Defective Institution and Its Consequences:

The Institutional Roots of Central-Local Rivalry in China, 1980-1993

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Abstract

Now nearly everyone accepts that institution matters. However, institution matters in more than one way. While sound institutions may help to reduce uncertainty and create order in human interactions, flawed institutions may produce results that go contrary to their framers' wishes, no matter what these wishes are. Defects in institutional arrangements may provide "wrong" opportunities, place "wrong" constraints, create "wrong" incentives, reward "wrong" behaviors, and, above all, structure human interactions in "wrong" ways. This article investigates what makes institutions defective and why defective institutions may cause ineffectiveness. It first identifies the fundamental underpinnings of effective institutions and probes their importance in generating efficiency. It then tries to explain why, in the absence of some of these key elements, defective institutions cannot deliver what effective institutions can. The case of inter-governmental fiscal relations in China is used to highlight the key propositions of the article.

Key Words: Institution, rule-based system, discretion-based system, prisoner's dilemma, central-local relations.

An institution is a set of rules that human beings impose on themselves. Institutions are abundant in human society. Why are human beings willing to live under the constraints they devise for themselves? Because constraining is enabling. If we do not tie our hands in certain ways, we would not be able to discipline them to more productive use. The point of putting obstacles in our ways is to force us to move along certain paths and not others. Only then would we be directed to "organize ourselves for progress, rather than to dissipate our energies in random directions" (Hardin, 1989).

That said, we have to realize that not all institutions are necessarily effective ones.[1] Some institutions may produce results that go contrary to their framers' wishes, no matter what these wishes are. Why some institutions are less effective than others are? This study suggests that defects in institutional arrangements are often responsible for their ineffectiveness. Defective institutional arrangements, for example, may provide "wrong" opportunities, place "wrong" constraints, create "wrong" incentives, and reward "wrong" behaviors. To be sure, such defective institutions play the same role of structuring human interactions as impeccable institutions do, but in "wrong" ways.

This article investigates what makes institutions defective and why defective institutions may cause ineffectiveness. It will not discuss why human societies often have to settle with defective institutions, which is the subject of another paper. Section I identify the fundamental underpinnings of effective institutions and probes their importance in generating efficiency. In the absence of some of these key elements, defective institutions cannot deliver what effective institutions can. Ineffectiveness thus ensues. Section II deals with the case of inter-governmental fiscal relations in China, focusing on institutional evolution during the period between 1980 and 1993. As will be shown in Section II, institutional arrangements of central-provincial relations were rather defective during this period. Consequently, both the center and provinces suffered persistent fiscal strains. As the conclusion of this essay, Section III highlights analytical lessons for institutional building.

The Fundamental Underpinnings of Effective Institutions

The role of institution is to solve the incentive problem. Assuming that individual actors are strategically rational, we would expect them to behave in ways that minimize harm or maximize payoffs. In a world of institutional vacuum, people may have little incentive to cooperate with each other and, as a result, they may constantly face a prisoner's dilemma. Institutions may help them solve the incentive problem by raising the costs of certain actions and rewarding some others. By altering actors' relative payoffs and hence their preference ordering, institutions may effectively limit their choice set, thus encouraging them to behave in particular ways. The guidance provided by institutions for actors to coordinate their choices helps to reduce uncertainty and create order in human interactions.

Institutions work through establishing and implementing rules. "Rules are guides to future causes of action" (Knight, 1992: 67). They may "penalize, prohibit, require, obligate, prescribe, inform, guide, empower, permit, license, enable, facilitate, entitle, command, define, designate, constitute, distribute, describe, exempt, and identify" future courses of action (Marshall 1983, cited from Knight, 1992: 67) For rules to be effective in guiding actors' future courses of action, they have to be unambiguous, binding, and strictly enforced.

(1) Rules have to be unambiguous in specifying the costs and benefits of choices made by all members of the relevant group in all relevant situations. Specifically, rules should be *recognizable* so that members of the relevant group know what payoffs they should expect from their choices (Knight, 1992), *clear* so that proper interpretation is possible, *general* so that like case are treated alike, *inclusive* so that no one may avail him- or her- self of loopholes, and *non-contingent* so that nothing can excuse rule-breakers. A few more words about the last point may be in order. Contingent rules may provide flexibility for actors to respond to unforeseen shocks, but it is difficult to distinguish reacting to a contingency from infringing the rules. Without a clear distinction, rule enforcement may become extremely costly, if not entirely impossible.

(2) Rules are ex ante restrictions that bind the ex post behavior of all parties. The purpose of rules is to define the way the game is played. Therefore, no one in the game should be allowed unilaterally to change these rules after the fact. Economical and political actors' incentives are often not time-consistent. While they may have incentive to accept certain rules, their incentives after the fact are not always compatible with keeping the pledge. Then it would be very tempting for them to revise the rules of the game. For rules to be effective, they have to be able to restrain the ex post behavior of all parties.

(3) Rules would not be binding unless they are enforced in ways that ensure compliance. Although rules can be self-enforcing when it is in everybody's interests to live up to these rules, another method to ensure compliance seems to be more important in most cases: the threat of external sanction. The purpose of such threat is to increase the potential costs of rule-breaking actions, thus making them less attractive. To be successful, the sanction must be sufficient large to reduce the benefit of defection to the point that it is no longer the dominant and preferred strategy, and mechanism must be devised to detect violation, to measure the extent of the violation, and to apprehend the violator. If the sanction is sufficiently severe and the enforcement is sufficiently probable, then actors may have to think twice before breaking any rules (Knight, 1992). In this sense, only with enforcement can rules be sustainable. The enforcement power behind the rule is crucial in any institutional design.

When one or more of the three key ingredients listed above are absent in the functioning of some institutions, we may call these institutions "defective." Defective institutions are unlikely to be effective, because they cannot effectively lower information costs,[2] reduce uncertainty, and establish stable structure in human interactions.

Even under ideal institutions, monitoring is an expensive business. When rules are ambiguous, it becomes extremely complicated and costly to measure and evaluate the performance of actors. How can you tell if some players have violated the rules of the game, when the rules themselves are ill defined? The ambiguity of rules makes dispute and hence bargaining unavoidable, which is costly. Bargaining costs include the opportunity costs of bargainers' time and energy as well as "any costly delays or failures to reach agreement when efficiency requires that parties cooperate" (Milgrom and Roberts, 1990: 72). Since ambiguous rules cannot establish clear criteria for dispute resolution, potential disputants may have to devote a great deal of their valuable resources to non-productive activities in the course of conflict. The more ambiguous the rules are, the less tight the limits tend to be on the ability of actors to behave opportunistically. Ambiguous rules thus encourage opportunism.

Unbinding rules also have the effect of making opportunism attractive. Rules that can be readily revised "differ significantly in their implications for performance from exactly the same rules when not subject to revision" (North & Weingast, 1989: 803). If one actor's ex post opportunism is tolerated, others may reply to such opportunism in kind.

Furthermore, if ex post opportunism can be anticipated ex ante, who would take rules seriously to begin with? As a result, pervasive opportunism is expected.

Moreover, when rules are guarded by a weak enforcement mechanism, the probability of being caught would be low and thereby the costs of acting opportunistically small, even if the rules themselves are unambiguous and binding. Under such an institutional environment, how many actors can resist temptation of grabbing gains from cheating, shirking, and opportunism?

In sum, by leaving actors too much discretionary power in making their choices, defective institutions may not be able to raise the benefits of cooperation or the costs of defection, as they are supposed to. Unable to reduce uncertainty and establish order in human interactions, defective institutions are unlikely to be effective and efficient.

The Institutional Roots of China's Fiscal Crisis

The Fiscal Crisis

By most of conventional measures, China's economic reform has been astonishingly successful. As shown by Table 1, in the period between 1978 and 1995, real gross domestic product (GDP) grew on average by nearly 10%, which was comparable to the "miraculous" growth records of the East Asian economies, although China's population was thirty (S. Korea) to four hundred time (Singapore) larger than the latter's.

TABLE 1 ABOUT HERE

Ironically, the Chinese government had to struggle to raise enough revenue to make ends meet during this period of prosperity, because the growth of state revenue lagged far behind that of GDP. In the 17 years between 1978 and 1995, the ratio of total government revenue to GDP fell from almost 31% to less then 11%, dropping more than 20%. The ratio of government expenditure to GDP also declined, but at a slower pace. As a result, budget deficit was on the rise. More significantly, every level of government was under severe fiscal strain. The situation was very bad for the central government. Its share of total government revenue suffered a substantial loss, falling from around 60% on the eve of reform to less than 33% in 1994. By 1995, over half of its expenditure was financed by domestic and foreign debts. Although local governments' share of total government revenue increased, their share of national income moved toward the opposite direction. The latter dropped more than 10% in two-thirds of the provinces (see Table 2). It is fair to say that the provinces were as much revenue-starved as the central government was (Wong, 1991; West and Wong, 1995).

TABLE 2 ABOUT HERE

The massive decline of the central government's extractive capacity greatly enfeebled its ability to exercise macro control, which was indicated by inadequate supply of key public goods and services, deficient infrastructure, growing inflationary pressure, and widening regional disparities (Wang, 1995a and 1995b).

Why did the Chinese government's extractive capacity dwindled so dramatically in an era of fast economic growth? How do we explain the China paradox? Of course, part of the answer lies in the intention of the government. To reform its economy, the government had to decentralize decision-making power, including power over resource allocation. That explains why the ratio of state budget to GDP decreased by 10% in the first six years of reform (Table 1). However, intention could not account for developments in later years, because the government began to make vain attempts of raising "two ratios," namely, the ratio of total state revenue to GDP and the ratio of central to total government revenue, as early as in the mid-1980s.

What follows will show that the decline of state extractive capacity can be explained, at least in part, by defective institutional arrangements of central-local fiscal relationship. It will refrain from evaluating the overall impact of decentralization on China's national economy, a too complicated issue to be dealt with in such a short paper (Wang and Hu, 1994). The focus of the present study is the effects of defective institutions.

Main Features of Inter-governmental Fiscal Relations

Between 1980 and 1993, China fiscal system underwent three major structural changes, respectively in 1980, 1985, and 1988 (Table 3), the basic objective of which, however, remained the same, that is, to create incentive for the provinces to maximize resource mobilization while maintaining and strengthening central fiscal power. Although there were differences in the particulars of the three regimes,[3] they all shared the following four features:

TABLE 3 ABOUT HERE

1. Classification of Revenues and Expenditures. Formally, all government revenues were distinguished by sources and divided into three basic categories: central revenue, local revenue, and shared revenue.[4] Correspondingly, different levels of governments were also assigned to different expenditure responsibilities.

2. The Baseline. Two baseline figures were extremely important: revenue baseline and expenditure baseline. The former referred to the target of tax collection, whereas the latter referred to the approved ceiling of spending. Each and every province had its own specific revenue and expenditure baselines. Normally, the baseline figures for a province were derived from the fiscal receipts and spending for the year prior to the introduction of a new regime.

3. Revenue Sharing. The heart of these fiscal regimes was revenue sharing: Provinces were allowed to retain a part of the locally collected revenue to finance local expenditures. How much a province might retain depended on two factors: (1) the type of revenue-sharing arrangement selected for the particular province, and (2) the specific sharing rate applied to that formula (Wong, 1992; Gao, 1995). The sharing arrangement determined whether the amount retained by the provincial government was based on a fixed amount, a percentage of the total tax collection, or a percentage of the collections above a pre-determined target. Different provinces were assigned to different sharing arrangements according to the nature of their economies and their taxable capacity. The sharing rate, on the other hand, was normally set according to the balance of the revenue and expenditure baselines of a particular province.

4. One-to-One Negotiation. In the absence of universal formulas for determining baselines, sharing arrangements, and sharing rates, these key parameters of revenue sharing were subject to negotiation. Each province bargained individually with the central government over these parameters and accordingly established a specific fiscal relationship with the central government. As a result, different provinces remitted different

percentages or amounts of local revenue according to the specific deals cut with the central government.[5]

5. Tax Administration. On the one hand, taxing power was highly centralized. The central government determined the bases and rates of all taxes, including local and shared taxes. On the other hand, revenue collection was highly decentralized. Except a few minor taxes in the central fixed revenues, almost all the revenues were collected by the local authorities.

Despite variations between the three different regimes, these five fundamental features remained largely unchanged throughout the period of 1980-1993.

Defective Institutional Arrangements

What was wrong with the three regimes of intergovernmental relations characterized by the above five features?

First, there were rules governing financial flows between the center and provinces, but they were ill defined.

Although the formal system might give the impression of a neat and precise division of taxes and expenditure responsibilities between the center and provinces, such a division existed only in name. In most cases, all the revenues raised within a province, except for central taxes, were mixed together and their total sum was subject to sharing. Sometimes, even central taxes are included for sharing. The revenue and expenditure baselines of a province were generally more relevant in determining which sharing method and sharing rate should apply to it than the formal enumeration of taxes and expenditure responsibilities. However, neither the two baselines nor sharing methods and rates were based on any clear-cut principles. The ambiguity around these key parameters of revenue sharing resulted in a system that was dominated by bargaining rather than by rules.

But there was no uniform formula for such bargaining either. Rather, negotiations were separately conducted between the center and individual provinces. Consequently, "different provinces were given different formulas of revenue sharing with no clear rationale for choosing one formula over another" (Agarwala, 1992: 17). Central-provincial fiscal arrangements thus became extremely diversified and intricate. As shown by Table 3, at any given moment between 1980 and 1993, there always co-existed at least five different sets of arrangements governing the revenue-sharing between the center and the provinces. Even for those provinces that used the same sharing method, the sharing rates varied considerably (Wong, 1992; Agarwala, 1992).

The bargaining inherent in this system put a premium on the bargaining skill of the participants involved. "Improving productivity and mobilization of resources becomes a lesser priority than skillful bargaining and exercise of leverage. Reliance on such skills, however admirable they may be in themselves, is not conducive to efficiency in the economy" (Argawala, 1992: 17).

Bargaining also created considerable uncertainty about the outcomes of the next round of negotiation, which motivated both the center and provinces heavily to discount the future and seek short-term gains.

More important, the lack of transparency of bargaining processes gave rise to a strong sense of unfairness among all the provinces. Rich provinces felt exploited by high remittance rates imposed by an arbitrary center, while poor provinces complained about inadequate subsidies coming from Beijing (Agarwala, 1992: 17). Such a sense of unfairness led to a growing distrust of the whole system, which undermined the very foundation for a stable central-local relationship.

If there was any clear rule at all throughout the period under discussion, that was the bottom-line rule: as long as a province fulfilled its quota of revenue remittance to Beijing, it had the authority to do whatever it pleased with local fiscal resources. As will be shown below, this "rule" gave the provincial governments considerable discretion in implementing tax policy, in granting tax breaks, and in shifting local revenue from budgetary to extrabudgetary categories. In short, the discretionary power possessed by the provincial government enabled them to control financial resources to a far greater degree than what their formal power would suggest (Shieh, 1993).

<u>Second, rules governing central-local fiscal relations had no constitutional foundations, which made it possible for the central government unilaterally to change the "rules of the game."</u>

In theory, there are two mechanisms that may make the central government to respect rules governing its relationship with the provinces. One is reputation. In repeated games, the center may have reasons to care whether its behaviors in early plays of the game are going to affect its reputation in later plays. The "long arm of the future" thus may provide incentives for the center to honor whatever short-term agreements it has reached with the provinces so as to retain the opportunity for seeking long-term benefits. But repeat play is not always sufficient to prevent reneging. Severe fiscal strain, for instance, may shorten the center's time horizon so that it is attracted to grab the one-time gain of reneging. When reputation alone is insufficient to prevent reneging, the second mechanism--institutional constraints--becomes indispensable (North and Weingast, 1989).

However, no such a mechanism existed in China during the period under investigation. Everything then was within the center's discretion, including the power to change the rules of the game. Without effective restrictions on its ex post behavior, the center tended to have a strong incentive to change the rules of the game whenever it deemed necessary.

Between 1980 and 1993, China amended the whole revenue-sharing system three times (Table 3). Each time, not only sharing formulas were revised but the three basic categories of taxes (the central, local, and shared taxes) were redefined (Agarwala, 1992). Frequent changes also took place even within the general framework of each regime. When the first revenue sharing system was introduced in 1980, for instance, the original understanding was that the contractual arrangements made between the center and the provinces would be good for five years. Despite the promise, the center made three major readjustments of contract terms in the next three years. Worse still, the 1985 regime was never strictly implemented from the outset. The main goal of the 1985 reform was to do away the ambiguity about the expenditure responsibilities and the sources of revenue for different levels of governments. Therefore, explicit distinctions were made between central taxes, local taxes, and shared taxes, and sharing formulas were designed accordingly. But what most provinces were practicing from 1985 to 1987 were some "expedient models" (biantong banfa), in which these distinctions and sharing formulas were largely cast aside. Furthermore, the 1985 regime that was supposed to last for five years was replaced by a new regime in 1988, two years ahead of the planned timetable (Xiang and Jiang, 1992).

In addition to regime shifts and major readjustments, there were numerous ways for the center to manipulate the terms of revenue-sharing contracts, including altering baselines, changing sharing rates, and the like.

If one player to a game retains the right to change the rules of the game, these rules are not real rules. Especially when the player has a bad record in keeping promise, no other players would have any incentives to follow the "rules." As will be shown below, this was exactly the response of the provincial governments to the discretionary power of the center. In the end, the game between the center and provinces became a battle of wits in which each side tried to outsmart the other by using its discretionary power to "cheat." Unfortunately, neither side came out victorious.

Third, although the center held an extensive discretionary power, it did not possess an effective mechanism to enforce its fiscal policy.

In China, during this period, while all taxes, except for a few minor ones, were levied by the center (i.e., tax bases and rates were determined by Beijing), almost all taxes were collected by highly decentralized local tax offices. The center simply did not have its own tax collection system. Thus, unlike in other countries where local governments depended on *downward sharing* of centrally collected revenue to balance their budgets, in China, the central government depended on *upward sharing* of locally collected revenue to make ends meet.

Upward sharing would not be a problem if local tax offices were as loyal to the central government as to the local government. But it was hardly the case. With one agent working for two principals at once, there was bound to be a conflict of interest. However, local interests almost always prevailed. Why? Because local tax officials were lifelong residents of the community, who relied upon the local government for the provision of housing, utilities, fringe benefits, and other noncash allowances. Local governments could make their lives very hard if they did not cooperate. Thus, while strictly speaking, local tax offices were the agents of both the central and local governments; in practice, their loyalty to the latter was much stronger. Consequently, local governments had effective control over revenue collection.

Upward sharing is a very dangerous weapon to be left in the hands of subnational governments. It "contributed to the dissolution of the USSR, as republics stopped making transfers to the state" (Bahl and Wallich, 1995: 337). Even if the worst scenario does not happen, upward sharing provides opportunities for subnational governments selectively to implement national tax policies. Especially when local governments are permitted to offer tax preferences and concessions (as long as they are able to fulfill contracted targets of revenue remittance), as they were in China, not only will the tax bases be eroded, but also the incidence of the taxes will be arbitrarily affected. In short, "delegating tax collection to the provinces actually means that the tax laws or rules will not be properly applied" (Agarwala, 1992: 29), and upward sharing implies a tendency to reduce the share of the center in total revenues.

Local Opportunism

Institutions are supposed to place restrictions on choice set of actors so that they will behave in productive ways. However, as the previous paragraphs indicate, China's revenue-sharing system granted both the center and localities too much discretionary power. A fiscal system that allowed actors to have too much discretionary power was bound to be a messy one, for it in effect licensed them to act opportunistically.

This subsection shows that defective institutional arrangements gave local governments both incentives and opportunities to slack off in the collection of formal taxes so as to shield local revenues from being shared with the center.

Such incentive effects were unintended. By permitting the provinces to keep more of their revenue after fulfilling revenue quotas, the revenue-sharing system was supposed to provide incentives for the provinces to strengthen their tax collection efforts. Why did things go contrary to the original intention? Those institutional defects identified above provided the key to understanding such negative incentives.

First, there was a disincentive for local governments to raise revenue through formal tax channels because of the way revenue was shared between the center and provinces. Although subnational governments were allowed to retain a portion of taxes they collected, few were able to receive the total collection. Thus, for those provinces whose revenue-sharing ratio was less than one, the more they collected, the more they might have to remit to central coffer. The disincentive effects were especially obvious for rich provinces, which had to share a significant percentage of their revenue with the central government. It seems logic to infer that the lower the retention rates the stronger the disincentive to collect taxes.[6]

One may wonder why revenue-sharing arrangements could not help mitigate the problem of inappropriate incentives of provincial governments; after all they were awarded a residual claim on a percentage of tax collection. The next two reasons provide the answer to this question.

Second, provinces maximizing their collection effort had reasons to be afraid that their remittance rates might be adjusted upward in the next round of negotiation with the central government. All provinces knew that their revenue-sharing contracts would come up for a renegotiation in a few years, and that the central government had a reputation of "punishing" the provinces whose revenue had shown a rapid growth by increasing their remittance rates. Anticipating such central ex post opportunism ex ante, local governments had incentives to act opportunistically themselves, that is, to hold back in their revenue collection.

Third, and more important, there was a huge institutional loophole in China's fiscal system--extrabudgetary funds. Extrabudgetary funds were funds in the public sector that were not subject to central budgetary control (Wang, 1995a). Such funds were attractive to local governments because they could spend them at their discretion, whereas most budgetary funds were subject to some degree of scrutiny by higher-level government. Another advantage of these revenues was that they needed not be shared with higher levels. Moreover, increase of extrabudgetary funds would not lead to the rise of remittance rates in the future. Given these benefits, it was perfectly understandable why local governments had a strong incentive to keep formal taxes on local enterprises low and shift as much of their revenues as possible from the budgetary to the extrabudgetary category.

Finally, the costs of opportunism were low. To get maximum effort from the provinces, the center must devote resources to monitoring provinces' output and critically applying rewards and punishment based on performance. Rapid economic changes during the reform period, however, made monitoring of tax effort far more difficult than before. A province's effort only partially determined outcomes, for price shifts and policy changes could significantly weaken or strengthen the region's tax capacity. In such a context, the center was unable to infer the appropriateness of the provinces' efforts even from observed results. The provinces, on the other hand, had no incentive to reveal the private information as regard to their real efforts. Given the difficulty of monitoring, provinces could always come up with some "legitimate" justifications for their lower-than-expected tax collection. The center therefor was never able to penalize any provinces for low performance.[7] Since the chance of being caught was low and no punishment had ever been applied, the gains from cheating were likely to exceed the gains from cooperative behavior. In this sense, the system rewarded cheating.

The system provided not only incentives but also opportunities for local governments to cheat the center.

First, the contracts they signed with the central government allowed them to use their discretion in the application of tax law.

As long as they met quotas, the center could not do anything to them even if they did not make much effort to exploit their taxable capacity. Shirking in tax collection was also made possible by China's "upward-sharing" system of tax administration. As tax collectors, local governments could hold the private information on their effort that was unobservable to the center (Ma, 1994).

Second, local governments were permitted to grant tax exemptions and offer tax concessions to enterprises operating under their jurisdiction, provided that the revenue targets specified in their contracts with the center had been fulfilled. They tended to use this power as much as possible so as to keep more financial resources in the localities. Tax breaks reduced tax collection by 30 to 40 billion yuan annually (Wong 1995).

Third, during the course of China's economic reforms, the boundary between budgetary and extrabudgetary funds was re-drawn many times, which provided a cover for local governments to shift resources from budgetary to extrabudgetary accounts in unlawful ways. Local governments were very innovative in expanding local extrabudgetary revenues (Wang, 1995a). The result was very rapid growth of extrabudgetary funds. Between 1978 and 1992, while state budget only tripled, extrabudgetary funds grew 11-fold. By 1992, there was as much "public money" circulating outside the state budget as within it (State Statistical Bureau, 1994: 221).[8]

Finally, in a fiscal system characterized by negotiation, local governments' information advantage always renders them a strong position to bargain for better revenue-sharing arrangements with the central government. To prevent provinces from dominating the negotiation, in countries where revenue sharing is subject to bargaining, the central governments themselves normally undertakes the task of collecting taxes. China was an exception. The upward-sharing nature of China's tax administration strengthened local governments' bargaining power. Since the central government depended on transfers from the provinces for a large part of its budget, it had to make more concessions in negotiation than otherwise. Therefore, provinces always came out of negotiations with higher retention rates than previous ones (Wong, 1992). The 1988 fiscal reform, for instance, was a major concession by the center, in which most provinces, especially rich ones, obtained more favorable contracts with the center than before (Xiang and Jiang, 1994). Table 4 shows how good the 1988 deal was for the provinces. In the five years following the introduction of the 1988 regime, local revenue grew much faster than central revenue did.

TABLE 4 ABOUT HERE

Even if provincial governments did not act opportunistically at all, China's revenue-sharing system under the three regimes had two inherent tendencies. One was for the growth of government revenue never to exceed the growth of GDP. As Zhu (1993) established, the elasticity of revenue to GDP could not be larger than unity under any of the three regimes. The other built-in tendency of the system was for the central share of government revenue to drop. A World Bank study of the system finds "an unambiguous decline in the center's share if the contract sharing formulas are adhered to" (Agarwala, 1992).

FIGURE 1 ABOUT HERE

But provincial governments did act opportunistically. This can be established by the degree of variation in tax effort among the provinces. Using per capita GDP as the indicator of taxable capacity and the ratio of revenue to GDP as the indicator of tax effort, we carry out a simple correlation analysis of the relations between the two variables for two years, 1980 and 1993, respectively, the first and last year under investigation in this study. The results are presented in Figure 1. In 1980, there had been a strong positive correlation between taxable capacity and tax effort, as it should be. However, by 1993, the correlation disappeared all together. In 1980, Shanghai, Beijing, Tianjin, Liaoning, Jiangsu, and Zhejiang had the greatest revenue potential and shouldered the heaviest tax burden. Not any more! In 1993, Shanghai, Beijing, Tianjin, Liaoning, Jiangsu, and Zhejiang were still among the richest provinces in China, but their tax burdens were often lighter than those of many poor provinces were. Perhaps, Table 2 deserves another look here. There the order of the 30 provinces is arranged according to the per capita GDP of these provinces in 1991. It is apparent that the richer the province, the steeper the decline of the revenue to income ratio. Well-to-do provinces benefited most under China's revenue-sharing system. No explanation except opportunism can account for such a change. Rich provinces used to be big contributors to the central coffer. Their opportunism was an important cause of the decline of central relative to total government revenue.[9]

FIGURE 2 ABOUT HERE

Not only did rich provinces practice opportunism; poor provinces did it too, though to a lesser extent. They all reduced their effort in collecting formal taxes. Where did money go? A considerable portion went into extrabudgetary funds. Figure 2 shows clearly that the growth of extrabudgetary funds and the growth of budgetary funds were negatively correlated. In other words, when the ratio of extrabudgetary revenue to GDP increased, the ratio of budgetary revenue to GDP dropped. Huge financial resources that would have been appropriated by the state budget thus fell into the hands of local governments (Wang, 1995a). In this sense, the growth of extrabudgetary funds was undoubtedly responsible, at least in part, for the falling ratio of state budget to national income.

Central Opportunism

Since there was no institutional constraint that could force the center to obey the rules of the game, and local governments were not strong enough to prevent the center from violating its commitments, the center was just as likely to resort to opportunism as local governments.

During the course of fiscal reforms in the 1980s, the Chinese central government made scores of commitments. Every new fiscal regime it helped to establish was a commitment and every contract it signed with a provincial government was a commitment. Initially, by making commitments to fiscal regimes and contracts that were favorable to local governments, the center might have sincerely hoped that its concessions would make local governments more productive in tax collection and that its revenue would increase along with local governments'. However, local opportunism often led to two results the center was not happy with: unequal distribution of retained revenues across regions and shortfall of central revenue. The two problems were related. If the center could obtain sufficient amount of revenue, it would be able to mitigate the inequality of retained revenues by using fiscal transfers. Under the mounting strain of fiscal necessity, the center often responded to the problems caused by local opportunism by opportunism of its own.

Central opportunism generally took three forms. The first was to revise the terms of its contracts with some specific provinces ex post. Such contracts were supposed to be good for five years. But, the center sometimes asked the provinces involved to renegotiate the terms of the contracts before they became expired. It might demand changes concerning the provinces' revenue and expenditure baselines, or increases in the remittance ratios.

The second form of central opportunism was to change some key parameters in all contracts. One strategy was unfunded mandate, namely, shifting central spending functions downward. To reduce its deficit, the center often shifted expenditure responsibility for price subsidy, across-the-board wage increase, capital investment and the like to the subnational level.[10] Local governments were forced to pick up the bill for such expenses. In a sense, "[a]rbitrarily transferring expenditure responsibility... is equivalent to additional revenue collections from the localities" (Ma, 1995: 106).

TABLE 5 ABOUT HERE

The last resort of the center was some forms of expropriation. For instance, the center "borrowed" seven billion yuan from some provinces in 1981 and another four billion in 1982. In 1983, the center made a promise of not borrowing money from the provinces any more. But, in the meantime, it wrote off its own debts and raised the remittance targets of these provinces according to the amounts they had been able to lend. In the following years, however, "forced borrowing" did not stop. Table 5 lists the "loans" the center received from Shanxi Province from 1981 to 1987. These "loans" were never paid back. In 1988, the center repeated what it had done in 1983. As a result, Shanxi Province's remittance rate was increased from 2.5% to 12.4% (Niu, 1992). After 1987, "forced borrowing" did stop. But the center introduced another form of expropriation--"local contributions" in 1991. Those provinces that had relatively greater revenue potential were asked to "contribute" to the central coffer (Xiang and Jiang, 1992: 15). Such contributions, however, were not voluntary. In addition to "forced borrowing" or "forced contribution," there were many other ways for the center to extract resources from the provinces, including transfer of the ownership of some lucrative state-owned enterprises from provincial governments to the central government (Huang, 1992; Shirk, 1993)

Although central opportunism might somehow help to alleviate the center's short-run budget pressures, such arbitrary behavior created its own set of problems, especially with regard to the incentive of subnational governments. Ma (1995) discusses the impact of the lack of credibility of the center on local governments' revenue collection. His game theoretic model predicts that if the center holds a broad range of discretionary power and uses such power arbitrarily or indiscriminately, the provinces will react strategically by reducing their tax efforts. That was exactly what happened in China. Indeed, knowing ex ante that the center's commitment to the rules of the game was not credible, no region had much incentive to maximize its collection of formal taxes. Otherwise, the more a province collected, the more the center would extract from the province. When all the provinces reacted to central opportunism by their own opportunism, the ratio of total state budget to national income dropped. The center, as shown above, was the biggest loser in the game.

Conclusion

The aim of China's fiscal reform was to give local governments stronger incentives in their tax effort so that both the center and the localities would benefit from the increased revenue collection. The result, however, was not very pleasant to either side. Not only the center' share in total government revenue but also the share of total government revenue in GDP suffered a steep decline. Perhaps more important, fiscal strain drove the central and local governments into rivalry with one another. And all those troubles emerged when China was experiencing one of the greatest economic booms in human history. How do we explain this paradox? This study suggests that defective institutional arrangements should bear the blame. Institutions are supposed to reduce uncertainty in human interactions by limiting the choice set of the actors. The Chinese fiscal system, however, left too much discretionary power to both the central and local governments, which created an institutional environment for opportunism to prevail. Both the central and local governments hoped to reap advantages from opportunism, but each ended up with a shrinking budget (relative to GDP), because they were engaged in a sort of prisoners' dilemma game.

If we treat all the provinces as one entity, then in this game, each of the two players, the center and the province, faces a choice of two strategies: to act opportunistically or to follow the "rules" that are supposed to govern the relationship between them. These "rules" of course are not real rules due to their defects discussed above. That is why the players are given the option of not abiding them in the first place. Given that neither has perfect information with regard to the behavior of the other, they cannot rule out the possibility that the other may resort to opportunism. Figure 3 sets out the likely payoffs of the game. Each would prefer a situation in which both follow the "rules" to one in which both act opportunistically. The problem is that if the center and province are instrumentally rational and are motivated by their desire to obtain more revenue, each of them might plausibly prefer best of all a situation in which it alone acts opportunistically because then it can extract extra revenue from the other player who follows the "rules." Since it is also better to act opportunistically than following the "rules" if the other player acts opportunistically, this turns opportunism into the dominant strategy. When both adopt the dominant strategy, however, the game yields a result deemed by all to be inferior. The crux of the dilemma is that each player does what is in its best interest and yet their actions are collectively self-defeating. In other words, rational choices produce irrational collective outcomes.

FIGURE 3 ABOUT HERE

Thus, we find that institutions matter. But they matter both ways. Perfect institutions may help minimize information, monitoring, and enforcement costs, and thereby bring about efficient outcomes, but they are hard to be found in the real world. Defective institutions, on the other hand, may leave too much at the discretion of actors and hence induce cheating, shirking, opportunism.

Most of real-world institutions are not flawless. China's fiscal system was an example. This case shows that when the rules of the game are ambiguous, unbinding, and not backed by threatened sanctions, the choice of opportunism may look better than that of cooperation to a player, no matter what choice the other player may make. That is why the central and local governments in China landed themselves in a prisoner's dilemma game under the old fiscal system.

Neither the central nor the subnational governments were satisfied with the system that produced such irrational outcomes as the falling ratios of central to total government revenue and of total government revenue to GDP. Gradually, they came to realize that the decline of state extractive capacity was responsible, at least partially, for many serious problems that China was facing, including macroeconomic instability, inadequate provision of basic public goods and services, growing regional and sectoral inequality, and potential threat to national unity (Wang and Hu, 1994; Hu, Wang, and Kang, 1996; Wang and Hu, 1999). Hoping to avoid the prisoner's dilemma, they all were calling for change.

What is required to solve the prisoner's dilemma is a new institutional design in which the rules of the game are really rules. Unambiguous, credible, and enforced by threatened sanctions, these rules should function to limit the discretionary power of actors and discourage them from acting opportunistically. Only when the costs of opportunism become sufficiently high would the actors choose to follow the rules, thus leaving the prisoner's dilemma behind them.

In 1994, China implemented a new fiscal reform. Rather than marginal reparation, the latest reform aimed at fundamental institutional changes. In a nutshell, this was an attempt to replace the old discretion-based system with a rule-based system. Now, the rules of game are much more comprehensive, unambiguous, and transparent, and rule enforcement mechanisms are more reliable. By redefining the choice set of both the central and subnational governments, new institutions greatly limit the space for them to maneuver. Since what used to be within their discretion now becomes unlawful, the costs of defection are higher. Correspondingly, cooperation looks more attractive under the new system than before. China's fiscal reform now seems to be moving in the right direction. However, institutional arrangements between the central and subnational governments in China are still far from optimal: rules concerning some key aspects of the relationship are still absent; there is still no constitutional constraints that bind the center to follow ex post the rules they make ex ante; huge loopholes continue to be a great drain on state revenue; and enforcement mechanisms rarely put teeth into laws. China still has long way to go to perfect its central-local fiscal relations (Wang, 1997).

References

Agarwala, Ramgopal. 1992. China: Reforming Intergovernmental Fiscal Relations. Discussion Paper No. 178. Washington, D.C.: The World Bank.

Bahl, Roy and Christine I. Wallich. 1995. "Intergovernmental Fiscal Relations in the Russian Federation." In Richard M. Bird, Robert D. Ebel, and Christine I. Wallich, eds., Decentralization of the Socialist State: Intergovernmental Finance in Transition Economies. Washington, D.C.: The World Bank.

Chung, Jae-Ho. 1995. "Central-Provincial Relations." In Kuan Hsin-chi, ed. China Review 1995. Hong Kong: The Chinese University Press.

Gao, Qiang. 1995. "Problems in Chinese Intergovernmental Fiscal Relations, Tax-Sharing System, and Future Reform." In Ehtisham Ahmad, Gao Qiang, and Vito Tanzi, eds., Reforming China's Public Finance. Washington, D.C.: International Monetary Fund.

Hardin, Russell. 1989. "Why a Constitution?" In Bernard Grofman and Donald Wittman, eds., The Federalist Papers and the New Institutionalism. New York: Agathon Press. 100-20.

Herschler, Stephen B. 1995. "The 1994 Tax Reforms: The Center Strikes Back." China Economic Review, Vol. 6, No. 2: 239-245.

Hu, Angang. 1996. "Jiannan de zhidu chuangxin" [Difficult Institutional Innovations], Unpublished paper. Chinese Academy of Science.

Hu Angang, Wang Shaoguang, and Kang Xiaoguang. 1996. Zhongguo diqu chaju baogao [A Report on Regional Disparities in China]. Shenyang: Liaoning People's Press.

Huang, Guanqiu. 1992. "Luelun caizhen baogan" [A Brief Discussion on Fiscal Contract System], In Xiang Huaicheng and Jiang Weizhuang, 1992. Zhongguo gaige chuanshu, caizhen tizhi gaige juan [A Complete Book on China's Reform: Volume on Reform of Fiscal System], Dalian: Dalian Press.

Knight, Jack. 1992. Institutions and Social Conflict. Cambridge: Cambridge University Press.

Liu, Zhongli. 1995. "Zhenxing guojia caizhen shenhua caishui gaige" [Deepening Fiscal Reform and Strengthening State Extractive Capacity], Zhongguo caijing bao [China Financial Daily], December 7.

Lou Jiwei and Li Keping. 1995. "Guanyu jianli woguo caizhen zhuangyi zhifu xinzhidu de ruogan wenti" [Issues in Establishing Our Fiscal Transfer System], Jingji gaige yu fazhan [Economic Reform and Development], No. 10: 68-72.

Ma, Jun. 1995. "Modeling Central-Local Fiscal Relations in China." China Economic Review, 6: 105-136.

Marshall, Geoffrey. 1983. "The Role of Rules." In David Miller and Larry Siedentop, eds., The Nature of Political Theory. Oxford: Oxford University Press.

Milgrom, Paul and John Roberts. 1990. "Bargaining Costs, Influence Costs, and the Organization of Economic Activity." In James E. Alt and Kenneth A. Shepsle, eds., Perspective on Positive Political Economy. Cambridge: Cambridge University Press.

Niu, Er'ren. 1992. "Qianyi zhongyang yu difang caizhen guanxi de lishun" [Streamlining Central-Local Fiscal Relations]. In Xiang and Jiang (1992).

Ning, Xueping. 1994. Xin caishui tizhi jieshuo [An Introduction to the New Fiscal System], Economic Daily Press.

North, Douglass C. 1990. Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press.

North, Douglass C. and Barry R. Weingast. 1989. "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England." The Journal Of Economic History, Vol. XLIX, No. 4.

Oksenberg, Michel, and James Tong. 1991. "The Evolution of Central-Provincial Fiscal Relations in China, 1953-1983: The Formal System." China Quarterly, March.

Shieh, Shawn. 1993. "The Decline of Central State Control over Finances in Post-Mao China: An Institutionalist Analysis." An unpublished paper.

State Planning Commission. 1994. "Caishui xin tizhi yunxing zhong liyi geju de biandong yingxiang ji jianyi" [The Impacts of the New Fiscal System], Jingji gaige yu fazhan [Economic Reform and Development], No. 8: 16-23.

State Statistical Bureau. 1995. China Statistical Yearbook 1995. Beijing: China Statistical Press.

Shirk, Susan L. 1993. The Logic of Economic Reform in China. Berkeley: University of California Press.

Wang, Qiao and Zhou Quanlin. 1994. "Guanyu shixing fenshuizhi caizhen guanli tizhi gaige de jidian shikao" [Reflections on the New Tax-Sharing System], Dangdai caijing [Contemporary Finance], No. 5.

Wang, Shaoguang. 1995a. "The Rise of the Regions: Fiscal Reform and the Decline of Central State Capacity in China." In Andrew G. Walder, ed., The Waning of the Communist State: Economic Origins of Political Decline in China and Hungary. Berkeley: University of California Press.

-----. 1995b. "The Risk of Excessive Decentralization: China in Comparative Perspective." Unpublished manuscript, Yale University.

-----. 1997. "China's 1994 Fiscal Reform, An Initial Assessment." Asian Survey, Vol. XXXVII, No. 9 (September): 801-817.

Wang, Shaoguang and Hu Angang. 1994. Zhongguo guojia nengli baogao [A Report on China's State Capacity], Hong Kong: Oxford University Press. [An English translation of the book is available under the title "Strengthening Central Government's Leading Role Amid China's Transition to a Market Economy," in Chinese Economic Studies, Vol. 28, No. 3 (May-June 1995) and No. 4 (July-August, 1995)].

-----. 1999. The Political Economy of Uneven Development: The Case of China. Armonk, NY: M.E.Sharpe.

West, Loraine A. and Christine P.W. Wong. 1995. "Fiscal Decentralization and Growing Regional Disparities in Rural China: Some Evidence in the Provision of Social Services." Oxford Review of Economic Policy, 11.

Wong, Christine P.W. 1991. "Central-Local Relations in an Era of Fiscal Decline: The Paradox of Fiscal Decentralization in Post-Mao China." The China Quarterly, 128.

------. 1992. "Fiscal Reform and Local Industrialization: The Problematic Sequencing of Reform in Post-Mao China." Modern China, Vol. 18, No. 2: 197-227.

-----. 1995. "Fiscal Reform in 1994." In Kuan Hsin-chi, ed. China Review 1995. Hong Kong: The Chinese University Press.

World Bank. 1990. China, Revenue Mobilization and Tax Policy. Washington, D.C.: The World Bank.

Xiang Huaicheng. 1994. Zhongguo caizhen tizhi gaige [China's Fiscal System Reform]. Beijing: China Fiscal Economics Press.

Xiang Zhi. 1994. "Caizhen zhence yu caizhen tizhi guanxi kaishu" [Fiscal Policy and Fiscal System], Shanghai caijing [Shanghai Finance], No. 6.

Xiang Huaicheng and Jiang Weizhuang. 1992. Zhongguo gaige chuanshu, caizhen tizhi gaige juan, [A Complete Book on China's Reform: Volume on Reform of Fiscal System]. Dalian: Dalian Press.

Xu Yi and He Shengmin. 1995. "Dui dangqian caizhen jingji xingshi de jidian kaifa he jianyi" [Our Views on the Current Fiscal Situation and Our Suggestions], Jingji gaige yu fazhan [Economic Reform and Development], No. 8.

Yang, Canmin and Jia Wenjuan. 1994. "Dui zhongyang he difang caizhen fenpei guanxi de chongxin shikao" [Reflections on Central-Local Fiscal Relations], Zhongnan caijing daxue xuebao [Journal of Central South Financial University], No. 3.

Yang, Xuchun. 1994. "Fenshuizhi gaige pingshu ji xiayibu guifan yijian" [The Current Tax-Sharing Reform and Its Perfection], Hubei caijing [Hubei Financial Studies], No. 6.

Zhang Yisun. 1994. "Guanyu caizhen fenshuizhi shunchang yunxing de jige wenti" [Issues Concerning the Operation of the Tax-Sharing System], Fazhan yanjiu [Development Studies], No. 100.

Zhu, Min. 1993. "The Mechanics and Consequences of China Revenue Contract System." Unpublished paper, the World Bank.

Table 1: Selected Fiscal Indices of China, 1978-1995

Year	GDP Growth %	GGR/GDP %	CGR/GGR %	Deficit[a] (Billion)	Debt/CGE %
1978	11.7	30.9	45.8	-1.0	0.0
1979	7.6	27.6	46.8	20.7	5.5
1980	7.9	24.0	51.2	17.0	6.6
1981	4.5	22.8	57.2	9.9	12.1
1982	8.5	21.7	NA	11.3	14.6
1983	10.2	21.6	53.0	12.3	12.3
1984	14.5	20.9	56.0	12.2	10.5
1985	12.9	20.8	52.7	6.8	10.7
1986	8.5	22.2	NA	20.9	14.4
1987	11.1	19.8	48.8	25.0	16.4
1988	11.3	17.6	47.0	34.9	25.5
1989	4.3	17.4	NA	37.4	25.6
1990	3.9	17.9	48.5(45.1)	51.6	27.3
1991	8.0	16.7	45.0(40.3)	66.4	30.8
1992	13.6	15.6	45.6(38.6)	90.5	36.8
1993	13.5	14.7	(33.4)[b]	89.9	35.5
1994	11.8	11.6	55.8(32.9)	63.8	40.7
1995	10.2	10.7	NA	NA	52.8[c]

Notes: GDP: Gross domestic product
GGR: General government revenue
CGR: Central government revenue
CGE: Central government expenditure
[a]Cited from Jun Ma (1995).
[b]Figures in parentheses exclude debt incomes.
[c]Cited from Liu Zhongli (1995a).

Source: State Statistical Bureau (1995)

Table 2: The Ratio of Provincial Revenue to GDP, 1980 and 1993 (%)

Province	**1980**	**1993**	**Change, 1980-1993**
Guizhou	11.1	13.58	2.48
Anhui	14.62	6.84	-7.78
Guangxi	12.64	10.74	-1.9
Gansu	20.2	14	-6.2
Henan	13.9	8.37	-5.53
Yunnan	13.81	26.3	12.49
Sichuan	10.75	•	•
Jiangxi	11.22	9.08	-2.14
Hunan	15.57	9.98	-5.59
Shaanxi	16.61	9.37	-7.24
Tibet	•	•	•
Ninxia	13.52	10.45	-3.07
Inner Mongolia	6.13	10.53	4.4
Shanxi	19.47	10.28	-9.19
Hebei	15.97	8.62	-7.35
Hubei	17.06	8.08	-8.98
Qinghai	9.27	19.64	10.37
Hainan	•	8.92	•
Jilin	14.59	11.12	-3.47
Fujian	17.84	9.76	-8.08
Shandong	15.97	6.99	-8.98
Xinjiang	•	6.95	•
Heilongjiang	7.72	8.99	1.27
Jiangsu	19.81	7.63	-12.18
Zhejiang	17.33	8.73	-8.6
Liaoning	30.87	10.63	-20.24
Guangdong	14.69	10.75	-3.94
Tianjin	•	13.98	•
Beijing	36.9	4.52	-32.38
Shanghai	56.02	16.03	-39.99

Source: Hu, Wang, and Kang (1996).

Table 3: Changes of Fiscal Regimes, 1980-1996

The Fiscal Regimes of 1980-84

Fixed Rate of Remittance (Jiangsu)

Sharing Specific Revenue (15 provinces)

Ethnic Minority System (8 provinces)

The Metropolitan System (Beijing, Shanghai, Tianjin)

Lump-sum Transfer (Guangdong and Fujian)

The Fiscal Regimes of 1985-1987

Fixed Rate of Remittance (17 provinces and cities)

Lump-sum Remittance (Heilongjiang)

Lump-sum Subsidy (4 provinces)

Ethnic Minority System (8 provinces)

Lump-sum Transfer (Guangdong and Fujian)

The fiscal Regimes of 1988-1993

Contracted Income Increase (10 Provinces and Cities)

Fixed Rate of Remittance (3 Provinces)

Variable Rate of Remittance (3 Provinces)

Increased Rate of Remittance (2 Provinces)

Lump-sum Remittance (3 Provinces)

Lump-sum Subsidy (16 Provinces and Cities)

The 1994 Tax-Assignment System (All Provinces)

Table 4: Indices of Central and Local Revenues, 1988-1993

Year	Central	Local	Difference
1988	100.00	100.00	0.00
1989	106.17	116.42	10.25
1990	128.10	122.88	-5.22
1991	121.11	139.73	18.62
1992	126.44	158.22	31.78
1993	129.92	214.31	84.39

Note: Debt is excluded from central revenue.

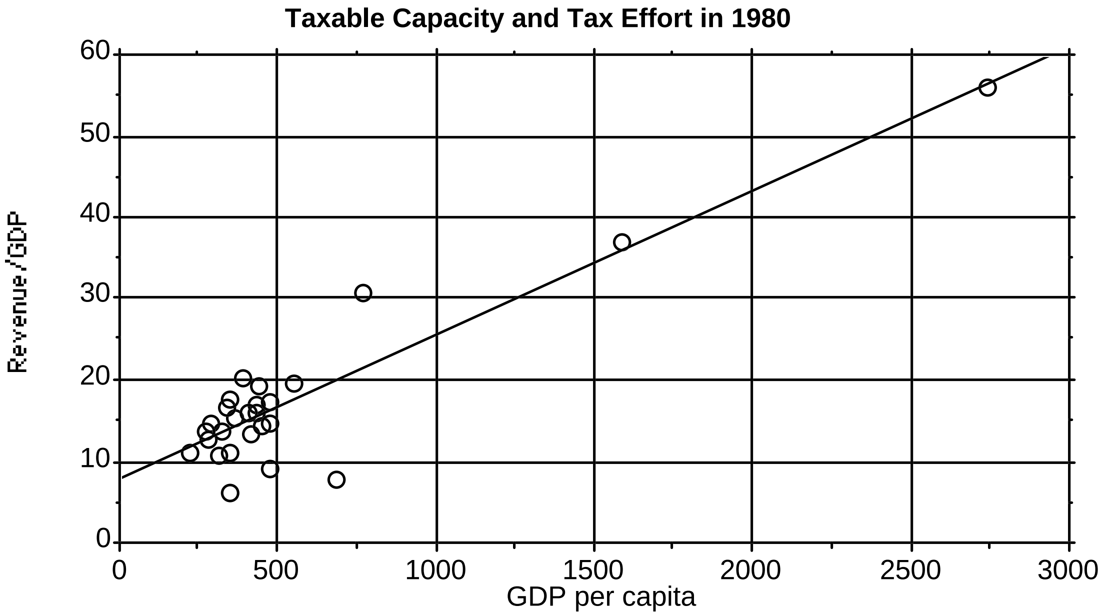
Source: State Statistical Bureau (1995: 220)

Table 5: Central "Borrowing" from Shanxi Province, 1981-1987
(Million Yuan)

Year	1981	1982	1983	1984	1985	1987	Total
Amount	240	180	176	180	170	290	1236

Source: Xiang and Jiang (1992: 399).

Figure 1: Taxable Capacity and Tax Effort, 1980 and 1993



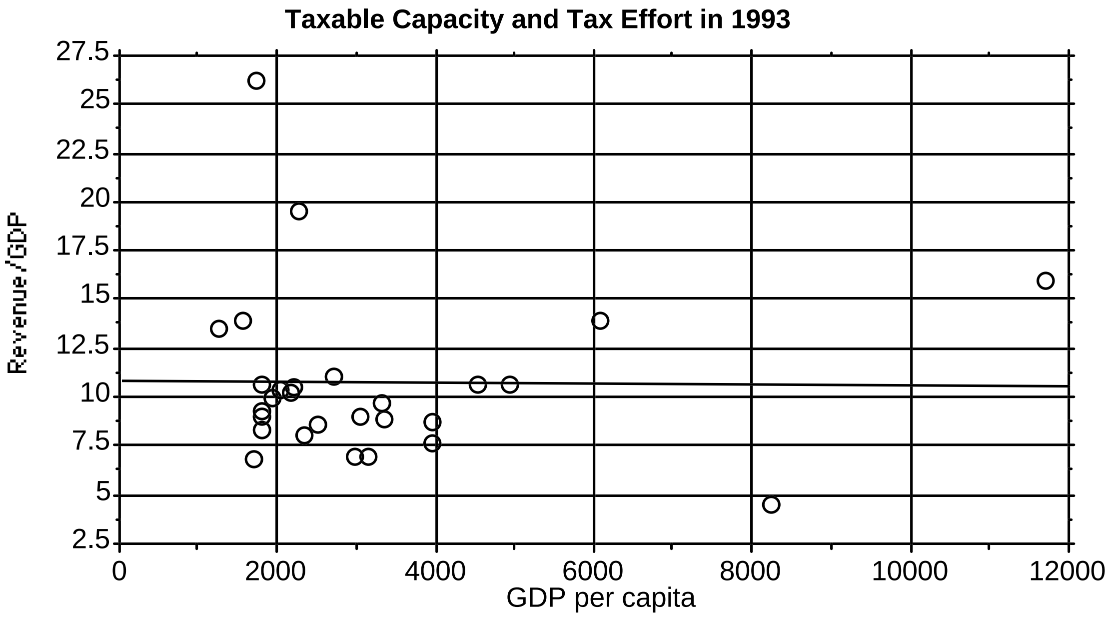


Figure 2: Relative Changes of Budgetary and Extrabudgetary Revenues 1979-1992

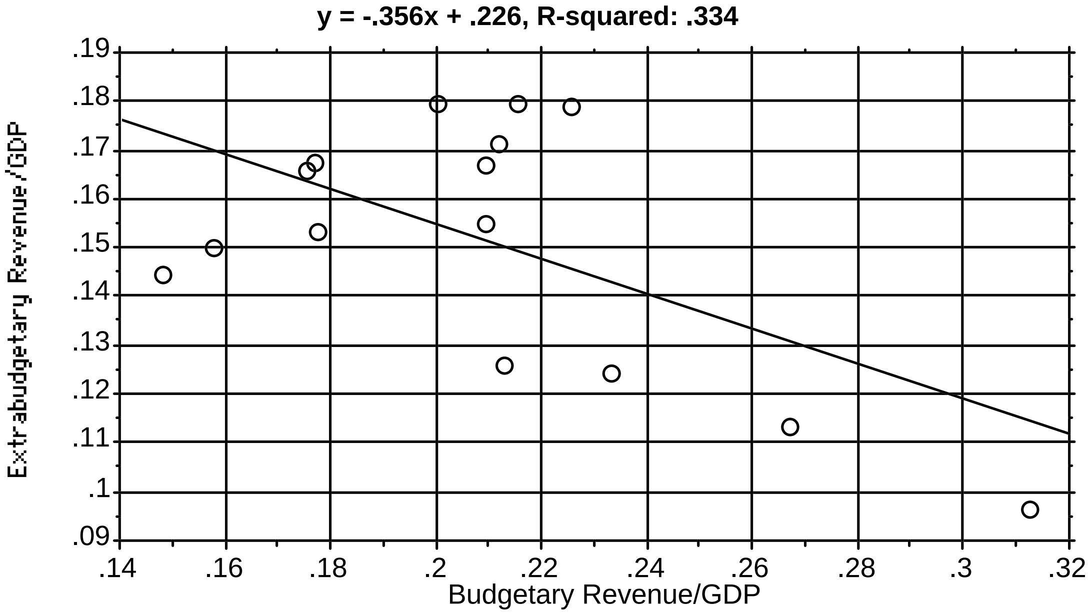


Figure 3: Prisoner's Dilemma Game

The Center	The Provinces	
	Abiding the "rules"	Opportunism
Abiding the "rules"	4,4	2,5
Opportunism	5,2	3,3

Footnotes

[1] In The Rise of the Western World: A New Economic History (1973), North and Thomas had an efficient explanation of institutions. North abandoned the efficiency view of institutions in his 1981 book, Structure and Change in Economic History.

[2] Information costs consist of the costs of measuring and the costs of policing and enforcing rules.

[3] For details of these reforms are set out in Oksenberg and Tong (1991), Wong (1992), Shirk (1993), and Xiang and Jiang (1992).

[4] Under the 1980 regime, there was another category called "adjustment income."

[5] The 1988 regime was an illustration. There were six revenue-sharing arrangement, which could be formulated into the following equations:

$$G_t = aR_0$$
$$G_t = a(1 + b_1)R_0$$
$$G_t = aR_0 + b_2(R_t - R_0)$$
$$G_t = Q_0$$
$$G_t = (1 + b_1)Q_0$$
$$G_t = S_0$$

where G_t = revenue remittance of local government at time t; R_0 = local revenue baseline at time 0; a = rate of remittance; b_1 = growth rate of remittance; b_2 = marginal rate of remittance for increased revenue; Q_0 = remittance quota at time 0; S_0 = central government subsidy at time 0; and t = 0...n year (Zhu, 1993).

[6] Conversely, we may expect that such disincentive was weaker for provinces, which received a fixed lump-sum subsidy or surrendered a fixed lump-sum remittance.

[7] "In 1990, for example, Hunan Province gave the center much less than the stipulated revenue on the ground that centrally mandated agricultural price, subsidy price, and wage policies had created expenditure pressures on provincial budget that did not enable the provinces to fulfill their contracts" (Agarwala, 1992: 5).

[8] In July, 1993 when the concept of extrabudgetary funds was redefined, those funds accruing to state-owned enterprises were excluded, and only those accruing to government agencies were retained.

[9] Many other studies have also verified that a wide variation in tax effort did exist among the provinces (World Bank, 1990; Zhu, 1993; Lou and Li, 1995). The World Bank (1990), for instance, found that many of the richest provinces made a lower level of revenue effort than poor provinces. Zhejiang, Shandong, and Liaoning, for instance, all made below average efforts, and Shanghai was just above average. Using data covering the period of 1981-1990, Zhu (1993) showed that while the tax effort dropped for all the provinces during this period, the speed of dropping varied considerably across regions. In general, it was in rich provinces where the rates of decline were much faster.

[10] For example, in 1990, the center added the responsibility for export tax credit to local budget. There have been numerous cases in which the center required local governments to invest in some "joint" projects that were supposed to be financed solely by the center (Ma, 1995).