding of no gain in the efficiency of SOEs in 1984-88 means that the increase in the aggregate growth rate during the 1985-89 period must have come from the other sectors: the agricultural sector, the non-SOE sector (private, collective, cooperative, town and village enterprises) and the trade sector (enterprises in the more outward-oriented coastal provinces in South China). To attribute most of the increase in the growth rate to these other sectors is not unreasonable. The SOEs are concentrated in the industrial sector, and they now produce about 50 percent of the value added there. The SOEs produce at most a third of today's GDP.

Since tolerance of the inflation generated by over-consumption and over-investment cannot be justified by efficiency gains in the SOEs, the way that monetary policy has been periodically used to combat inflation is damning. One of the long-recognized favorable side-effects of an economic slowdown is the sloughing off of the layer of accumulated inefficient producers.²² But yet, during the last two policy-induced economic slowdowns, the reduced amount of credit available was channelled mostly to the SOEs, forcing many efficient non-SOEs to close.²³

²² Hence, Schumpeter's famous characterization of the cyclical downturn in the capitalist economy as a much-needed douching.

²³ Oi (1991) provides an insightful account of how non-SOEs in the rural areas responded to the contractionary policies that began in 1989.

The chief lesson that we draw is that the SOEs must be restructured if macroeconomic instability is to be reduced, and economic growth to be enhanced. The question is whether any state where the predominant mode of ownership is public can have the political will to enforce tight budget constraints on SOEs. Kornai (1991) is pessimistic on this question but Roemer (1991a and 1991b) has recently proposed several novel mechanisms that might induce SOEs to mimic the management practices of private firms.

As we mentioned at the beginning, this paper is only the first look at the Survey. This first look has suggested that news of the Chinese success story may have been greatly exaggerated. The claims that China has successfully reformed its SOEs into efficient entities evoke comparison with the claims made in the early 1970s that the Chinese revolutionary strategy as manifested by the Cultural Revolution has succeeded in creating the new socialist man. It is with this historical lesson in mind that we are conducting the second phase of our data analysis.

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