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Redistribution in a Decentralized Economy: Growth and Inflation in China under Reform

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Despite expanding at an annual rate of nearly 9 percent, China's economy has exhibited a marked cyclical pattern: Periods of rapid growth, accompanied by accelerating inflation, are followed by contractions during which both growth and inflation fall. A widening gap also emerged between the output contribution of the state sector and its share of investment and employment. In this paper, we offer a consistent explanation for this behavior that reflects several key institutional features of China's economic reform: (i) economic decentralization, (ii) the government's commitment to the state sector, and (iii) the credit plan and credit control.

I. Introduction

The high average growth rate enjoyed by China since 1978 conceals a marked cyclical pattern. Periods of rapid growth, accompanied by accelerating inflation, are followed by prolonged contractions during which the growth rate and inflation decline in tandem[1] (see fig.

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[1] The positive correlation between output growth and inflation in China can be contrasted with the behavior observed in other countries in which the correlation is typically negative or zero. In eastern and central Europe, the correlation is negative since the onset of reform.

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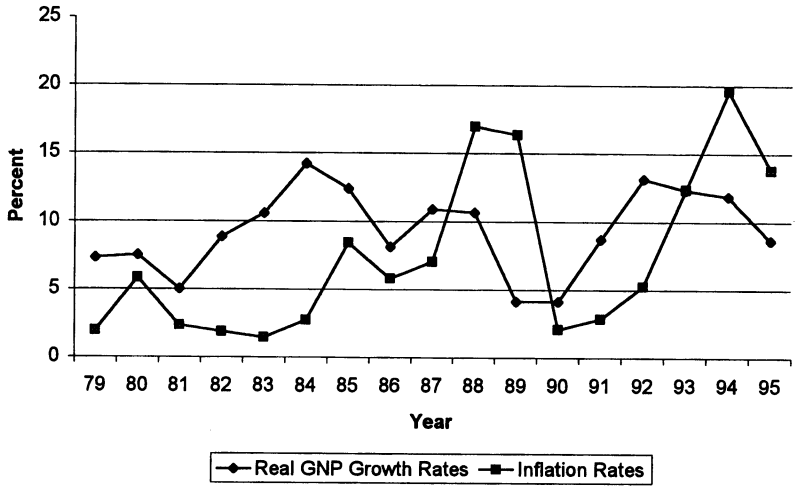

FIG. 1.—Inflation and GNP growth in China. Source: *Zhongguo Tongji Nianjian* (1996).

1). This "boom-bust" or "stop-go" feature of the postreform economy has been widely recognized (see, e.g., Naughton 1992; Yusuf 1994; World Bank 1995; Fan and Woo, in press). China has gone through three cycles, with peaks in 1985, 1988, and 1994.

Since the reforms began, a widening gap has also emerged between the output contribution of the state sector and its share of employment and investment. Compared to the nonstate sector,[2] the state sector experienced considerably slower productivity growth, which contributed to a sharp drop in the proportion of output produced in the state sector. In industry, for example, the state sector's share fell from 78 percent in 1978 to 34 percent in 1995. This decline should have led to a falling share of employment and a lower rate of investment in the state sector. In contrast, through the early 1990s, the state sector's share of total employment and total fixed investment in industry remained around 45 percent and 80 percent, respectively[3] (see fig. 2).

In this paper we argue that these two phenomena are intimately

[2] The nonstate sector is not to be confused with the private sector. Although it does include private enterprises and joint ventures, the nonstate sector during this period was primarily made up of urban enterprises and collectives and township and village enterprises, which were owned and run by local governments and communities.

[3] Unless we explicitly state otherwise, the numbers that we cite throughout the paper draw on data from various Chinese statistical yearbooks. A data appendix that documents in detail the exact sources of the data is available on request.

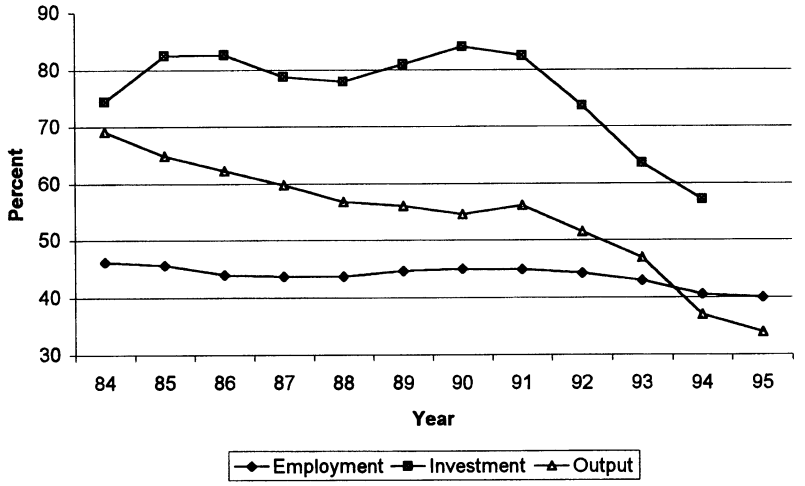

FIG. 2.—State sector's share in industry. Source: *Zhongguo Tongji Nianjian* and *Zhongguo Gongye Tongji Nianjian*, various issues.

linked. Employment and investment growth in China's inefficient state sector have been supported by the government with transfers in the form of cheap credits from the state-owned banks and money creation. When credit allocation is decentralized, the state-owned banks are able to divert resources to the more productive nonstate sector. While this increases output growth, it also forces the government to rely more heavily on money creation to finance the transfers to the state sector, which causes inflation to increase as well. We show that the stop-go feature of the Chinese growth process is the result of the government's inability to control the state banks' credit allocation in the face of financial decentralization and the periodic need to resort to recentralization and administrative control of credit allocation to reduce inflation.

We identify the government's commitment to employment growth in the state sector as an important feature of the Chinese economic reforms. Our analysis also highlights the difficulties faced by the government in maintaining this commitment in the face of ongoing economic decentralization. However, we argue that decentralization is not the underlying cause of inflation. Rather, the growing transfers to the inefficient state sector are the source of inflationary pressure. The fundamental solution to the inflation problem is to scale back the commitment to the state sector and therefore reduce the need for transfers financed by money creation.

The rest of the paper is organized as follows: In Section II we lay out some key institutional features of the Chinese economic reforms

that are central to our analysis. In Section III, in light of these institutional features, we offer an explanation of the growth and inflation cycles in China under reform. Empirical support for our interpretation is given in Section IV. Finally, we present conclusions in Section V.

II. Institutional Environment

This section provides some institutional background for our analysis. Our discussion focuses on three key features of China's economic reform process: (1) economic decentralization, (2) the government's commitment to support the state sector, and (3) the credit plan and credit control.

A. Economic Decentralization

Since 1978, China has undergone substantial economic decentralization that has allowed the entry and rapid growth of nonstate enterprises and has increased the incentives to allocate resources to the more profitable enterprises and sectors. Considerable attention has been paid to the role of market and enterprise reforms in this process.[4] Equally important for our purpose are fiscal and financial reforms. Fiscal reforms enabled local governments to retain a larger share of the revenue they collect. An unexpected consequence of these reforms is the sharp reduction in the government's budgetary revenues as a percentage of gross national product from 31.3 percent in 1978 to only 11.9 percent in 1994. Financial reforms, on the other hand, transferred responsibility for the allocation of investment funds from the Ministry of Finance to a decentralized state-owned banking system and allowed for the introduction of new financial institutions and markets. Simultaneously, more discretion in credit allocation was extended to local branches of state-owned banks, and interbank markets were set up to allow funds to flow more freely within the financial system.[5]

B. The Government's Commitment to the State Sector

The entry and rapid growth of the nonstate sector and lagging productivity growth[6] in the state sector contributed to a steady decline

[4] See Naughton (1995) for an excellent account of these reforms.

[5] See, e.g., Wong, Heady, and Woo (1995) on fiscal reforms and Brandt and Zhu (1995) and Lardy (1998) on financial reforms.

[6] In their summary of the recent studies on enterprise productivity in China, Jefferson et al. (1999) report that total factor productivity growth in China's state sector was about 2–4 percent between 1980 and 1992 and slightly lower if intermediate inputs are included. Total factor productivity growth in the nonstate sector, on the other hand, is about twice that in the state sector.

of the state sector's share of total output. Until 1993, however, employment growth in the state sector kept pace with that in the nonstate sector, whereas average wages remained nearly a third higher than those in the nonstate sector. We interpret this behavior as a reflection of the government's commitment to employment growth in the state sector.[7]

Because the state sector's share of output was declining, sustaining its employment growth required an inflow of resources from outside the state sector. These resource inflows were used to finance investment and the payment of wages, both of which helped to support employment growth in the state sector. Panel A of table 1 reports estimates of the cash flow of the state sector. Here, the net cash flow is defined as the difference between net output and total nonfinancial expenditures. Nonfinancial expenditures include all nonfinancial investment and current expenditures except interest payment on debt. As measured by the net cash flow, the resource flow into the state sector has been sizable and increasing over time.

At the beginning of the reforms, state-owned industrial firms generated aggregate before-tax net cash flows of about 14 percent of GNP.[8] Since 1985, however, positive before-tax net cash flows have largely disappeared, and these firms have had negative before-tax net cash flows for all years except 1987. The size of these negative cash flows as a percentage of GNP has also been increasing and in 1993 exceeded 3 percent. In other words, by 1993 more than 3 percent of GNP was being transferred annually to state-owned firms to support their wage payments, capital expenditure, and other operating costs exclusive of any tax or interest liabilities.[9]

We contrast these estimates with those for the nonstate industrial firms, which are reported in panel B of table 1. Between 1985 and 1993, the net cash inflow for these firms averaged less than 0.2 percent of GNP. Moreover, in contrast to the state sector, in which the

[7] A couple of rationales may be offered for the commitment to continued employment growth in the state sector. First, China's social welfare system in urban areas is largely organized through the state-owned firms. China has been slow in shifting these responsibilities to the fiscal system and currently faces resource constraints as it tries to do so. Second, as Shleifer and Vishny (1994) argue, governments obtain political benefits from state-owned firms. The state sector has long been considered an important source of support for China's ruling party. By providing employment and above-market wages in state-owned firms, the Chinese government over time built up political capital in them. As a result, the government is reluctant to shut them down.

[8] Under the prereform system, an administrated price system all but guaranteed profits to the state-owned enterprises. Most of these profits were siphoned off by the government in the form of sales taxes and profit remittance.

[9] Including the financing of net tax payments, the transfer (before-tax deficit) averaged 4.2 percent of GNP since 1986. When the financing of tax payments is added, the after-tax deficit averaged more than 8.5 percent since 1986.

TABLE 1

FINANCIAL DATA (RMB Yuan Billions)

YEAR	BEFORE-TAX EXPENDITURES					NET CASH FLOW		BEFORE-TAX DEFICIT	
	Net Output	Net Investments	Wages	Others*	Interest Payment	Level	Percentage of GNP	Level	Percentage of GNP
				A. State-Owned Firms					
1981	139.99	12.79	28.69	30.52	3.78	67.99	13.98	−64.21	−13.21
1982	143.63	21.79	30.30	32.60	5.75	58.75	11.08	−53.01	−10.00
1983	156.98	29.18	31.36	37.36	5.02	59.08	9.92	−54.05	−9.07
1984	175.51	52.97	38.52	46.86	7.90	37.16	5.16	−29.26	−4.06
1985	208.37	107.75	45.97	58.13	9.58	−3.49	−.39	13.07	1.45
1986	224.64	112.89	55.70	59.08	12.80	−3.03	−.30	15.84	1.55
1987	261.90	119.43	63.61	58.93	18.60	19.93	1.67	−1.34	−.11
1988	318.76	193.01	79.23	69.81	25.82	−23.92	−1.56	49.11	3.29
1989	359.72	234.34	91.47	78.42	46.40	−44.51	−2.63	90.91	5.37
1990	370.87	256.22	103.12	78.44	50.25	−66.90	−3.60	117.16	6.30
1991	418.21	269.71	115.14	85.73	59.39	−52.37	−2.42	111.76	5.16
1992	505.17	333.83	133.59	100.23	75.02	−62.53	−2.35	137.54	5.16
1993	749.09	561.10	162.43	143.82	116.11	−118.26	−3.42	234.37	6.78
				B. Nonstate Firms					
1981	41.23	1.60	13.78	8.99	1.11	16.86	3.47	−15.75	−3.24
1982	45.99	10.59	15.09	10.44	1.84	9.87	1.86	−8.03	−1.51
1983	52.58	9.42	16.49	12.52	1.68	14.16	2.38	−12.48	−2.09
1984	70.46	33.52	21.05	18.81	3.17	−2.92	−.41	6.09	−.85
1985	96.62	62.50	26.12	26.96	4.44	−18.95	−2.11	23.40	2.60
1986	112.83	55.75	30.88	29.67	6.43	−3.47	−.34	9.91	.97
1987	135.99	52.33	37.38	30.60	9.66	15.68	1.31	−6.03	−.50
1988	177.22	103.45	45.76	38.81	14.35	−10.80	−.72	25.15	1.69
1989	204.68	84.92	50.45	44.62	26.40	24.68	1.46	1.72	.10
1990	214.98	90.85	53.80	45.47	29.13	24.86	1.34	4.27	.23
1991	220.53	43.69	61.37	45.21	31.32	70.26	3.24	38.94	−1.80
1992	314.32	225.95	75.04	62.39	46.68	−49.06	−1.84	95.73	3.59
1993	530.63	229.44	91.61	101.88	82.25	107.70	3.12	−25.45	−0.74

SOURCE.—These are estimates for firms in industry. They are based on data from Chinese statistical yearbooks. Details of their construction are explained in a data appendix that is available on request from the authors.

* "Others" includes welfare, administration, and other nonproductive expenditures.

net cash inflow increased steadily, in the nonstate sector the inflow was positive in some years and negative in others.

C. *The Credit Plan and Credit Control*

The increasing flow of resources into the state sector was mainly financed by the government with cheap credit through the state banking system and money creation.[10] To ensure that a large portion of total bank credit was directed to the state sector, the credit plan was used by the central government as its principal instrument to control the banking system's credit allocation. In each year's credit plan, the state banks were given credit quotas, which, subject to the availability of funds from deposits and other sources, put ceilings on the amount they could lend in total, in each province, for fixed investment or working capital, and to state-owned firms or nonstate firms.

A desire to improve the efficiency of credit allocation made the government reluctant to centralize fully the implementation of the credit plan. In most years, the credit plan was used as an *indicative* plan under which state banks were given some discretion over lending activity so that they could use their superior information to allocate credit more efficiently. This discretion, however, also allowed the state banks to divert funds to projects in the nonstate sector that usually had higher returns but were outside the plan.

Under the indicative credit plan, the diversion of credit to projects outside the plan was difficult for the central government to control. First, the state banks used their discretionary power to lend directly to projects and firms outside the plan and to divert funds indirectly through interbank loans to the more autonomous nonbank financial institutions, which were less constrained by the credit plan.[11] Second, short of completely centralizing the credit allocation process, it was difficult for the central government ex post to obtain verifiable information about the state banks' diversion of credit since the banks could always claim that they were simply using their discretionary power to extend credit under the plan's guidance. Third, the central government's effort in monitoring the state banks' lending

[10] Estimates using data from various issues of *Zhongguo Jinrong Tongji Nianjian* (the Almanac of China's Finance and Banking) show that between 1979 and 1993, on average, 84 percent of all new credits from the state banking system were allocated to the state sector. In addition, more than one-third of these loans were financed by policy loans from the People's Bank of China, China's central bank, which were generally not repaid.

[11] Up until 1995, more than half of the trust and investment companies were effectively "owned" by the state banks. This allowed the diversion also to take the form of an internal transfer of funds from the state banks to their nonbank subsidiaries (see Brandt and Zhu 1995).

activities was undermined by the collusion between the local branches of the central bank, local governments, and the state banks. The local branches of the central bank were responsible for monitoring local state banks. However, officials of these branches were appointed by the local governments, and their interests were more aligned with the local than with the central government (see, e.g., Zhou and Zhu 1987). To promote local economic growth, the local branches of the central bank often colluded with the local state banks, which made diversion not only easier but also less likely to be detected by the central government.[12]

In order to control the diversion of credit outside the plan, the central government resorted on several occasions to the use of an *administrative* credit plan.[13] Under this plan, credit allocation was completely centralized and implemented through administrative means. Key measures taken by the central government as part of the implementation of the administrative credit plan include (1) eliminating all discretionary lending by the state banks, (2) strictly restricting the flow of funds outside the state banks and loans to projects outside the credit plan, and (3) holding local leaders and heads of local state banks and ministries individually responsible for fulfillment of the credit plan.

Use of the administrative credit plan was highly successful in restricting the flow of funds to the nonstate sector. However, the government also incurred a significant fixed cost measured in terms of lost output each time it moved from the indicative plan to the administrative plan. Under the administrative credit plan, the credit allocation process was completely centralized and the state banks' discretion in credit allocation was totally eliminated. Consequently, credit allocation became significantly less efficient, which led to a large discrete fall in the growth rate of output in the state sector. In addition, restrictions on the flow of funds under the administrative credit plan reduced significantly both investment and growth in the more efficient nonstate sector.

III. The Dynamics of Growth, Transfers, and Inflation

In light of the institutional environment that we described above, we now offer an explanation of the growth and inflation cycles.[14]

[12] Similar collusion problems exist in fiscal revenue collections and were one of the main reasons for the decline of the government's revenue as a percentage of GNP (see Laffont 1994).

[13] The administrative credit plan was used in 1985, 1989–90, and 1993–94.

[14] A more formal analysis is provided in a separate paper (Brandt and Zhu 1998). In that paper we develop a dynamic general equilibrium model with financial, state, and nonstate sectors and show that the growth and inflation cycles are the equilibrium outcome of the interaction among the agents in these sectors.

A. *Commitment, Soft Budget Constraints, and the Productivity Gap*

Market reforms allowed nonstate firms to enter into the product market. Without the commitment and financial support from the central government, these firms faced hard budget constraints: They relied heavily on internally generated funds for financing working capital and fixed investment needs, and when investment yielded low returns, these firms had to reduce employment or wages or both. This provided firm managers in the nonstate sector with strong incentives to search for high-return investment opportunities, which contributed to the high productivity growth in the nonstate sector.

In contrast, the state-owned firms faced soft budget constraints. The government's commitment to support employment growth in the state sector effectively provided insurance for the managers and employees of the state-owned firms. When poor investment decisions were made that resulted in low returns, wages that could not be covered out of project returns were financed by bank credits or government subsidies or both. Since managers of the state-owned firms did not have to assume full responsibility for their poor investment decisions, they had weak incentives to search for good investment projects, and the productivity growth in these firms lagged behind that in the nonstate sector.

This difference in the growth rate of productivity led to a widening productivity gap between the state and nonstate sectors. To maintain its commitment to employment growth in the state sector, the government had to effect an increasing transfer of resources to the state sector. In principle, the transfers could be financed in three ways: (1) fiscal subsidies, (2) cheap credit through the banking system, and (3) money creation. Fiscal decentralization, however, reduced the central government's ability to raise fiscal revenue and forced the government to rely mainly on credit allocation and money creation as the ways to finance the transfers. As a result, credit allocation by the state banks became a key variable determining the resource allocation between the state and nonstate sectors and the amount of transfers that needed to be financed by money creation.

B. *Credit Allocation and the Cycles*

If the government could perfectly control credit allocation by the state banks, it could have financed a majority of the transfers to the state sector through credit allocation and kept money creation to a level that is consistent with low inflation. Because of financial decen-

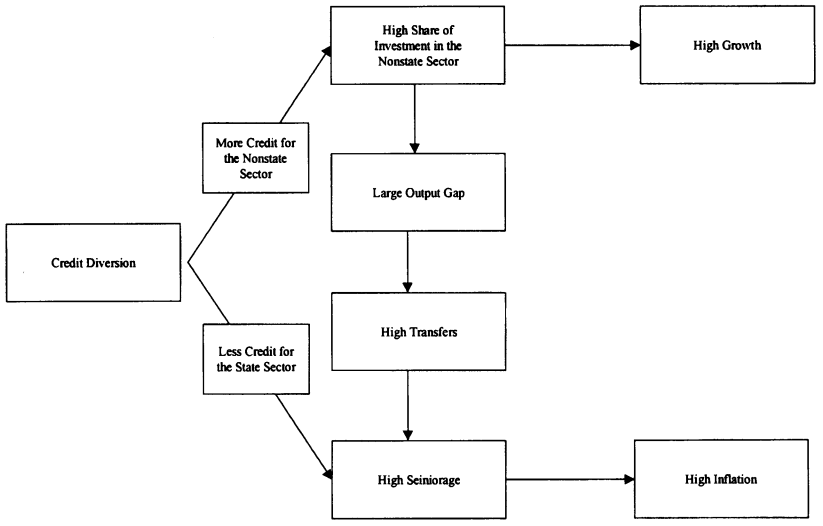

FIG. 3.—Growth and inflation under the indicative plan

tralization, however, the government no longer had the ability to control effectively credit allocation by the banks.

Under the indicative credit plan, the state banks were given discretion in allocating credits. Motivated by the desire to maximize their own profits, they extended as much credit as possible to the more productive nonstate sector. As more credit was allocated to the nonstate sector, the investment share of this more productive sector rose, causing the entire economy's growth rate to rise. This increase in the nonstate sector's share of total investment caused the output growth rate differential between the state and the nonstate sectors to widen as well. Consequently, more transfers to the state sector were needed for the government to maintain its commitment to employment growth in the state sector. Because the government could not effectively control the state banks' diversion of credit under the indicative credit plan, it was forced to use money creation to finance the increasing transfers to the state sector. As a result, inflation rose along with the output growth rate. Figure 3 illustrates these dynamics under the indicative credit plan.

There is a limit on the transfers that can be financed with money creation. As the required transfers increased, inflation accelerated. To avoid hyperinflation, the government eventually had to put a stop to credit diversion by the state banks. But this was possible only if the government abandoned the indicative plan and centralized credit allocation by using the administrative credit plan. Because of

the fixed cost associated with implementing the administrative plan, however, the government would resort only infrequently to the administrative credit plan and would use it only when credit diversion and the ensuing inflation rate became alarmingly high. Once the flow of funds to the nonstate sector was under control, money creation was slowed, and inflation was reduced, the government would switch back to the indicative credit plan in order to promote output growth in the economy. The state banks would again start to divert credit to the nonstate sector, and a new round of growth, inflation, and cutback began. Thus the cycles.

IV. Empirical Evidence

There are three key links in our explanation of the growth and inflation cycles (see fig. 3): (1) the role of credit allocation in determining the investment allocation between the state and the nonstate sectors, (2) the role of investment allocation between the two sectors in determining the real growth rate of GNP and the need for the central government to resort to money creation in financing the transfers to the state sector, and (3) the direct impact of money creation on inflation. In this section, we provide evidence that is consistent with these predictions. We also compare our predictions to some alternative explanations suggested in the literature and show that our explanation is more consistent with the empirical evidence.

In the regressions, we utilize data for the period 1981–92. An accounting change in 1993 makes data for later years noncomparable.[15] Given the small sample size, we keep our regression equations as simple as possible.[16] The regression results are summarized in tables 2 and 3.

A. The Role of Credit Allocation

Our discussion in Section III suggests that a key factor behind the cyclical movement in the economy's growth rate and inflation rate is the state banks' credit allocation between the state and the nonstate sectors. The first regression equation in table 2 shows how the state sector's share of investment is affected by the current and lagged credit ratio, that is, the ratio of new credits to the nonstate sector to those to the state sector. As a higher percentage of total new cred-

[15] Starting from 1993, some of the joint-stock companies that had been formerly classified as state-owned firms were reclassified as nonstate firms.

[16] Corrections for autocorrelation in the error term do not alter our results. So we report only the results from ordinary least squares regressions.

TABLE 2

REGRESSION RESULTS

DEPENDENT VARIABLE	EXPLANATORY VARIABLES							
	Constant	Credit Ratio	Lagged Credit Ratio	State Sector's Share of Investment	Investment Rate	Lagged Seigniorage	Lagged GNP Growth Rate	Adjusted R^2
1. State sector's share of investment	.878	−.332	−.106					.44
	(28.86)	(−3.24)	(−.97)					
2*a*. Real GNP growth rate	.698			−.757				.49
	(3.89)			(−3.37)				
2*b*. Real GNP growth rate	.564			−.670	.237			.50
	(2.69)			(−2.88)	(1.18)			
3. Seigniorage/GNP ratio	2.30			−2.553				.40
	(3.19)			(−2.87)				
4*a*. Inflation rate	−.014						.359	.46
	(−.54)						(3.25)	
4*b*. Inflation rate	−.028					.310	.281	.43
	(−.78)					(2.19)	(.59)	

NOTE.—State sector's share of investment is based on data for industry. Credit ratio equals new credits to nonstate firms as a percentage of new credits to state-owned firms. Investment rate is the ratio of total fixed investment to GNP. *t*-statistics are in parentheses.

TABLE 3

ALTERNATIVE EXPLANATIONS FOR MONEY CREATION

	SEIGNIORAGE REVENUE/GNP RATIO, 1981–92		
	(1)	(2)	(3)
Constant	2.30	2.10	1.167
	(3.19)	(3.10)	(1.30)
State sector's share of investment	−2.553	−2.88	−2.31
	(−2.8)	(−3.32)	(−2.82)
BASIC		.96	
		(1.51)	
LOCAL			1.64
			(1.77)
Adjusted R^2	.40	.47	.60

NOTE.—BASIC and LOCAL are the share of investment in basic industries and by local government–controlled state-owned firms, respectively. State sector's share of investment is based on data for industry. *t*-statistics are in parentheses.

its is directed to the nonstate sector, the state sector's investment share declines. Only current credit allocation appears to be significant and by itself explains almost half of the variation in the state sector's share of investment for the sample period 1981–92.

B. Investment Allocation, Growth, and Seigniorage

Our explanation implies that the output growth rate is negatively affected by the state sector's share of investment: Since the state-owned firms are less efficient than the nonstate firms, the rate of growth of GNP should fall as the share of investment by state-owned firms increases. This is consistent with the regression results presented in table 2. We first regress the growth rate of GNP on the state sector's share of investment (regression 2*a*) and find that the coefficient is negative and significant. The parameter estimate implies that a 1 percent decline in the state sector's share of investment is associated with an increase in GNP growth of about 0.75 percent. We then run the same regression but control for the investment rate (regression 2*b*), that is, total investment in the economy as a percentage of GNP. The sign of the coefficient on the state sector's share of investment remains negative and significant. The investment rate, on the other hand, is insignificant. The negative relationship between GNP growth and the state's share is also captured by figure 4.

Our explanation also implies that as the state sector's share of investment declines, the output gap between the state and the non-

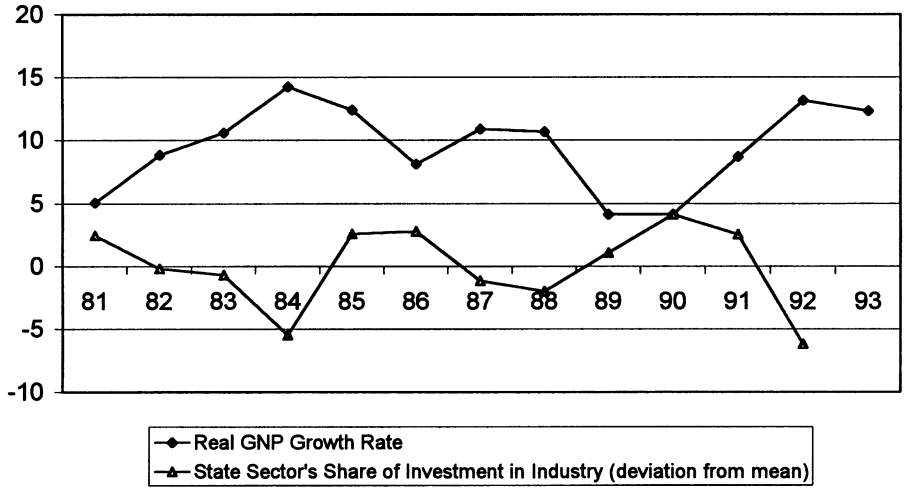

FIG. 4.—State sector's share of investment and GNP growth. Source: *Zhongguo Tongji Nianjian* and *Zhongguo Gongye Tongji Nianjian*, various issues.

state sectors widens. As a result, more transfers to the state sector are needed by the government to maintain its commitment to the state sector. This puts more pressure on the government to resort to money creation to finance the transfers. To test for this link, we regress the central government's seigniorage revenue (as a percentage of GNP)[17] on the state sector's share of investment (regression 3). The regression result shows that the seigniorage revenue is strongly negatively related to the state sector's share of investment.

C. Money Creation and Inflation

Table 2 also presents the regression results on inflation. Regression 4*a* shows that the lagged real GNP growth rate is positively correlated with the inflation rate. Once we control for seigniorage revenue as a percentage of GNP (regression 4*b*), however, the real GNP growth rate is no longer significant. The coefficient on seigniorage, on the other hand, is positive and significant. This supports our argument that even though inflation and output growth are positively corre-

[17] The seigniorage revenue used in the regression is defined as the increase in M0. This, of course, represents only a small portion of the revenues that can be generated through money creation, and it should be viewed only as an indicator of the People's Bank of China's monetary stance rather than as a measure of the amount of transfers that is financed through money creation. A better measure would be the increase in reserve money. Data limitations, however, prevent us from using this measure.

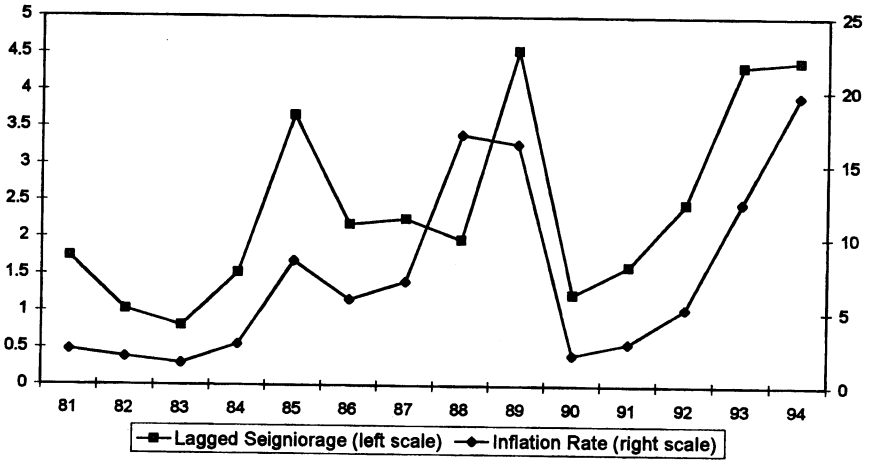

FIG. 5.—Money creation and inflation. Source: *Zhongguo Tongji Nianjian*, various issues.

lated, the fundamental cause of inflation is not growth itself, but rather the associated increase in money supply by the central bank that is used to finance transfers to the state-owned firms. The link between seigniorage and inflation is also captured by figure 5.

D. Alternative Explanations

Several alternative explanations of China's growth and inflation cycles are loosely suggested by the literature (see, e.g., Deng 1994; Jin 1994; Yusuf 1994; World Bank 1995; Lin et al. 1996; Naughton 1996; Ma 1997; Fan and Woo, in press). In these explanations, the link between the output growth rate and the inflation rate is not well articulated, and the fluctuations in the rate of output growth are usually related to the change in overall investment. However, our regression results in table 2 show that the underlying source of output fluctuations is not the change in the investment rate, but rather the change in the distribution of investments between the state and nonstate sectors.

Instead of focusing on the distribution of investments between the state and the nonstate sectors, these explanations generally identify the unbalanced investment between basic industries and other sectors or between the central and local governments as the key source of inflation pressure: Because of the government's administrative control of prices, local governments and local government–controlled enterprises lack strong incentives to invest in basic industries,

such as raw materials, energy, and transportation. As a result, basic industries tend to grow slower than the overall economy and become bottlenecks during high-growth periods. This puts pressure on the central government to invest in basic industries. Because of the diversion of funds by the state banks, however, the central government relies mainly on money creation to finance the investment in basic industries, which results in inflation.

This argument shares with ours an emphasis on the role of money creation in "filling the gaps" created by the state banks' diversion of funds and the link between money creation and inflation. However, it is the gap between investment by the central government and local government–controlled state-owned firms or between investment in basic industries and other sectors in the economy, as opposed to the gap between the state and the nonstate sectors. Regression results reported in table 2 show that the state/nonstate sector dichotomy is an important determinant of the central bank's money creation. In table 3 we present seigniorage regression results that also include the share of local government–controlled investment (LOCAL) and the share of investment in basic industries (BASIC), respectively. The regression shows that neither of these alternative variables is significant in explaining the central bank's money creation and identifies the gap between the state and the nonstate sectors as the dominant source of pressure on the central bank's money creation and, thus, inflation.

V. Conclusion

Economic decentralization and the government's commitment to employment growth in the state sector are important features of the economic reform process in China. This commitment manifested itself in the form of soft budget constraints for state-owned firms, which are central to the subpar performance of state-owned firms relative to that in the nonstate sector. The productivity gap between sectors widened over this time period and required a growing transfer of resources to the state sector in order to ensure growth in wages and employment comparable to growth in the nonstate sector.

Decentralization has proved to be a double-edged sword. While providing agents the incentives and means to pursue growth-enhancing activities, it has led to behavior that is frequently at odds with the government's distributive objectives. Such a conflict underlies the agency problem between the central government and the state-owned banks, and helps explain the difficulty of central government control over credit allocation. Decentralization has also eliminated a number of avenues (e.g., price controls, foreign exchange con-

trols, and market protection) through which the government can subsidize the state sector and reduced its capacity to subsidize the sector through the fiscal system. This has put undue pressure on the monetary and financial system. Our estimates for the period between 1986 and 1993 show a steady increase in the size of the transfers required to support state-owned firms in industry, many of which were coming from the financial system. As long as the government remains committed to supporting the state sector, we expect subpar performance of the state-owned firms to persist and inflation to be a recurring problem.

However, there are limits to how much revenue can be raised through money creation. As the gap between the state and nonstate sectors widens, there is a possibility that the required transfers will exceed the amount that can be financed with money creation, thereby forcing the government to impose administrative control over credit allocation continually in order to maintain its support to the state sector. These concerns finally came to the fore in the last couple of years and likely underlie a recent weakening in the commitment to the state sector. Faced with supporting the state sector at its current level and suffering the prospect of a sustained slowdown in growth, the government appears to have finally chosen to reduce its support for the state sector.[18] It remains to be seen whether this recent reduction in commitment can be sustained, and what forces enabled such an important shift in the political equilibrium.

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[18] Beginning in 1995, e.g., many of the state-owned firms let go some of their employees by paying them very low minimum wages (see also fig. 2). In addition, in 1998, the credit plan was eliminated.

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