Taxation and Economic Growth in China

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1 Introduction

China's economic transformation during the past twenty years has been breath taking. As of the early 1980's, China was one of the poorest countries in the world. The economy was almost entirely state-owned. Virtually all allocation decisions were made through the government planning ministries. Goods were largely rationed, prices were only an accounting convention, and the economy was largely closed.

Since then, per capita GDP has grown by a factor of at least five.[1] The country has largely shifted to a market economy, most industries are highly competitive, and international trade with the rest of the world is large and growing. There is now a vibrant private sector, rapid FDI, and a thriving stock market. While the state-owned sector still constitutes 53% of industrial value-added and 15% of gross industrial output (as of March 2002), these fractions continue to drop steadily.

What explains this dramatic success of the Chinese economic reforms to date? Many answers can be and have been explored. The objective of this paper is to focus in particular on the role of the tax system in the development process.

Fifteen years ago, as discussed in more detail in section 2, the Chinese tax system was typical of those in the poorest countries. The main source of tax revenue for the national government was taxes (and dividends) collected from large capital-intensive firms, which were almost entirely owned by the national government. Statutory profits tax rates were very high, and there were many supplementary taxes and fees in addition. Two other important sources of revenue were high tariffs on imports and high seigniors due to a rapid growth in the money supply. In spite of the high tax rates, however, revenue collection was not that high, partly because only a small part of the economy was subject to these taxes.[2] In addition, the rate of evasion on these taxes was high, and due to high rates of corruption many payments never showed up in reported government revenue.

Due to these high rates of both "under-the-table" as well as "over-the-table" payments, though, firms would likely have been very reluctant to invest if they faced market prices

[1]Unless we state otherwise, the data we use in this paper are drawn from Datastream and the online database published by National Bureau of Statistics of China at www.stats.gov.cn.

[2]Eighty percent of the population worked in agriculture, where taxation was much more difficult. Prior to the late 1970's, the national government collected implicit agricultural taxes using price scissors—underpricing of agricultural products relative to industrial products manufactured by state-owned firms—to channel taxable surpluses to the state-owned sector. To protect this tax base, the national government monopolized the procurement of agricultural products, prohibiting peasants from directly selling grain in free markets. By the early 1980's, however, agricultural reforms gradually raised procurement prices and reduced the implicit taxes on peasants. By the mid 1990's, the government had raised procurement prices for grain above both domestic and international market prices, providing implicit subsidies to peasants.

and cared only about after-tax profits. The government compensated by providing either very cheap credit through a state-controlled banking system, or by directly funding new investment projects.[3] These cheap loans from banks under the control of the national government, however, went almost entirely to the large firms that were the source of the national government's tax revenue.

All of these characteristics are common among the poorest countries. Table **??** compares the sources of tax revenue in China between 1985 and 1999 with the average figures from comparable and richer countries reported in **?**. Table **??** compares seigniors in China between 1986 and 1999 with that from comparable and richer countries.

[3] See **?** for a discussion of the links between high tax rates and state control over the banking system.

Table 1: Tax revenue by type: a comparison between China and the rest of the World

A. China			Income Taxes				Domestic Taxes						
Year	GNP per Capita (1987 USD)	Total tax	Total	Individual*	Corporate**	Other	Total	Excise	General Sales, Turnover, VAT	Of which VAT	Agricutural taxes	Customs Duties	Other
1985	$314	22.77%	7.76%		7.76%		11.10%		10.64%	1.65%	0.47%	2.29%	1.61%
1986	$285	20.49%	6.79%		6.79%		10.63%		10.19%	2.28%	0.44%	1.49%	1.59%
1987	$297	17.89%	5.56%		5.56%		9.53%		9.11%	2.12%	0.42%	1.19%	1.61%
1988	$352	16.01%	4.53%		4.53%		8.96%		8.46%	2.57%	0.49%	1.04%	1.49%
1989	$374	16.13%	4.14%		4.14%		9.07%		8.57%	2.55%	0.50%	1.07%	1.85%
1990	$306	15.21%	3.86%		3.86%		8.54%		8.07%	2.16%	0.47%	0.86%	1.95%
1991	$305	13.83%	3.38%		3.38%		7.82%		7.40%	1.88%	0.42%	0.87%	1.76%
1992	$350	12.38%	2.71%		2.71%		8.17%		7.73%	2.65%	0.45%	0.80%	0.70%
1993	$425	12.29%	1.96%		1.96%		8.65%		8.28%	3.12%	0.36%	0.74%	0.94%
1994	$368	10.96%	1.52%		1.52%		7.91%	1.04%	6.37%	4.94%	0.50%	0.58%	0.96%
1995	$460	10.33%	1.73%	0.22%	1.50%		7.33%	0.93%	5.93%	4.45%	0.48%	0.50%	0.77%
1996	$520	10.18%	1.43%		1.43%		7.37%	0.91%	5.92%	4.36%	0.54%	0.44%	0.93%
1997	$556	11.06%	1.64%	0.35%	1.29%		7.63%	0.91%	6.19%	4.41%	0.53%	0.43%	1.35%
1998	$580	11.82%	1.18%		1.18%		8.19%	1.04%	6.64%	4.63%	0.51%	0.40%	2.05%
1999	$585	13.04%	1.50%	0.51%	0.99%		8.30%	1.00%	6.78%	4.74%	0.52%	0.69%	2.56%
B: International Comparison: world averages by income brackets (source: Burgess and Stern, 1993)													
Income range: GNP/capita (1987 USD)	Average GNP/capita (1987 USD)										(Other)		
$<360	$239	14.02%	3.46%	1.36%	2.19%	0.19%	4.55%	1.66%	2.44%		0.46%	5.30%	0.70%
$360-749	$517	19.66%	5.74%	2.53%	2.92%	0.21%	4.74%	1.95%	2.30%		0.49%	7.58%	1.51%
$750-1619	$1,127	18.62%	5.98%	2.18%	4.08%	0.30%	6.06%	2.64%	2.68%		0.74%	4.64%	1.93%
$1620-6000	$2,996	19.79%	6.81%	2.14%	3.80%	0.84%	5.41%	1.99%	2.40%		1.02%	3.12%	4.74%
All Developing	$1,241	18.05%	5.51%	2.08%	3.29%	0.40%	5.21%	2.07%	2.46%		0.68%	5.13%	2.20%
$>6000	$13,477	31.21%	10.96%	8.45%	2.37%	0.14%	9.43%	3.02%	5.58%		0.83%	0.72%	10.11%

* Data on individual income tax are availale on a few year only. Source: http://english.peopledaily.com.cn/200101/11/eng20010111_60146.html.

** Income taxes paid by state-owned and collective enterprises only.

Table 2: Seigniors as a proportion of GDP. Seigniors is measured by the increase in reserve money this year over the previous year. Data source: IMF International Finance Statistics.

Year	Argentina	Brazil	Chile	China	India	Indonesia	Malaysia	Thailand	Japan	U.S.
1985	13.44%		43.99%		2.89%	1.08%	0.88%	0.66%	0.35%	0.50%
1986	2.22%		13.52%	5.65%	2.20%	1.39%	0.54%	0.80%	0.73%	0.78%
1987	3.96%		4.69%	3.31%	2.54%	0.72%	0.69%	1.75%	0.82%	0.26%
1988	8.41%		1.01%	6.05%	2.22%	-0.47%	1.42%	1.21%	1.25%	0.30%
1989	31.07%		-0.70%	5.95%	2.46%	1.46%	2.92%	1.33%	1.32%	0.22%
1990	8.56%	13.05%	16.52%	8.49%	1.85%	0.90%	3.00%	1.44%	0.79%	0.48%
1991	3.37%	11.36%	8.63%	7.80%	2.48%	0.18%	2.07%	1.05%	-0.15%	0.20%
1992	1.56%	16.03%	7.67%	5.50%	1.16%	1.52%	3.17%	1.41%	-0.39%	0.48%
1993	1.72%	20.11%	4.82%	12.98%	2.81%	0.46%	1.83%	1.33%	0.56%	0.52%
1994	0.52%	19.04%	7.02%	10.03%	2.95%	1.30%	5.56%	1.23%	0.30%	0.50%
1995	-0.97%	0.86%	4.73%	6.73%	1.77%	0.98%	4.54%	1.90%	0.81%	0.27%
1996	0.11%	1.29%	5.37%	9.66%	1.30%	1.97%	9.50%	1.24%	0.92%	0.28%
1997	0.68%	2.06%	5.67%	6.38%	1.48%	2.43%	7.22%	1.55%	0.84%	0.47%
1998	0.14%	-0.83%	-1.36%	1.14%	1.60%	3.84%	-12.27%	-0.51%	0.45%	0.36%
1999	0.05%	0.49%	3.26%	3.02%	1.44%	1.99%	12.55%	5.96%	5.09%	1.20%
Average	4.99%	8.35%	8.32%	6.62%	2.08%	1.32%	2.91%	1.49%	0.91%	0.45%
Average Annual Inflation Rate	503.39%	595.23%	14.29%	8.72%	8.90%	11.87%	1.14%	3.07%	4.01%	3.28%

As argued in section 3, such a tax structure with very high tax rates on a narrow tax base can create large efficiency costs for the economy, discouraging private activity in these taxed sectors. In addition, though, the heavy dependence of the government on a small sector in the economy can badly distort government decision-making, causing the government to favor these heavily taxed sectors through its control of bank loans and regulations restricting entry of competing firms and competing imports. The net effect, in most developing countries, appears to be that the government largely succeeds in stifling the entry and development of firms that are more difficult to tax and that compete with the existing large firms that do contribute tax revenue to the government. The result can be a stagnant and largely closed economy, dominated by large state-owned firms, with little innovation and little competition.

Yet fifteen years later, as also seen in Tables **??** and **??**, the tax structure in China has changed substantially. The latest figures not only show a growth in tax revenue as a fraction of GDP, but also show an important shift away from corporate taxes, tariffs and seigniors towards a value-added tax. In addition, state control over the banking system has largely ended, the national government now collects taxes from small as well as large firms and private as well as state-owned firms. While not yet typical of the tax structure in developed economies, the changes are still dramatic.

Why has China made such strides in restructuring its tax system? Was this restructuring in fact effective in improving economic incentives? Is this restructuring simply a by-product of its rapid development generally, or has the design of its tax system played an important role supporting this development?

Our description above characterized the *national* tax system. In section 4, we focus on a key, and unusual, additional aspect of the Chinese fiscal system. China has been very unusual in granting substantial fiscal autonomy to regional and local governments. Starting in 1980, China allowed local governments to collect and retain taxes from any firms they set up within their jurisdiction, enabling the government as a whole to collect revenue from a sector that is effectively untaxed in most poorer countries. The result was strong *local* government support for firm entry, leading to a rapid rate of entry and intense competition in most industries. While this fiscal decentralization led to rapid entry and growth of smaller firms, which proved to be the key success of the initial Chinese reforms, we describe in this section a variety of economic distortions that arose as part of this fiscal decentralization.

Perhaps in response to these remaining pressures, the national government shifted policy in 1994. As described in more detail in section 5, it adopted a modern accounting system in July 1993, in February 1994 it instituted a major banking reform that effectively ended day

to day government oversight of specific lending decisions, while in January it enacted a major change in the structure of the tax system. In particular, it lowered the income tax rate from 55% to 33%, and enacted a new value-added tax at 17% on most goods and services and a reduced rate of 13% on agricultural products and inputs, energy and minerals. The national government, through the newly founded National Tax Bureau, took over responsibility for collecting VAT, excise taxes, and income taxes from enterprises controlled by the national government. Local governments, through Local Tax Bureaus, were given responsibility for collecting business taxes (turnover taxes on services and sales of intangible assets and real estate properties), income taxes from individuals and from local firms, agricultural taxes, and property taxes. In general, the new tax system assigned taxes that are harder to collect to local governments, which presumably had an information advantage over the national government.

We then argue that these reforms were intimately linked. Publicly available and verifiable information on firm earnings is essential in enabling the national government to administer a broad-based tax system. Such information can come from accurate accounting statements, from bank records, and from receipts from all sales and purchases. Without such records, a firm can easily hide its transactions from the tax authorities, and any tax inspector who does trace down income can hide this information from the rest of the government, collecting side payments from the firm instead. The banking and accounting reforms, as well as the enactment of requirements that firms maintain receipts for all sales and purchases, appear to have been essential prerequisites for the transformation of the Chinese tax system. While, not surprisingly, these reforms were not that successful immediately in enabling the national government to monitor the income and value-added of firms, progress is being made.

In theory, how would these reforms affect the incentives of both firms and different levels of the government? If this updated tax system proves to be workable, existing firms should now face much less distorted investment incentives. At least as importantly, national government officials should also face much more neutral incentives when exercising any remaining controls over the allocation of resources within the economy. Given the drop in the income tax rate and the shift in most excise tax revenue to the national government, local officials may also face less distorted incentives.[4]

The above steps in the development of China's tax system therefore appear to be major steps in the development of the economy more generally. The success of the fiscal decen-

[4]However, new entry may be less attractive than before, since the private entrepreneur bears all the potential costs, but still faces relatively high tax rates on potential gains.

tralization during the 1980's, in particular, was dramatic. The more recent reforms also have the potential to provide a net improvement in the economic efficiency, perhaps at the cost though of slower economic growth.

2 Chinese tax structure, 1985-1993

China's shift towards market allocations in industry began around 1984-5. As under the planning system, the government still required firms to deliver a specified number of units of output to the government at a preset price and in exchange delivered so many units of each of the required inputs, also at a preset price. Traditionally, these accounting prices were set so that the firm paid virtually all of the profits from this production to the government in implicit taxes.

As of 1984-5, however, firms were given the discretion to sell any residual output in the market, and to buy supplementary inputs as needed in the market.[5] In addition, the allocation of planned goods became less tightly controlled, so that firms could sometimes receive (and be required to make) side payments to assure delivery of these goods (**?**; **?**).

Accompanying this decentralization of decision-making, the government introduced turnover taxes on goods (product tax) and services (business tax) and a profits tax on firms. Statutory tax rates were set quite high. With only a few exceptions, turnover taxes on most goods and services were assessed *ad valorem* on reported value of the sales, with rates ranging from 3% on salt, 20% on beer and TV sets, to 65% on grade-A cigarettes. Accounting profits were subject to a 55% tax rate. In addition, depreciation allowances were transferred to the government, to be reallocated as the government saw fit. While interest payments were deductible, interest rates were very low so that these deductions were not large.

Given the high tax rates and the additional payment of depreciation deductions to the government, tax payments in theory should have been very high. However, financial accounts were still relatively new, giving the firm substantial flexibility to understate sales revenue and profits. The traditional reporting from firms to the government focused on detailed information about physical quantities of inputs and outputs, not financial flows. With the "dual-pricing" system, where the values of some inputs/outputs were based on planned prices and others based on market prices, the government would find it very hard to monitor the reported financial figures given the traditional information on *quantities*.

[5] Allocation decisions were decentralized step by step, however. The government still controlled the allocation of bank loans, an issue we return to below. The assignment of workers to firms also remained heavily controlled by the government.

Tax inspectors of course would attempt to document the firm's sales revenue and accounting profits, in order to enforce the tax system. Given the lack of any outside information, however, this simply created the problem of monitoring the monitors. Given the information otherwise available to the government about quantities of inputs and outputs, a tax inspector would have substantial flexibility in choosing what revenue and financial profits figures to report for the firm after an audit. The apparent result commonly was bargaining and under-the-table payments between the firm and the tax inspectors, while reported revenue and profits remained low.

Facing such widespread evasion under the tax system, by 1987-88 the national government shifted to use of a "contract responsibility system" to collect revenue from firms. Rather than trying to monitor the firm's sales and profits year by year, the government instead signed a contract with each firm specifying the firm's tax payments over the next several (commonly five) years. Some contracts also imposed investment or other requirements on firms. In some of these contracts, tax payments were entirely set ex ante. In others, there was a base payment with a supplementary tax imposed equal to some percent of any profits earned above some level.

By 1988, however, after many of these contracts were signed, China experienced a growing inflation rate, reducing the real value of these preset tax obligations. In addition, monitoring of firm sales and profits remained very difficult, so that tax payments continued to stagnate.

As in other poorer countries, the national government collected these taxes almost entirely from large capital-intensive (and in China state-owned) firms, where monitoring was less difficult. In most poorer countries, smaller firms largely escape these turnover and profits taxes entirely, since they operate in a cash economy and therefore leave no paper trail. Here, China took a different approach and decentralized oversight of the taxation of smaller firms to regional and local governments. While these local governments did succeed in collecting substantial revenue from these smaller firms, as discussed in section 3, the national government received very little of this revenue.

One other unusually successful source of revenue during this period in China was seigniors as seen in Table **??**. Many developing countries (e.g., Argentina, Brazil and Chile in the 1980's and early 1990's) also collected substantial seigniors revenue, suffering in exchange a resulting high inflation rate. During this period, however, China was shifting from a planned economy that did not make more than symbolic use of money[6] to one

[6] A common aphorism was that "money was neither necessary nor sufficient to purchase goods." Instead, allocations were commonly arranged through the distribution of rationing permits.

where money did play a central role in transactions. This allowed a substantial increase in the money supply with relatively modest inflation. However, this transition to a monetary economy was largely complete within a decade, so that any further use of seigniors carried an increasing risk of inflation.

As seen in Tables **??** and **??**, government revenue (not counting seigniors) as a fraction of GDP declined steadily during this period. While the fraction of GDP collected in tax revenue remained comparable to that collected in other developing countries, the resulting budgetary constraints on the government limited its ability to finance needed investments in infrastructure, education, etc.

3 Consequences of this tax structure

Given the high tax rates that existed under the income tax in place as of 1985, based on the statutory tax structure alone Chinese firms would have faced highly distorted investment incentives.[7] Consider, for example, the decision by the firm to invest some of its own funds in additional capital. If the value of the marginal product of capital is f_K, the true economic depreciation rate is d, and the opportunity cost of funds for the firm is r,[8] Income taxes alone due on this investment, assuming that depreciation deductions in fact equal the true rate of depreciation, equal $.55(f_K - d) + d$. The firm then breaks even as long as $f_K - d - (.55(f_K - d) + d) \geq r$, or if $f_K - d \geq 2.2(r + d)$. If the depreciation rate, for example, were 10%, then even if the opportunity cost of funds were only 10%, the required rate of return on the capital, net of depreciation, would have been 44%. Compared to an average rate of return on capital in the U.S. of around 10%,[9] this required rate of return is extremely high. Supplementary taxes would raise it further.

Based on the tax law alone, therefore, very little investment should have occurred in these large firms. Without offsetting policies, the expected outcome would be a major shift in resources out of this highly taxed sector into other sectors that were not in practice subject to these taxes from the national government. The result would then have been very little tax revenue, and an economy artificially induced to consist mainly of firms that are

[7] While actual tax payments were not that high, avoidance of statutory tax payments was likely to have been largely offset by under-the-table payments. In theory, a tax inspector could hold out for close to the tax liability he could legally impose on the firm, in exchange for reporting less to the government.

[8] This opportunity cost equals the rate of return that the firm's workers would require for foregoing use of the funds now in exchange for a presumed use of the extra revenue in the future generated by the new investment. This required rate of return could be high in part due to the uncertainty about their claim on any future profits, as well as due to uncertainty about the size of these future profits.

[9] See, for example, **?**.

small enough to avoid detection and oversight by the tax authorities.

In fact, however, investment rates in the large capital-intensive firms were substantial. In practice, the government compensated for the high tax rates through providing cheap credit or even grants to finance desired investment projects to these firms. With cheap enough credit, firms could still be induced to go ahead with a project, in spite of the high tax rates. The loans from banks controlled by the national government went almost exclusively to firms whose tax payments went to the national government.

In order to induce a large firm to invest, in spite of the high tax rate it faces, the effective interest rate on a bank loan would need to be very low, perhaps even requiring that only a fraction of the initial principle be repaid. While the firm then breaks even on the investment project, the government-owned bank would likely lose revenue on net, due to the frequency with which loans are not fully repaid. The government, however, receives both turnover and income tax revenue from the firm on the resulting return from the investment. Therefore, bank loans should be attractive to the government as long as the combined return from additional taxes as well as any loan repayments covers the opportunity cost of the funds.[10] If the loan repayment terms are set so that the firm breaks even, then the government (and the government controlled bank) are the ones who are affected at the margin by the investment. As a result, allocation decisions for these firms largely remained under the control of the central government.

Since revenue to the national government depended heavily on the profits of these large firms, the "private" incentives faced by the national government would be to keep these profits high. It could do this for example by helping these firms maintain low wage rates and high consumer prices. Wage levels in fact were largely set by the national government, and the government aided industries to coordinate their consumer prices, in effect facilitating monopoly pricing. Imports were subject to high tariff rates, so that they provided comparable revenue to goods produced domestically. The national government would also have an incentive to restrict competition from smaller firms, since this competition would not only divert profits to a sector not as easily subject to national taxation, but would also lower profits generally. Without entry, experimentation and innovation would be stifled.

4 Fiscal Decentralization during 1985-1993

This tax policy, and its effects on private as well as government behavior, we feel is broadly comparable to that existing in many poorer countries. However, the above description

[10]For further exploration of this issue, see **?**.

omits a key feature of the Chinese economic structure during this period — fiscal decentralization.[11] Starting in 1980, the Chinese national government started to transfer oversight and control of the vast majority of small and medium-sized state-owned enterprises to local governments, mostly at the municipal level. At the same time, the national government signed contracts with all regional and local governments, allowing them to collect turnover and income taxes and supplementary fees from these smaller firms under their control, and to keep the resulting revenue net of preset and so "largely" lump-sum payments to the national government based on the contract signed with the national government.[12] In exchange, local governments had the responsibility to finance a wide range of local public goods.

In addition, local governments were given control of the allocation of loans from local banks. The funds available to these banks came in part from local deposits and in part from funds transferred from the national bank.

These elements of the Chinese fiscal system during this period were very unusual, and proved to be highly successful. Local governments proved to be much more effective than national governments elsewhere in monitoring and collecting revenue from these smaller firms. Since they effectively "owned" these firms, and had representatives from the local government working within the firms, there were many sources of information to use in monitoring taxable sales and income.

Since the tax rates in theory were the same on small and large firms, these local firms also faced sufficiently high effective tax rates that investment would have been very limited if decisions were made by the firm facing market interest rates and market prices. Local governments, however, also provided cheap loans and grants to these smaller firms, to assure that investment levels were at the level desired by the local government. If the interest rate and supplementary tax rates were in fact set so that these firms break even on additional investment, then the local government would be the only one affected by additional investment. It also had full control over the allocation of funds — control and ownership coincided.

In addition, local governments operated in a competitive environment, unlike the national government. While both centrally controlled and locally controlled firms grew and improved in productivity, the firms financed through local governments were the clear success of this stage of the Chinese reform. This success seems to have been directly due

[11] For more discussion, see **?**.

[12] These payments were typically fixed for a five year period, but could change during later periods, providing some implicit revenue sharing with the national government.

to the innovative decision to decentralize control over the administrative supervision, the allocation of credit, and the taxation of smaller firms to regional and local governments.

This success did not come without problems, however. There were many. To begin with, the incentives faced by national and local governments on the allocation of credit were in sharp conflict, with the national government gaining tax revenue from funding the large firms, and local governments gaining by funding smaller ones. The changing political influence of local vs. national governments, rather than relative rates of return, then played a key role in the allocation of funds.[13]

In addition, each local government gained tax revenue from investments in its jurisdiction, but not from investments in other jurisdictions. In theory, there would be an interest rate on loans between different jurisdictions which would allow jurisdictions to mutually gain from an efficient flow of funds. With interest rates set administratively at very low levels, however, and without a legal system to enforce such contracts, such a flow of funds did not seem to occur, resulting in an inefficient allocation of investment across jurisdictions. Similarly, local governments received no revenue from firms controlled by the national government, so had no incentive to loan money to these firms.

The allocation of investment *within* a jurisdiction also appeared to be inefficient. Effective tax rates varied by industry, being particularly high for example for cigarettes, alcoholic beverages and for many consumer durables, where excise tax rates were high. The local government could then collect much more in tax revenue from investments in these industries than from investments in other local firms. Rather than industries facing higher tax rates shrinking in size relative to more lightly taxed industries, they expanded based on the extra funding provided by the local banks under the control of the local government.

A good example is the development of China's refrigerator industry described in detail in **?**. China had a small refrigerator industry in 1978 with 20 producers and an annual production of only 28,000 units. The turnover tax introduced in 1983 on refrigerator was set at 20%. The industry's gross margin was high. A government study found that the 1987 ex-factory price of refrigerators (including the turnover tax) was between 130% to 190% of the average production cost. Not surprisingly, local governments invested heavily in this industry, often using loans from banks under their control to finance capacity construction and expansion. By 1985, the number of refrigerator producers had risen to 115, and production to 1.45 million units. In 1999, China produced 12 million units, making it one of the largest refrigerator producers in the world.

[13]For example, following the Tiananmen crackdown in 1989, the central government asserted control more forcefully. As a result, over a million nonstate firms were forced to shut down.

Similar issues arose with respect to private vs. township and village enterprises (TVE's). TVE's were firms set up and officially owned by the local governments. As owners, the local government appointed the managers, and could assign other local government employees to oversight positions within the firm. As a result, the local government could easily monitor the firm's profits. In principle, the local government had no such authority over private firms, making it much harder to monitor and tax their profits. To the extent the local government could collect taxes more easily from TVE's than from private firms, however, it had an incentive to discourage competition from private firms undermining the profits of TVE's, and it also had an incentive to focus local bank lending on TVE's whose profits could be effectively monitored by the local government. In practice, though, "private" firms did often find ways to work out a modus vivendi with local governments, perhaps through sharing ownership, appointing local representatives to positions within the firm, precommitting to a certain level of tax payment, etc.[14] While such bargaining inevitably made entry more complicated than in a developed economy, the private sector did gradually expand, and at an increasing rate. By 1999, it produced 62% of the gross output in the nonstate sector.

In addition, tax revenue depended on local production, not local consumption. With effective tax rates varying by industry, local governments were not willing to allow unrestricted trade with other jurisdictions. In particular, they had a fiscal incentive to prevent imports of goods where local production was heavily taxed, and an incentive to encourage exports of these heavily taxed local goods.[15] While in theory contracts could be designed between local governments that would allow for production of heavily taxed goods to be concentrated in the firms with the lowest production costs, in practice these contracts did not quickly develop. Instead, local governments protected local firms facing high tax rates from competition from goods produced in other jurisdictions. The result was a proliferation of inefficiently small firms in industries where tax rates were relatively high. For example, while the minimum efficient scale in annual refrigerator production was estimated to be about 200,000 units per firm, the average production of Chinese firms was only 12,592 units in 1985 (**?**).

A tax system based on local production is also vulnerable to tax competition. Individual entrepreneurs, who contemplate negotiating with a local government to open up a new TVE or private firm, have a choice about which local government to approach. Competition

[14] For further discussion, see **?**.

[15] According to a news digest published on www.chinabeer.com (accessed on May 19, 2002), many localities impose a 0.20 yuan per bottle tariff on non-local beers. In some instances, retailers were ordered not to carry non-local brands.

among local governments should force down the effective *net* tax rate (taxes paid relative to subsidies provided e.g. through cheap credit) to the point where the local government breaks even by accepting the new firm, collecting no net revenue from the firm. As the economy became more sophisticated, increasingly the initiative for new firms came from individuals who had this discretion about where to set up business, implying a decline in the ability of local governments to collect revenue from firms in their jurisdiction.

Another problem was that local governments had an incentive to lend more funds than they had, since any extra loans to local firms provided substantial extra tax payments as well as interest payments sufficient to repay depositors (or the central bank) on the funds they provided. As a result, some local banks tried to pay an interest rate on deposits above the rate set administratively by the national government,[16] though the national government worked hard to prevent such behavior. In addition, local governments often loaned more funds than they had, on the expectation that the national government would bail them out by providing supplementary funds. In practice, this expectation seemed to be justified — while the national government could threaten never to provide such supplementary funding again, this threat was not "time-consistent." The result was an expansion in credit beyond what could be funded through existing deposits and tax revenue, resulting in an expansion in the money supply and in the inflation rate beyond that intended by the national government.

The net result of these competitive pressures was rapid entry, falling profit rates as the monopoly power of state-owned firms were undermined, and a very rapid rate of economic growth and of productivity growth. The continuing fall in government revenue as a fraction of GDP, however, imposed very costly constraints on the local as well as national governments to provide needed expenditures on education, infrastructure, and other government services.

5 Policy reforms since 1994

In 1994, there were a series of major policy reforms. To begin with, the government phased out the dual-track system by eliminating any allocation through the plan. Massive entry by local firms and private firms into various sectors had succeeded in creating a very competitive product market. As market-clearing prices became the only prices for most goods and services, financial flows became more informative for economic decision-making and for tax purposes than physical quantities. As a result, the government in 1994 shifted from the previous accounting system, which had focused on carefully documenting quantities of

[16] See **?** for further discussion.

inputs and outputs but had been less careful in monitoring financial flows, to one that closely followed the form of income and balance sheet statements used in developed economies. The hope, with this reform, presumably was that the resulting accounting reports from outside auditors would provide much more valuable information to the government about the state of the economy generally, but also the size of taxable sales, value-added and profits earned by each firm.

In addition, the government enacted a major reform of the banking sector. Until then, the banks were largely arms of the government planning ministries, allocating funds approved by these ministries and relying on the ministries to cover any resulting accounting losses they might experience. Following the reform, the day-to-day links between the banks and the government were largely broken. Banks were supposed to operate on standard commercial principles, making loans based on their prospect of being repaid. By this period, real interest rates had risen dramatically compared to their levels in the 1980's, and were plausibly market clearing.

Finally, the government enacted a major reform of the tax system, replacing the contract system with *fengshuizhi* or the system of separate taxation. To begin with, the new system redefined the revenue sources of national and local governments. Local taxes continued to include the profits taxes and remittances from local firms, a turnover tax on services (other than railroad transportation, banking and insurance), property taxes, personal income taxes, and stamp duties, while national taxes included customs duties, value-added taxes on imports, excise taxes, and profits taxes and remittances from national firms. The new value-added tax on Chinese industrial production, the largest source of tax revenue, was shared between the national government (75%) and local governments (25%). The enforcement of taxes was divided between the National Tax Bureau and Local Tax Bureaus. The Local Tax Bureaus collected local taxes, while the National Tax Bureau collected national taxes and shared taxes.

In addition, the profits tax rate was reduced from 55% to 33%, so was now comparable or even lower than the rates in effect in the major developed economies. Value-added tax rate was set at 17% on most goods and at a reduced rate of 13% on agricultural products and inputs, energy and minerals. Such rates are very much comparable to those in place within the E.U. To help in the enforcement of this tax, firms were required to keep receipts on all transactions, both purchases and sales. In principle, cross-checking of receipts would provide the government an additional source of information and oversight over these firms. Since the tax base for a value-added tax simply depends on the sum of receipts for sales, with a credit for any VAT already paid as reported on the receipts for purchases, monitoring

these receipts was sufficient to monitor the value-added tax base.[17]

payments effects

6 Assessment of 1994 reforms

Several separate reforms happened to occur at the same time. Our presumption is that these reforms were in fact closely interconnected. Only with the elimination of dual prices on goods and services could financial accounts provide meaningful information on the state of the economy and the size of the tax base. Through the adoption of the new accounting system and the higher resulting quality of information about firm sales and purchases, the national governments potentially saw enough improvement in its ability to monitor market transactions by all firms that it could take over the assessment of value-added and excise taxes from local governments and end the fiscal contract system in favor of a tax system more in line with international practices. Only with a reduction in the effective profits tax rate could the government consider abandoning the implicit offsetting subsidies to interest rates that had previously been used to maintain a reasonable investment rate. In addition, the creation of a competitive market-oriented banking system should generate growing productivity in the financial sector, making it more attractive for firms to make greater use of banks as financial intermediaries for their transactions. Since use of banks generates a paper trail, it establishes a record of transactions available to the tax authorities. Greater use of banks therefore increases the potential tax base. Finally, the requirement that firms keep receipts for all transactions, while linked directly to the VAT, also helps in documenting sales and purchases of inputs that enter into the profits tax base as well.

As seen in Table **??**, these reforms did result in a slow but steady growth in the size of consolidated government revenue (not including seigniors). The share of central government revenue rose sharply in 1994 as the central government claimed the bulk of the VAT. The aggregate numbers did show some initial problems with the reforms, however, as consolidated tax revenue fell in 1994 and 1995.[18] Since exports were exempt under the VAT, firms initially reported huge levels of exports, inconsistent with the amounts reported at the border and enough to wipe out all VAT liabilities. Similarly, there were stories of firms surreptitiously acquiring books of receipts that they could use to create fictional credits for purchases on goods where in fact no VAT was paid. How well the operation of the system

[17] Monitoring profits in contrast remained much more complicated, for example requiring extensive record keeping on the dates and purchase prices of all capital and inventories.

[18] The fall in tax revenue was more than compensated by the sharp increase in seigniors in the mid-1990's as seen in Table **??**.

Table 3: Government revenue.

	Government revenue as a proportion of GDP			Central gov't share of
Year	Consolidated	Central	Local	total revenue
1980	25.67%	6.30%	19.38%	24.52%
1981	24.18%	6.40%	17.78%	26.46%
1982	22.90%	6.55%	16.35%	28.61%
1983	23.03%	8.26%	14.78%	35.85%
1984	22.91%	9.28%	13.63%	40.51%
1985	22.36%	8.59%	13.78%	38.39%
1986	20.80%	7.63%	13.17%	36.68%
1987	18.39%	6.15%	12.23%	33.48%
1988	15.79%	5.19%	10.60%	32.87%
1989	15.76%	4.86%	10.90%	30.86%
1990	15.84%	5.35%	10.48%	33.79%
1991	14.57%	4.34%	10.23%	29.79%
1992	13.08%	3.68%	9.40%	28.12%
1993	12.56%	2.76%	9.79%	22.02%
1994	11.16%	6.22%	4.94%	55.70%
1995	10.67%	5.57%	5.11%	52.17%
1996	10.91%	5.39%	5.52%	49.42%
1997	11.62%	5.68%	5.94%	48.86%
1998	12.61%	6.24%	6.36%	49.53%
1999	13.97%	7.14%	6.83%	51.11%

has improved over time is hard to judge from a distance, though we do see revenue from the VAT growing at a rate faster than the GDP growth rate.

These reforms, while dramatic, were only some of the major policy changes that occurred during the late 1990's. During this period, China successfully negotiated to become a member of the WTO, resulting in a substantial fall in tariff rates. Previously, the government faced a strong fiscal incentive to use tariffs to protect large state-owned firms from competition from imports. With the shift towards reliance primarily on the VAT, where the tax rate is relatively equal on all sectors, the national government has more neutral incentives, facilitating this reduction in tariff rates.

In addition, during the last few years, China has been experiencing a deflation, in sharp contrast to the inflationary pressures present during most of the 1980's. Given that nominal interest rates are still set administratively, and have not changed much over time, this shift from inflation to deflation is the main reason why real interest rates are now

closer to market-clearing levels, facilitating the shift to a commercial banking sector. That tax revenue continued to grow during this period in spite of the fall in tariff and seigniors revenue shows the importance of the changes enacted in the tax system.

If these combined reforms in the accounting, banking, and tax systems did in fact work as intended, to what degree would they have reduced or eliminated the various distortions and pressures described above that arose under the previous tax system? The design of tax reform did seem to respond to several of the pressures that existed under the previous tax system. For example, under the previous system, local governments favored industries which paid high excise tax rates. After the reform, this excise tax revenue instead goes to the national government, making local government incentives more neutral. For the national government, the value-added tax becomes a primary source of revenue. This tax should be far easier to enforce than the previous income tax, given the use of receipts to document all revenue and deductions. Reflecting this, the national government took on responsibility for collecting the VAT not just for the large state-owned firms, but for all firms, large and small, state-owned and private. As a result, at least based on the VAT the national government has no reason to favor one sector over another. While profits tax revenue from small firms still goes to local governments, leaving some incentive for the national government to favor large firms,[19] the reduction in the profits tax rate causes this bias to be less than it had been.

Local governments maintained control over the income tax on local firms, where they should still have much greater ability to monitor profits. In addition, local governments continue to receive revenue from those taxes, such as the property tax and the personal income tax, that should be particularly sensitive to the economic climate created by the local government. These taxes as a result create clear economic pressures on local governments to develop a favorable economic climate.[20]

Note, however, that the reduction in reliance on the profits tax, where revenue from local firms goes to local governments, and the increase in reliance on a VAT, where the bulk of the tax revenue goes to the national government, implies in itself a shift in tax revenue from local governments to the national government. Table **??** shows that the change was dramatic in 1994, increasing the central government share of revenue from 22% to 56%.

[19] In 1997, at the 15th Party Congress, the Chinese leadership affirmed a new policy towards state-owned enterprises. Summarized by the slogan, "grasping the big ones and letting go the small ones," this policy permitted smaller state-owned firms be either privatized, combined into Chaebol-type enterprise groups led by large state-owned firms, or shut down. It signified the national government's preference towards large firms.

[20] See **?** for further discussion.

This shift in revenue in itself could result in more support for large firms and less for small firms.

In addition, the reduction in the profits tax rate to the level seen in other countries, and the shift to an accounting measure of profits more in line with those in the developed economies imply that any distortion to a firm's investment incentives should also be in line with those in developed economies. As a result, allowing bank loans to be made on a commercial basis and allowing interest rates to rise to market-clearing levels again is in line with what happens elsewhere. Too little investment may occur, but these losses could well be of second-order importance relative to the gains from shifting decision-making on investments from the government to firms, where information about potential returns should be far better.

The shift to a commercial banking sector, however, in theory puts strong limits on the extent to which any level of government can favor one sector over another. In theory, banks would no longer be expected to favor large firms over small firms, and heavily taxed firms over lightly taxed firms. Instead, they should base credit decisions simply on the likelihood of repayment.

Given the relatively underdeveloped state of the banking system, however, banks may not yet be that effective in evaluating credit risks, particularly for smaller firms. Given the resulting lemons problem, credit rationing should become a much larger problem than it had been when smaller firms were under the close monitoring and control of local governments. Without such easy access to credit, entry will become much harder and smaller firms will grow less quickly than before.

A number of other countries have dealt with this problem by developing industrial groups, e.g. keiritsu or chatterboxes, in which banks have an ownership stake in industrial firms, and as partial owners can monitor them closely in order to judge the value of further investments in these firms. This cross-ownership structure parallels that of the local government and the TVE's prior to the 1994 reforms, but occurs entirely through the private sector. Our expectation is that this type of industrial grouping is likely to develop as well in China, at least at this stage of its economic development, in order to replicate some of the advantages of the economic institutions prior to the 1994 reforms but without direct government participation in the process.

Such industrial groups may be reasonably effective at allocating credit among members of the group. It would remain difficult, however, for potential entrants to obtain credit, unless they can form a joint venture with an existing industrial group. In addition, however, these tax reforms more directly discourage firm entry. Previously, entry was largely financed

by funds under the control of the local government, and returns from any investment largely accrued to the local government. After the reforms, new firms are much more likely to be self-financed. If the entering firm fails, the entrepreneur can well bear all of the losses.[21] If it succeeds, it is subject to both profits and value-added taxes. As emphasized in **?**, this asymmetric treatment of losses and profits under the tax system can strongly discourage entry. Developed economies normally lessen this tax distortion by making initial losses deductible from personal taxable income. The personal income tax plays little role in China to date, however.

In addition, with better publicly available information from accounting reports and bank records, tax assessors have less discretion when reporting findings from a tax audit. Therefore, the room for corruption among tax officials should have been reduced as well, *if* there is sufficient outside oversight of the accounting reports.

7 Summary

As of the mid-1980's, the national government in China had a fiscal structure very similar to that in most developing countries, relying primarily on profits taxes on large capital-intensive firms, tariffs, and seigniors. Given such heavy reliance on a narrow sector of the economy, governments in these economies are under strong fiscal pressure to protect the profits of these large firms from competition from small firms and from imports. Without much entry and with little competition, these economies commonly stagnate.

Yet the Chinese economy has grown at a remarkable rate. Our hypothesis is that a key explanation for the differing outcome in China was the fiscal decentralization that was adopted in China at the very beginning of the reform period. Under this fiscal decentralization, local governments could collect profits taxes from small firms and new entrants, and could allocate credit to these firms. In practice, they did have enough sources of information to collect revenue effectively from these firms. As a result, they had a strong fiscal incentive to encourage entry and productivity growth in these firms, so as to increase future taxable profits.

While this fiscal innovation did generate very rapid growth initially, it created its own problems. For example, tax competition undermined the tax base, and local governments had an incentive to protect local firms facing high tax rates, while the national government

[21] New firms will inevitably have negative value-added initially. If this results in a tax rebate, then the government does share in the potential losses as well as profits. However, in practice, such rebates in the event of negative value-added are unusual. In addition, the firm can go bankrupt, implicitly sharing its losses with its creditors. Bankruptcy procedures are only now being clarified, however.

still had a competing incentive to protect large firms.

Since 1994, there have been a series of reforms in the tax law, in accounting procedures, in banking, and in tariff rates, that have led China to have a fiscal structure much more similar to that in developed economies. While this system may not be quite as supportive of entry and growth as the previous system, it should deal well with many of the problems that arose under the previous system.