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Grain Procurement, Tax Instrument and Peasant Burdens During China's Rural Transition

Ran Tao Mingxing Liu Fubing Su Xi Lu¹

Abstract

In this paper, we argue that China's grain procurement system as a major instrument in rural taxation survived the communes and lost its importance only gradually in recent years. However, as agricultural liberalization progressed, the traditional tax instruments of "tax deduction prior to grain procurement payment" and implicit taxation through "price scissors" gradually eroded. Under such a circumstance, local governments in agriculture-based regions resorted to informal fees collected directly from individual rural households while the more industrialized regions shifted to non-agricultural taxes that are less costly in terms of tax collection. Empirical evidence based on a large panel data set support our hypotheses of rural taxation in China

JEL Classification: H57, H71, P32, P35

Keywords: Policy mandate; Grain Procurement; Rural informal taxation; China

1. Introduction

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China's rapid economic development in the past three decades has lifted millions of peasants out of poverty. Industrialization and marketization, however, also brought about new challenges to the countryside, such as deteriorating health and education services, rising income inequality, farmland grabbing by local governments, and environmental pollution. Since the second half of the 1990s, peasant burdens have captured Chinese leaders' attention and become a hot topic in the "two meetings", i.e. National People's Congress and National People's Political Consultative Conference, every year. Local governments, especially township governments and village authorities, levied dozens, and sometimes even hundreds, of fees and fines on peasants. In some cases, the financial burdens reached as high as twenty to thirty percent of already low incomes of peasants. While some of these fees were authorized by the central government or higher level local governments, most of them were contrived by grassroots cadres, including many charges explicitly prohibited by the central government. These rampant "irrational" fees immiserated peasants, particularly those whose livelihood depended solely on agriculture. Lawsuits, petitions, protests, and violent clashes ensued and destabilized the countryside. The central government reacted by first regularizing the fees in the late 1990s and finally chose to terminate all rural taxes and fees by 2006.²

Scholars and policy analysts have debated about the causes of peasant burdens. Public finance-minded researchers examined the central-local fiscal arrangement and believed that fiscal recentralization in 1994 played a crucial role.³ Taking more revenues away from local

² State Council. State Council's notice on deepening the rural tax reform policies in 2004. Policy document No. 21, (2004).

³ Cui, Xiaoli, "Rural Tax Reform: Transition from Production to Market Transaction", Chinese Rural Economy (in Chinese) Vol.9. (2002); Chen, Xiwen., A Study on China's County and Township Public Finance and Farmer Income Growth. Shanxi Economic Press, (2003); Yep, Ray, "Can 'Tax-for-Fee' Reform Reduce Rural Tension in China? The Process, Progress and Limitations". The China Quarterly

governments forced local officials to prey on peasants. Students of Chinese politics argued that tighter political control further exacerbated this financial imperative. In the 1990s, the central government frequently relied on quantifiable targets to measure local officials' performance. This political tournament fueled the endless drive for more resources among grassroots level officials.⁴ Still other scholars viewed peasant burdens as a consequence of state degeneration in contemporary China. Marketization and liberalization have weakened government officials' ideological commitment and party discipline. Instead of serving the people, local officials abused their power and engaged in rent-seeking activities.⁵

These economic and political changes help explain the rise of peasant burdens in the 1990s. In this paper, we explore the impact on rural public finance of one specific institution, i.e. tax instrument. In particular, we argue that China's grain procurement system as a major instrument in rural taxation survived the communes and lost its importance only gradually in recent years. This system and its evolution have affected peasants' financial burdens in a number of ways. Enforcing the grain procurement system required financial resources and manpower. Higher procurement quotas in general raised administrative costs so township governments and villages must raise more money to fulfill their quotas. On the other hand, the procurement system afforded grassroots officials a convenient vehicle to deduct taxes and fees easily from the grain proceeds, which saved costs, especially when officials needed to collect resources

177, (2004), pp. 42-70.

4 Edin, Maria, "State Capacity and Local Agent Control in China: CCP cadre management from a township perspective". *China Quarterly* 173 (March 2003), pp. 35-52; K.Tsui, Y.Wang, "Between Separate Stoves and a Single Menu: Fiscal Decentralization in China." *China Quarterly* 177, (2004), pp. 71-90.

5 Bernstein, Thomas and Lu, Xiaobo, "Taxation without Representation: Farmers, the Central and Local State in Reform China", *China Quarterly*, (September,2000), pp.742-763; O'Brien KJ, Li LJ, "Popular contention and its impact in rural China", *Comparative Political Studies*, (38), 2005, pp. 235-259.

from individual families under the household responsibility system. Moreover, the government-set grain prices were usually lower than the market ones. This gap constituted another source of local revenues, relieving officials of the urge for rampant fees. Finally, as rural reform continued, the grain procurement system declined gradually, which forced local officials to collect more revenues directly from peasant households. The exorbitant administrative fees engendered two equilibriums. In areas with more developed industries, local governments shifted their efforts to industrial taxes to avoid the costs. In agricultural areas, on the other hand, officials fell into a vicious cycle by ratcheting up fees and hiring more people, which begot more revenues.

To test our hypotheses empirically, we utilize a data set that covers the time period under this study. The Research Center for Rural Economy (RCRE) of the Ministry of Agriculture has been conducting a nationally representative household survey since 1986.⁶ For our analysis, we obtained comprehensive information for about 6,000 households in 120 villages across 10 Chinese provinces, including Anhui, Gansu, Henan, Hunan, Jilin, Shanxi, Sichuan, Guangdong, Jiangsu, and Zhejiang. The RCRE samples were selected as follows: in each province, counties in the upper, middle and lower income terciles were selected, from which a representative village was then chosen. Subject to the limits of this stratification, the RCRE sample should reasonably capture both inter and intra-provincial income variation. Depending on the size of village, between 40 and 120 households were randomly surveyed in each village. After being selected, respondent households kept daily diaries of income and expenditure, and a resident administrator living in the county seat came once a month to

⁶ For 1992 and 1994, no survey was conducted so data were missing for these two years.

collect information from the diaries. This detailed information allows us to pry open the peasants' purse and trace the evolution of taxes and fees in the 1990s and early 2000s.

Our paper highlights the role of grain procurement in the development of peasant burdens in contemporary China and complements the existing fiscal and political analyses. Our empirical analysis is among the first to substantiate this connection with time-series data. Moreover, the Chinese case offers a useful comparative angle for scholars who are interested in taxation in agricultural societies. In many developing and transitional countries, agriculture provides the main, if not the only, base for government revenues but collecting agricultural taxes poses a significant administrative challenge. Historically, tax on land is used in many countries since land is a crucial input in agriculture and is of inelastic supply. But not all countries have the administrative capability to conduct cadastral surveys and administer a land tax. Moreover, land tax is often opposed by powerful interest groups such as landlords.⁷ Alternatively, governments in many developing and socialist countries tax agriculture implicitly via the so-called "price scissors", which are done through their control of the prices of food and vital agricultural inputs, such as fertilizers.⁸ As these countries started liberalization in agricultural sectors, the implicit tax instruments were gradually eroded and significant changes in agricultural taxation became inevitable. China has witnessed the similar trend in its transition toward a market economy.

The rest of the paper is organized as follows. Part 2 briefly introduces China's agricultural

7 Bird, Richard, *Taxing agricultural land in developing countries*. Cambridge, MA: Harvard University Press, (1974).

8 Dixit, Avinash, *Models of Dual Economies*, in: J.A. Mirrlees and N.H. Stem, eds., *Models of Economic Growth*. New York: Macmillan, (1973); Lipton, Michael, *Why poor people stay poor: Urban bias in world development*. London: Temple Smith, (1977); Sah, Raaj and Stiglitz, Josef, "The taxation and pricing of agricultural and industrial goods in developing countries". In: D.M.G. Newbery and N.H. Stem, *The theory of taxation for developing countries*. New York: Oxford University Press and World

taxation with an emphasis on the grain procurement system both before and after the country's economic reform. Part 3 zeroes in on this institution and develops some testable hypotheses. The next part empirically tests these hypotheses with a large panel data set based on RCRE household surveys. We conclude with some policy implications for further reforms in China's local governance.

2. The grain procurement system and rural taxation in China

2.1 The planning period: mandatory procurement and forced extractions

State agriculture tax was introduced as early as the 1950s in China. As a tax in kind, the total quantity of agriculture tax was fixed for several decades. The real agricultural tax rate was around ten percent of grain output in China's first "Five-Year Plan" period (1953-57). As grain output grew from the 1960s to the 1970s, the rate declined to 5 percent in the fourth "Five-Year Plan" period (1970-1974) (Yan 1988).

However, farmers were taxed much more heavily during the planning period than the state agricultural tax statistics suggested because there was much heavier implicit taxation via the so-called "price scissors". A compulsory grain procurement system was imposed on farmers to facilitate this process. Under this system, farmers had to sell their grain at state-defined prices and were entitled only to the residual grain after state procurement.⁹ According to some estimates,¹⁰ the implicit taxation through pricing tools between 1953-78 was as high as CNY

Bank, (1987).

⁹ Lin, Justin, Yinfu, "Rural Reform and Agricultural Growth". *American Economic Review* 82(1), (1992), pp. 34-52; Rozelle, Scott, "Gradual Reform and Institutional Development: The Keys to Success of China's Rural Reforms". In Barry Naughton: *Economic Reform in China: Lessons for Economics in Transition*, Chapter 7. Ann Arbor, University of Michigan Press, (1996).

¹⁰ Cui Xiaoli, "Unified Procurement, Unified Sales and Industrial Accumulation", *Journal of Chinese Economic History*(in Chinese), Vol.4, (1988).

280 billion, which is 17% of total agricultural outputs and a figure much higher than the formal state agricultural tax (CNY 89.8 billion) in the same period.

The mandatory procurement system also facilitated the levy of state agriculture tax. As a tax in kind, agriculture tax was automatically deducted before the communes received the payment for the procured grain. Through a “work-point” system by which the communes and production brigades controlled the distribution between the collectives and farmers, farmers were further levied at the local level. The collective accumulation fund, welfare fund and cadre compensation were deducted before farmers could obtain their incomes from rural collectives. Only afterwards team members received their shares of grain and cash according to their earned work-points.¹¹

2.2 The 1980s and early 1990s: gradual changes in agricultural taxation

The agricultural reforms in the late 1970s and early 1980s not only raised agricultural productivity dramatically, but also gradually reshaped the way agriculture was taxed. The new system provided individual rural households with production incentives by making them the residual claimants to farming returns. The comprehensive mandatory grain procurement system was replaced by more flexible grain procurement contracts where every rural household sold a certain amount of grain to the state at government fixed prices. Though still lower than the market prices, the state procurement prices of major agricultural products were significantly raised by the central government.¹² Once the state quotas and agricultural taxes were fulfilled,

11 Lin, Justin, Yinfu, “Rural Reform and Agricultural Growth”. *American Economic Review* 82(1), (1992), pp. 34-52.

12 Sicular, Terry, “Plan and market in China’s agricultural commerce”. *Journal of Political Economy* 96(2), (1988), pp. 283-307; De Brauw, Alan, Huang, Jikun and Rozelle, Scott. “The Sequencing of Reform Policies in China's Agricultural Transition”, *Economics of Transition* 12(3), (2004), pp. 427-465.

farmers could sell their products on the market.¹³ These policies greatly stimulated farmers' incentives in production and grain output grew very fast. As a result, China in the late 1970s and the early 1980s witnessed a significant reduction of implicit agricultural taxes because of rising agricultural procurement prices and declining agricultural procurement quantity (relative to the country's total grain output).

Though the state formal agricultural tax was still kept intact with the introduction of the Household Responsibility System (HRS), the system has deprived townships and villages (known as communes and production brigades in the planning period) of their power to collect local revenues directly through the work-point system. The government then had to introduce two major categories of fees for township and village respectively. These are the "five types of township pooling funds" to provide for education, public security, law and order, civil service and to carry out the state mandates of family planning and grain procurement, and the "three types of village deductions" to provide for rural collective capital accumulation, welfare funds and cadres' salaries.¹⁴ Since every rural household was allocated some land under the HRS, both the agricultural tax and the township and village fees were levied mostly according to agricultural land allocations, thus can be largely viewed as land-based taxation¹⁵.

13 Lin, Justin, Yinfu, "Rural Reform and Agricultural Growth". American Economic Review 82(1), (1992), pp. 34-52; Weersink, Alfons and Rozelle, Scott, "Marketing reforms, market development and agricultural production in China", Agricultural Economics 17(2-3), (1997), pp. 95-114.

14 Under the HRS, rural households are required by the contract to pay state taxes, fulfill contracted procurement quotas, and submit certain amount of grain to the production team as public accumulation funds and public welfare funds (later changed to the township pooling funds and village deductions). After these obligations had been fulfilled, all remaining output belonged to the household. In another word, the old procurement system of the 1950s and 1960s persisted under reform and was combined with a new tax system, so that the two worked side by side and so there was actually a kind of dual process of state-taking of local resources. The authors are grateful to the referee for suggesting this key point. See Bernstein, Thomas and Lu, Xiaobo, "Taxation without Representation: Farmers, the Central and Local State in Reform China", China Quarterly, September issue, (2000), pp.742-763.

15 Unlike countries that lack administrative capacities to levy land tax, the Chinese state has an elaborate bureaucratic network with strong administrative capacity at grassroots level partly due to its socialist legacy and partly due to its long tradition of bureaucratic administration inherited from its

Besides the two major fee categories permitted by the state, townships and village collectives also collected some revenues implicitly by adding a margin above the state grain procurement quota. Though the state set the grain quota for each locality, it was up to township governments to allocate the quota to villages and the latter to individual households. Local officials, in the name of fulfilling grain procurement contracts, frequently over-procured grain by adding a margin over the state quota to gain some revenues. As some researcher has observed, ¹⁶local procurement targets contributed to local revenue as local officials exploited the price margin between the market price and the state procurement price. Such practices were known as “second procurement” over the central grain quota by farmers. Beside state contract procurements, in many places, there were also implicit taxes on economic crops such as cotton, rapeseed, jute, hemp, tobacco, sideline products such as cocoons and pigs and agricultural inputs such as fertilizers and pesticides. These were also collected by local governments through their controls of the transaction channels and prices.

2.3 The 1990s: the rise of informal taxation and rampant fees

Though arbitrary fee charges beyond the township pooling funds and village deductions were present as early as the 1980s,¹⁷ the issue of excessive informal fee charges on farmers became very serious only in the 1990s when many regions in China experienced a surge of many forms of local illegal fundraisings. Unlike the township pooling funds and village deductions that were local legitimate charges, these fees were imposed on farmers, usually

ancient empires (Oi 1995). Moreover, after the communist revolution, there have been no strong rural interest groups (such as landlords) to resist land taxation in China (Bardhan 2002).

16 Yang, Dali, “Calamity and Reform in China: State, Rural Society and Institutional Change Since the Great Leap Famine”, Stanford University Press, (1996).

17 Yang, Dali, “Calamity and Reform in China: State, Rural Society and Institutional Change Since the Great Leap Famine”, Stanford University Press, (1996).

without explicit government regulations or legislations, for anywhere between a few dozen and more than one hundred items, ranging from charges for road and school construction and other local improvement projects, to purchase of insurances, to charges for marriage certificates or housing construction and so on. In the 1990s' rural China, a large share of the village and township government revenues came from such informal charges.¹⁸

The RCRE household data demonstrate this change clearly. Figure 1 describes peasants' financial burdens as a percentage of their incomes in 1986 and 1999, respectively.¹⁹ Except for a few income groups in the higher end of the distribution, most households in the surveys experienced a rise in their payments to various authorities within a decade. The general increase was further exacerbated by the disproportional burden born by the people located toward the lower end of the income spectrum. While the 1986 trend line is relatively flat, the 1999 one shows a clear downward slope, indicating that rural burdens became increasingly regressive in this period. The financial burden for the lowest income group in 1986 (annual per capita income less than CNY 200) was 10.5 percent of their incomes, while that for the highest income group (annual per capita income higher than CNY 4,000) was at a slightly lower level of 9.5 percent. However, by 1999 the rate for the lowest income group (annual per capita income lower than CNY 400) climbed to 25.6 percent, while that for the highest income group (income higher than CNY 8,000) dropped to merely 4.4 percent. Therefore, even though the overwhelming majority of rural residents experienced rising financial burdens in the 1990s, it was the poorest peasants that suffered the most.

¹⁸ Chen, Xiwen., *A Study on China's County and Township Public Finance and Farmer Income Growth*. Shanxi Economic Press, (2003).

¹⁹ Total peasant burdens include formal agricultural taxes, township and village levies sanctioned by the central government (five pooling funds collected by township governments and three deductions by villages), and discretionary fees, charges, funds levied by grassroots officials. This definition applies to both Figure 1 and Table 1. All data are adjusted according to inflation. The >4,000 mark on the x axis refers to the 1986 trend line so the last point on the 1986 line collapses all households with incomes of

These people usually depended solely on farming and did not earn extra incomes from other forms of employment. This increasingly regressive nature of rural tax system made peasant burdens a particularly acute issue and undermined social stability in many areas.

The surge of informal fees and charges did not occur across the board for all localities throughout China. It is a regional, though still relatively broad-based, phenomenon that mainly involved inland agriculture-based localities. In China's more developed coastal regions, the informal fees charged on farmers were much less pervasive. We calculated the rural burden as a share of peasants' income at the provincial level for three years of 1986, 1993, and 1999, respectively. Table 1 lists the ten provinces according to their level of industrialization. Zhejiang and Guangdong, two highly industrialized coastal provinces, had the lowest peasant burdens. The ratios have actually dropped since 1986, indicating that grassroots cadres have shifted away from rural taxation. On the other hand, more agricultural regions, such as Hunan, Sichuan, Gansu, and Jilin, had the highest level of burden in general or witnessed the fastest growth during the time period under this study. Jiangsu presents a rather interesting case. As one of the most industrialized provinces in China, local governments there had taxed their peasants rather heavily. Scholars have long acknowledged the presence of strong collectives in rural Jiangsu, which stands in direct contrast to areas that are based on more private businesses, such as Zhejiang.²⁰ The active grassroots cadres were able to mobilize more resources from peasants directly.

3. Explaining peasant burdens during the transition

more than CNY 4,000.

²⁰ Huang, Yasheng. *Capitalism with Chinese Characteristics: Entrepreneurship and the State*. Cambridge University Press, (2008).

This wide regional variation provides an excellent opportunity to empirically test the impact of the tax instrument on peasant burdens. Like the adoption of the household responsibility system in the late 1970s, rural reform followed different pace across the country. Sometimes the central government launched policy experiments in certain areas before expanding them to the rest of the country. Other times, some local governments initiated changes on their own then other regional governments emulated the successful ones. Moreover, policy implementation has always been a challenge in China and local cadres could delay or distort even centrally mandated policies. For all these reasons, there is plenty of regional heterogeneity for us to explore. The following sections try to establish the relationship between peasant burdens and the grain procurement system through several perspectives

3.1 Policy mandate, administrative cost, and rural informal taxation

Local governments and grassroots cadres perform crucial functions for the central government. All national policies related to peasants, agriculture, and rural development need cooperation and implementation of local cadres. To raise the level of policy implementation, the central government in the late 1980s began to mandate quantified targets in many policy areas, such as economic growth rate, tax revenue submission, family planning, farmland protection, compulsory education, rural road and telecommunication facilities, etc. The central government usually did not fund these policy mandates and local governments had to pay for the implementation cost (both financial and personnel), which had to come from taxes and fees on peasants. Moreover, once local governments were granted the autonomy to raise informal taxes, officials could abuse this power by engaging in cost manipulation. This would further increase the

informal tax collected. The information rent, i.e., the additional tax collection under information asymmetry, would be appropriated by local governments for purposes that are to their own benefits, such as higher salary and stipend, and the maintenance of redundant staff in the government.

One of the key local policy mandates in rural China throughout the 1980s and the 1990s was state grain procurement. In principle, it was the state grain sector that procured grain from individual farmers. However, since grain procurement was a mandate that involved individual rural households who understandably inclined to resist such state procurement at depressed prices, in practice cadres at the township and village levels had to get involved and usually played a major role in pushing farmers to fulfill the state grain quotas. The high personnel and financial costs incurred in state grain procurement have been well documented in the literature on state-society relationship in rural China.²¹ Therefore, we have the following hypothesis.

Hypothesis 1. *Other things being equal, the heavier the policy mandates from above (the higher the state grain procurement quota), the higher the rural informal fees.*

Though the central government enforced grain procurement contracts in almost all provinces across China, the quantities of government grain procurement (both in gross or in per capita terms) varied significantly by region²². Significant regional heterogeneity in state grain procurement quotas can be observed from the RCRE data. Figure 2 presents the per capita grain procurement

²¹ Sun, Liping and Guo, Yuhua, "To be Tough or To Be Soft: A Process Analysis of the Informal Operation of State Formal Power in Grain Procurement". *Tsinghua Sociology Review* (in Chinese), Special Issue, (2000).

²² In China, the quantity of grain procurement for every locality is determined by the upper level government according to a set of rules that take into account the factors such as natural conditions, historical factors, and even political concerns, such as local food self-sufficiency. Furthermore, the enforcement costs may also vary across regions even if the central policy itself is relatively homogenous across regions. The central policy of birth control policy serves an example: in less developed areas where income is lower, non-agricultural employment more limited and female less educated, farmers usually want to have more children than their counterparts in richer regions. Therefore, birth control in poorer regions is much more difficult, which entails higher administrative costs and more financial resources.

quota for the 10 provinces in RCRE data for 1987, 1995 and 1999.²³ In 1987, the inland province of Jilin had the highest per capita grain procurement quota of 350kg while Henan province had the lowest per capita quota of 70kg. From 1987 to 1995 and to 1999, state grain procurement quota declined in almost all the provinces though there was still significant regional heterogeneity across provinces.

3.2 Procurement quota as a tax instrument

While the state procurement quota system did raise implementation costs, it also provided a convenient instrument to collect revenues for local cadres. Partly because of the continued existence of relatively high procurement quotas, rural informal taxation, especially illegal fundraisings, was not very serious before the mid 1990s. Township governments and village collectives could then easily deduct all taxes and fees before farmers could obtain payment for their procured grain. This was feasible because the state grain quotas were still relatively large in early periods of reform so that it rarely happened that farmers were required to pay more after tax deductions from grain procurement.

However, along with further marketization in China's agricultural sector starting from the 1990s, China witnessed a gradual decline of state grain quotas.²⁴ On the basis of the RCRE data, one can witness a declining availability of direct tax deduction via the grain procurement system. Figure 3 shows different indexes for either the share of rural households whose agricultural taxes that could not be deducted beforehand via the state grain procurement system

²³ Grain procurement for 1987 is shown here since no grain procurement data is available in 1986.

²⁴ Rozelle, Scott, Park, Albert, Jin, Hehui and Huang, Jikun, "Bureaucrat to Entrepreneur: the Changing Role of the State in China's Grain Economy". *Economic Development and Cultural Change* 48(2), (2000), pp.227-252; De Brauw, Alan, Huang, Jikun and Rozelle, Scott. "The Sequencing of Reform Policies in China's Agricultural Transition", *Economics of Transition* 12(3), (2004), pp. 427-465.

(solid line) or the shares of villages in RCRE data set whose agricultural taxes could not be fully deducted via the state grain procurement system (dashed line). There were clear rising trends of these shares, indicating a declining availability of deducting taxes beforehand via the grain quota system. For example, in 1987, about 30% of households (nondesha) or villages (nondeshc) had more agricultural taxes than their grain quotas. That number rose to 55% and 67%, respectively in 1999.

The gradual erosion of state grain procurement quotas made it increasingly unlikely for township and village officials to deduct taxes before paying farmers for their state grain quota deliveries. As a result, local officials now had to draw state agricultural tax and fees directly out of farmers' pockets. Compared with previous direct tax deduction via the state grain procurement system, the work of collecting explicit taxes from individuals rural households proved to be much more costly in terms of local cadres' administrative and personnel expenses. Such tax collection significantly raised the administrative workloads of local government officials responsible both for collecting taxes and for managing the conflict these collection efforts spawned, thus raising the direct costs of tax collection itself as well as indirect costs of managing complaints and petitions, hearing appeals, and so on.²⁵ In response, higher local fees had to be collected to compensate the revenue shortfalls. Anecdotal evidence also suggests that in many less-developed regions, a vicious cycle emerged in which local governments had to recruit more staffs, both formal and informal to ensure tax collection; higher tax revenues then had to be used to support an expanding local bureaucracy. This in turn led to even higher informal taxes and larger local

²⁵ Ethan Michelson, "Peasants' Burdens and State Response: Explaining the Causes and Predicting the Consequences of State Concession to Popular Tax Resistance in Rural China", for the Association for Asian Studies Annual Meeting, (April, 2006).

bureaucracy.²⁶ Thus the following hypothesis:

Hypothesis 2a. *Other things being equal, the less likely local officials can deduct state agriculture tax and local informal fees via the state grain procurement system, the higher their tax collection costs, thus the higher their local fee charges.*

A further impact of agricultural liberalization on rural taxation was that it reduced the pricing margin between the grain market price and state procurement price. China's countryside in the 1990s also witnessed a fast liberalization of all other major cash crops, sideline products as well as major agricultural inputs. As illustrated earlier in part 2.2 and,²⁷ local governments had been used to collecting some implicit revenues either through grain procurement beyond the state defined quota or through their control of prices of major agricultural inputs and other cash crops. However, the gradual erosion of state grain procurement quotas, along with gradual erosion of regulations on cash crops and declining controls on transaction channels of major agricultural outputs and inputs, reduced the implicit taxes local governments could have access to.

Hypothesis 2b. *Other things being equal, the less local governments are able to levy implicit taxes (in the case of grain, through local over-procurement as well as the price margin between the grain market price and the state procurement price), the more likely they turn to explicit fee charges.*

On the basis of the RCRE data, it can also be shown that there were declines of the price margin between the grain market price and state procurement price. Figure 4 shows the price margins for all 10 provinces in RCRE data set and also for two provinces of Hunan and

²⁶ Chen, Xiwen., *A Study on China's County and Township Public Finance and Farmer Income Growth*. Shanxi Economic Press, (2003); Yep, Ray, "Can 'Tax-for-Fee' Reform Reduce Rural Tension in China? The Process, Progress and Limitations". *The China Quarterly* 177, (2004), pp. 42-70.

²⁷ Yang, Dali, "Calamity and Reform in China: State, Rural Society and Institutional Change Since the

Zhejiang from 1987 to 1999. From the figure, we can see that there was an overall clear decline in the price margin from the 1980s to the middle and late 1990s. In 1989 when price liberalization led to an unprecedented inflation in the economy, the price margin reached the peak. Farmers could garner 60% more if they chose to sell their grain products on the open market instead of the state granary. In the late 1990s, the price difference basically disappeared. In one year, too much grain glutted the market and state procurement actually provided a price guarantee for desperate farmers.

3.3 Agricultural and industrial taxation substitution

Figure 3 and 4 demonstrate very clearly one general trend in the 1990s. As the whole economy was getting more and more market-based, the state grain procurement system became increasingly archaic and had to be phased out gradually. Under this new institutional environment, local officials must collect agricultural taxes and various fees directly from individual households. It was an arduous task that required a lot of manpower. Due to farmers' strong resistance, the collection was usually fraught with confrontations and in some cases even violence. The instability might undermine the political future of local officials. Even in financial terms, collecting taxes and fees directly from farmers might not be cost effective. In many places, extra revenues did not cover the costs of the manpower that required. On the other hand, according to calculations by,²⁸ collecting a unit of tax from an industrial firm was more cost effective than collecting a unit from individual farming households in China. Not surprisingly, local governments had an incentive to substitute agricultural taxation with taxes

Great Leap Famine”, Stanford University Press, (1996).

²⁸ Zhang, Xiaobo, “Fiscal Decentralization and Political Centralization in China: Implications for Regional Inequality”. *Journal of Comparative Economic*, (2006),forthcoming.

from industries.

While this substitution made financial sense, not all local governments could afford this opportunity. China experienced very fast industrialization in the past three decades but there was also tremendous regional variation. The coastal regions benefited from their proximity to Hong Kong, Taiwan, and other overseas markets and developed into the manufacturing base of many multinational companies. Many inland areas, on the other hand, had very limited success of industrialization, especially in the 1980s and early 1990s. Even within a province, the industrialization gap ran deep. The contrast between “industrial rural China” and “agricultural rural China” was unmistakable.²⁹ For officials in agricultural areas, agriculture was the main source of income and they had to hire more people to collect taxes from farmers directly.³⁰

Hypothesis 3. *Other things being equal, the higher the level of local industrialization, the more likely that the local government will shift to industrial taxation, therefore the lower the tax burdens on individual farming households.*

Based on county level data matched to the RCRE sample villages,³¹ Figure 5 presents the industrialization level by province for the years of 1995, 1997 and 1999. On the provincial level, there was a huge regional variation in terms of industrialization in the 1990s. Zhejiang,

²⁹ Bernstein, Thomas and Lu, Xiaobo, “Taxation without Representation: Farmers, the Central and Local State in Reform China”, *China Quarterly*, September issue, (2000), pp.742-763.

³⁰ Regional disparity in industrialization may also help to account for rising rural income disparity and increasingly regressive nature of rural taxation witnessed in the 1990s. As China further developed from the 1980s to the 1990s, the incomes of the farmers in the fast-industrializing regions grew much faster than those of farmers in less developed regions (Fujiata and Hu, 1999). Even in less developed regions, the incomes of the farmers who were able to migrate and obtain off-farm work in cities grew faster than those of farmers who could only stay on farm. What naturally follows was rising inter- and intra-regional rural income disparity (De Brauw et al, 2002) . However, rural taxation on individual farmers’ households continued to be dominantly agricultural tax and various fees levied on arable lands. Given the poorer farmers were usually the groups with lower share of income from off-farm sources, they became much more vulnerable to rural taxation (Tao and Liu, 2005).

³¹ Our county data comes from the China Statistical Material for Prefectures, Cities, and Counties Nationwide, published by the Ministry of Finance, 1994-2003.

Guangdong, and Jiangsu were among the first to industrialize and participate in the global economy. Local economies shifted away from agriculture and most farmers worked in factories or in services. In the case of Zhejiang, non-agricultural outputs constituted more than 90% of local economies in 1999. On the other hand, Gansu and Jilin were among the least industrialized provinces in China, despite the fact that they made some progress in recent years. Level of industrialization may be another source of regional variation in peasants' financial burdens. Even though collecting taxes and fees directly from peasants was financially not cost effective, many local officials simply had viable alternatives.

4. Regression-based empirical evidence

The above discussion developed three hypotheses on the basis of the state grain procurement system. In this section, we use the RCRE data and the complementary county-level data to empirically test them. The econometric specification is as follows.

$$\begin{aligned}
 Hfee_{ijt} = & \beta_0 + \beta_1 Vgrainquota_{jt} + \beta_2 Vnondesh_{jt} + \beta_3 Pricemargin + \beta_4 Countyind_{jt} \\
 & + \beta_5 Hlandpc_{ijt} + \beta_6 Hlabshare_{ijt} + \beta_7 Vinc_{jt} + \beta_8 Vsize_{jt} + \beta_9 Vpub_{jt} + u_j + v_t + e_{ijt}
 \end{aligned} \tag{1}$$

In equation (1), $Hfee_{ijt}$ is a set of dependent variables that represent different local fees burdens per capita for the i^{th} household of the j^{th} village in year t . Since the RCRE data have full details about different types of fees each household paid to local governments, we need to refine the dependent variable a bit more. More specifically, $Hfeetotal_{ijt}$ is defined as local total informal fees per capita, $Hfee1_{ijt}$ is defined as the sum of “Five Township Pooling Funds” and “Three Village Deductions”, which are legitimate local fees permitted by the state. $Hfee2_{ijt}$ is defined as

other local levies per capita not legitimate but imposed by local government and village community organizations. Thus $Hfee2_{ijt}$ is rural informal burdens via illegal fundraising. Therefore, $Hfeetotal = Hfee1 + Hfee2$. Household-level variables are used as dependent variables since we want to evaluate how household level land (per capital) and other household level variables such as laborers affect rural fee charges. The state agricultural tax is not discussed here since it is a formal tax with state defined rates rather than the informal fees that are more at the discretion of local officials. So the source of peasants' tax burdens cannot derive from this uniform tax and the more discretionary informal fees are causes of regional variations.

The right hand of the equations includes four key variables that correspond to our three sets of hypotheses proposed in Part 3. The policy mandate variable ($Vg\ rainquota_{ijt}$) is represented by the village-level per capita state grain procurement quota. Since this variable may well be endogenous, we employ an instrumental variable (IV) approach to address this issue. Our IV is a variable representing the provincial-level grain procurement quota per farmer. This variable is constructed using provincial grain procurement quota (published on the “Statistical Yearbooks of China’s Markets” by the State Statistical Bureau) divided by the rural population in the province. This variable can serve as an IV since grain procurement quota is a policy mandate imposed from above and the quantity of grain procurement at each level is determined by its upper level. Therefore, the provincial level grain quota mandate in principle could serve as a good IV for the village level quota since there is a clear causality running from higher provincial grain quota per capita to higher quota per capita at the village level. Under Hypothesis 1, the coefficients of this variable are positive.

The use of state grain procurement quota as our policy mandate proxy is because it was a very

important policy mandate at the township and village level in China throughout the 1980s and the 1990s (and it was costly in terms of implementation).³² However, such a choice by no means implies that the grain procurement was the only policy mandate imposed on local cadres at the village and township levels. Other important mandates such as birth control, nine-year compulsory education also existed in this period. And many of these other mandates are still present even after the state grain procurement has been gradually phased out since the early 2000s. Therefore, the choice of this proxy is to identify the specific impacts of grain procurement mandate on local informal taxation with everything else controlled, rather than measure the overall impacts of all mandates imposed on villages.

Our second key variable $Vnondesh_{jt}$ is a village level variable representing the degree of non-availability of direct state agricultural tax deduction via state grain procurement. This is calculated by the share of state agricultural tax that could not be fully deducted beforehand from their grain procurement payment for the j^{th} village in year t . Since both the (values of) state grain quota and the state agricultural tax were determined beyond the village level, this village level variable can be viewed as exogenous to the left-hand household level fees.³³ Under hypothesis 2a, the coefficients of these variables are expected to be positive.

The implicit taxation variable ($Pricemargin_{ijt}$) is represented by the ratio of grain market price to government procurement price at the village level (minus one). Since no data on

³² See Sun, Liping and Guo, Yuhua, "To be Tough or To Be Soft: A Process Analysis of the Informal Operation of State Formal Power in Grain Procurement". *Tsinghua Sociology Review* (in Chinese), Special Issue, (2000)

³³ Though some informal fees such as the township pooling funds and the village deductions may also be deducted prior to grain procurement payment, unfortunately we have no information about how such practices operated specifically in our data set. We also run regressions with variables that represent the share of households in a village whose state agricultural tax and fees that cannot be fully deducted via grain procurement system or the non-deductible shares of agricultural tax and fees in a village. The results are similar. However, such variables may introduce endogeneity in regressions since our left-hand variables are household level fees and we opt not to report them.

government procurement prices and market prices are available for these areas, we use information from all surveyed households to calculate this ratio. This variable is strictly exogenous since both the market price and state procurement price can be viewed as exogenous to local fee charges. As we have explained, the Chinese local officials in the 1980s and early 1990s often procured grain beyond official quotas to extract more implicit tax revenues since there was a price margin to arbitrage. Unfortunately we do not have data on the amount of local over-procurement. Therefore, we can only capture one kind of implicit tax instrument hypothesized in the hypothesis 2b. As indicated earlier, local officials had traditionally utilized their ability to price agricultural inputs, such as fertilizers, to levy implicit taxes in the past.³⁴ Liberalization gradually deprived local officials of their capacity to tax implicitly from their control of agricultural transactions and pricing. The coefficients of $Pricemargin_{ijt}$ are expected to be negative.

A final key independent variable is $Countyind_{jt}$, the share of industrial output in total output at the county level. Information for this variable are matched from *China Statistical Material for Prefectures, Cities, and Counties Nationwide* (published by the Ministry of Finance)³⁵. In the RCRE data set, only one village is surveyed in each county, so here j also represent the county where the RCRE survey is conducted. Given our county level information is available only from year 1995, we run two sets of regressions respectively. The first set of regressions starts from 1986 without $Countyind_{jt}$, while the second set of regressions starts from 1995 with $Countyind_{jt}$. The county level variable is exogenous to the dependent variables

³⁴ De Brauw, Alan, Huang, Jikun and Rozelle, Scott. "The Sequencing of Reform Policies in China's Agricultural Transition", *Economics of Transition* 12(3), (2004), pp. 427-465.

³⁵ Ministry of Finance, *1996-2000 the Statistical Material for Prefectures, Cities, and Counties Nationwide*, published by the Budgetary Division of the Ministry of Finance 1994-2003. The Ministry

and the coefficients are expected to be negative according to hypothesis 3.

Beside village and year dummies, other controls variables are also included. *Hlandpc* is the household-level arable land per capita while *Hlabshare* is the share of laborer as a share of household population. These two variables are controlled because rural informal fees in China are mostly levied on the basis of household land and laborers. *Vsize_j* is the total population of a village. *Vinc_{jt}* is the average per capita net income in the village, and *Vpub_{jt}* is the importance of collective economy in the village, measured by the income of collective enterprises as a share of village gross income.

The estimation results for regressions for 1986-1999 period and for 1995-1999 period are reported in Table 2 and 3 respectively. There we show both the one-stage (fixed effect) estimation results without IV and the two-stage estimation results with IV. Each equation is estimated with village and year dummies being controlled. To facilitate comparisons between Table 2 and Table 3, the dependent variables and the right hand village income variables are all deflated in 1986 prices using the provincial CPIs (NBS, various years).

As Table 2 and Table 3 indicate, for regressions of all different definitions of rural fee burdens, the coefficients for grain procurement mandate (*Vgrainquota*) are all positive and significant at 1% level. This supports our hypothesis 1. As to the tests of endogeneity, we find that statistically speaking, *Vgrainquota* is indeed endogenous for all regressions.³⁶

Therefore, we tend to trust the two-stage IV estimation results. Comparing the non-IV results

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³⁶ Our endogeneity tests are carried out by first regressing *Vgrainquota* on the IV and all exogenous variables. We then obtain the predicted values for the dependent variable or the error term. Then we regress equations (1) and (2) by adding either of these predicted values as an additional independent variable. We find that the coefficients for the predicted values are invariably significant for all regressions, indicating endogeneity of our independent variables *Vgrainquota*.

and IV results in Table 2 and Table 3, we can also observe that IV approach yields much higher coefficients than the non-IV approach. Furthermore, the effects of grain procurement on fees came increasingly through its impacts on the legitimate township pooling funds and village deductions for the later period (1995-1999) than for the whole period (1987-1999).

The coefficients for the (non)-availability of direct tax deduction via state grain procurement (*Vnondesh*) are all positive and mostly significant at 1% level in Table 2 and Table 3. This supports our hypothesis 2a. Here again the IV approach yields much higher coefficients than the non-IV approach. Also, under the IV approach, the positive impacts on *Hfee1*, became larger (relative to the impacts on *Hfee2*) after the middle 1990s if we compare Table 2 and Table 3, indicating that higher costs of tax collection in the late 1990s led to higher rural fees mainly through *Hfee1* for the later period (1995-1999) than for the whole period (1987-1999).³⁷

The coefficients for the implicit tax variable (*Pricemargin*) are all negative and significant at 1% level in for Table 3(1995-1999) while they are negative and significant only for *Hfee2* between 1986 and 1999. This is probably because only when the price margin became very small did its impacts on rural informal fees begin to show more clearly. The results basically support our hypothesis 2b. Again here we are talking about the estimation results by the IV approach that we tend to trust.

³⁷ As shown in figure 2, state grain quotas gradually declined from the 1980s to 1990s. According to our hypotheses 1 and 2, this could on the one hand reduce rural informal taxation by lowering policy enforcement costs, while on the other hand raise the rural informal taxation by making it less likely for local cadres to deduct tax and fees via the state grain quota system and thus increasing local tax collection costs. Therefore, there is a trade-off here between these two impacts. However, we need to emphasize here again that our grain procurement variable is a measure of the grain quota mandate rather than a measure of the overall policy mandates imposed on villages. Therefore, the decline of grain quota from 1980s to the 1990s cannot be viewed as a decline of the overall upper level mandates, of which the data is unfortunately unavailable.

As shown in Table 3, the coefficients for local industrialization (*Countyind*) are all negative, and statistically significant for *Hfeetotal*, *Hfee1*, *Hfee2* at 1% level. This means higher industrialization reduced local informal taxation both through its impacts on legitimate fees (*Hfee1*) as well as the illegitimate fund-raising activities (*Hfee2*). The results support our hypothesis 3 of tax substitution in more industrialized regions.

In both equations, the coefficients for household arable per capita, *Hlandpc* are always positive and significant at 1% level, indicating that arable land endowment is an important factor in allocating rural tax burdens. The coefficients for household labor as a share of its population *Hlabshare* are all positive and significant, indicating that some fees are levied on laborers and households with more laborers pay more. Under the IV approach, the coefficients of village income (*Vinc*) are negatively significant in Table 2, indicating richer farmers (and rich areas) were perhaps paying lower informal taxes. But the coefficients become insignificant in Table 3. Similarly, the coefficients of village size (*Vsize*) are negatively significant in Table 2, indicating some economy of scale. However, such economy of scale seemed to be less significant since 1995. In Table 2 and 3, the coefficients of *Vpub* are positive and (sometimes) significant. This may happen when villages mobilize resources from farmers to promote local collective economy.

5. Conclusion

This paper proposes an alternative analytical angle to explore peasants' financial burdens in China. In addition to fiscal and political reasons, we argue that tax instrument has played a

role in the emergence of rampant fees and levies in the countryside. As market liberalization of grain sector progressed, the traditional low-cost taxation operationalized through the “prior deduction before grain procurement payment” and “implicit local taxation via price scissors” gradually eroded. Under such a circumstance, local governments in agricultural regions had to resort to informal fees collected directly from individual rural households while industrialized regions shifted to non-agricultural taxes that were less costly in terms of tax administration. Empirical results based on a large panel data in China generally support our hypotheses.

We conclude with a general discussion of government policy changes in recent years and potential challenges in rural public finance in China. By the late 1990s, excessive taxation and farmers’ burdens have become a major source of grievance in China’s vast rural areas. To address the issue of excessive informal tax burdens, the center, starting from 2000, initiated a series of local governance reforms. The major component of these efforts is a gradual elimination of all rural taxes and fees by 2006.³⁸ The first step, known as the “tax-for-fee” reform, converted some legitimate local fees into one unified agricultural tax. The new tax rate was raised but local governments were prohibited from levying new fees. In 2004, the central government took a bolder move and started to phase out the century-old agricultural tax on farmers. By 2006, the agricultural tax as well as the informal fees were completely eliminated. In the long sweep of Chinese history, this was a rare, if not unprecedented,

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instance of rescinding any obligation of the farmers to the state.

Though the state framed explanation was to enhance agricultural productivity and raise farmer's income by the rural tax reform, the real reason was that the government now found it is too costly to retain the rural tax system in both economic and social terms. As the grain procurement system gradually phased out in the late 1990s and the early 2000s, tax collections became increasingly costly and in many agriculture-based localities the revenue collected from farmers could not even cover the costs of tax collection. It was not by coincidence that rural tax reform was carried out more or less at the same time when the grain procurement was gradually phased out as China's grain sector became more liberalized in the early 2000s. Moreover, facing excessive taxation, farmers brought their complaints against their local governments to higher levels of the administration, including the central government, the court, and also the public media. In many incidences, frustration with these formal and bureaucratic channels pushed desperate farmers into direct confrontation with local authorities.³⁹

Along with the elimination of rural tax burdens, coordinated policies were also adopted in China's countryside. These included government downsizing through streamlining local bureaucracies and an increase of central budgetary transfers to local governments for providing better public services.⁴⁰ As we have seen, industrialization may help local governments to get around the rural informal taxation problem by shifting to industrial tax

³⁹ Bernstein, Thomas and Lu, Xiaobo, "Taxation without Representation: Farmers, the Central and Local State in Reform China", *China Quarterly*, September issue, (2000), pp.742-763; O'Brien KJ, Li LJ, "Popular contention and its impact in rural China", *Comparative Political Studies*, (38), 2005, pp. 235-59.

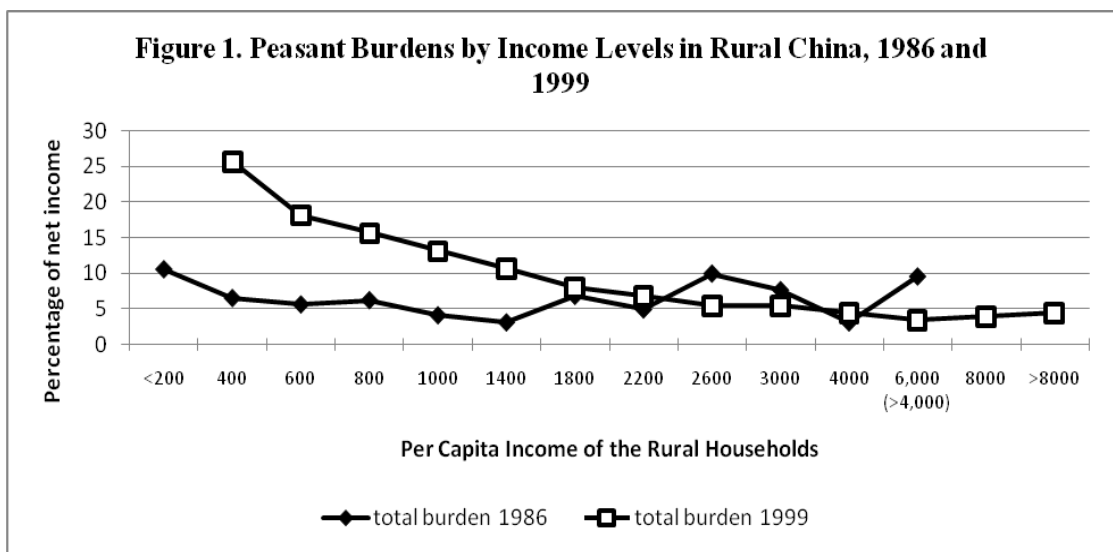
⁴⁰ As a matter of fact, it was not by coincidence that rural tax reform was carried out more or less at the same time when the grain procurement was gradually phased out as China's grain sector became more liberalized in the early 2000s. Local officials would have collected all taxes and fees directly from

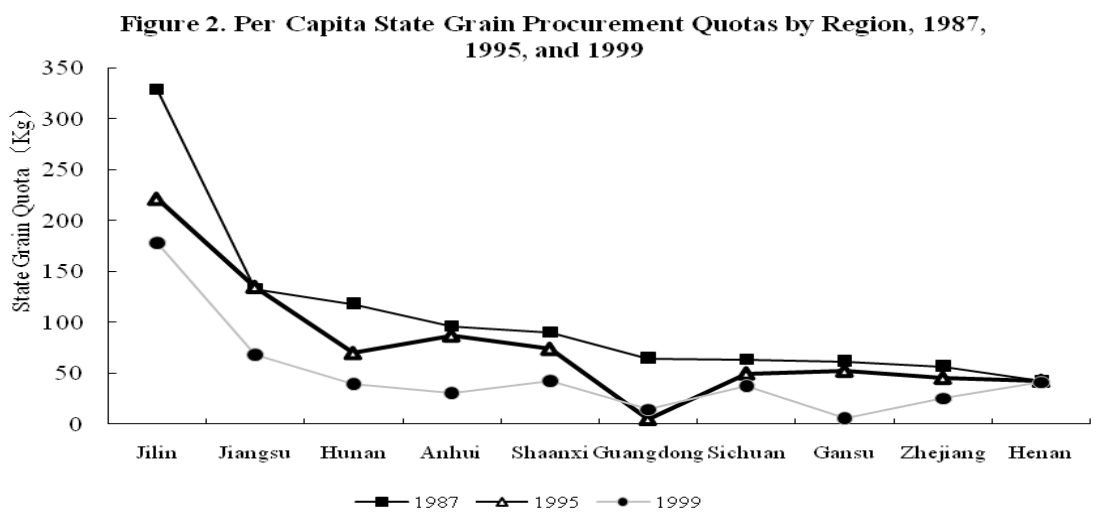
bases. However, not all localities have such potential in terms of industrial development. The economy of many Chinese inland counties may still be dominated by agriculture. Some policy analysts have argued that to improve peasants' lives in these less developed regions, the central government needed to reorganize the country's fiscal system so that adequate transfers would be channeled to poor regions.

However, even if the central transfers were in place, the effective use of such transfers would still be dubious under China's centralized political system, where local officials are hardly held accountable to the rural population. Abolishing rural taxes all together may be a solution that addresses only the symptom rather than the root cause of rural public financial crisis. In fact, increasing transfers may well result in more competition for transfers and for local bureaucratic expansion. Neither is likely to benefit peasants. Therefore, more fundamental political reforms must be undertaken to improve rural governance first. Village election has given villagers some power in some areas, but its implementation is highly uneven. Moreover, the central government has been wavering and is not willing to stand firmly behind genuine village democracy. To truly improve rural governance, township and county officials need to be publicly elected. Until local officials have incentive to listen to what peasants in their jurisdictions want and are willing to manage local public finance responsibly, China is likely to experience more financial instability and crisis in the future.

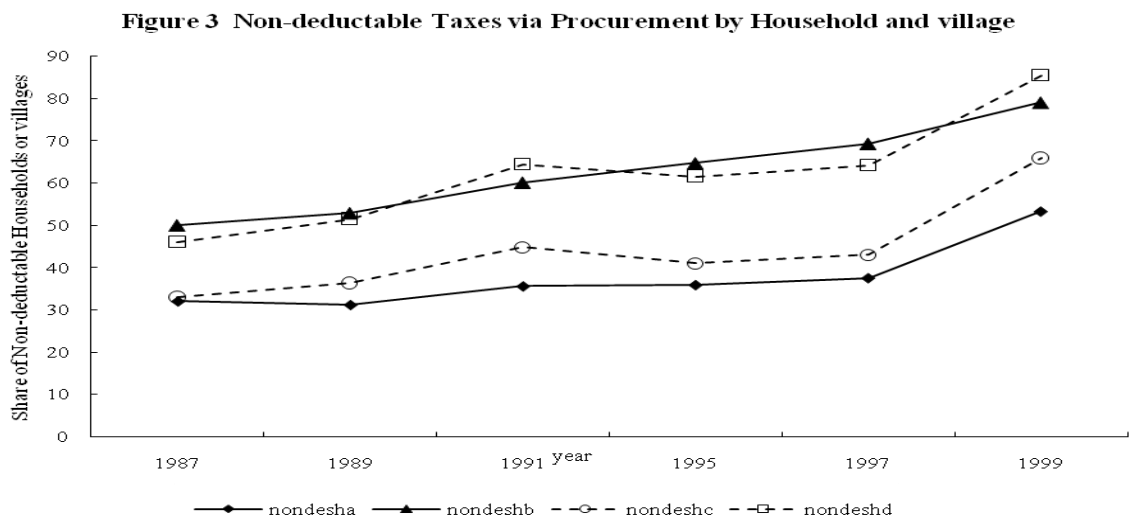
individual rural households, which would have been even less cost-effective in tax collection.

Figure 1. Peasant Burdens by Income Levels in Rural China, 1986 and 1999





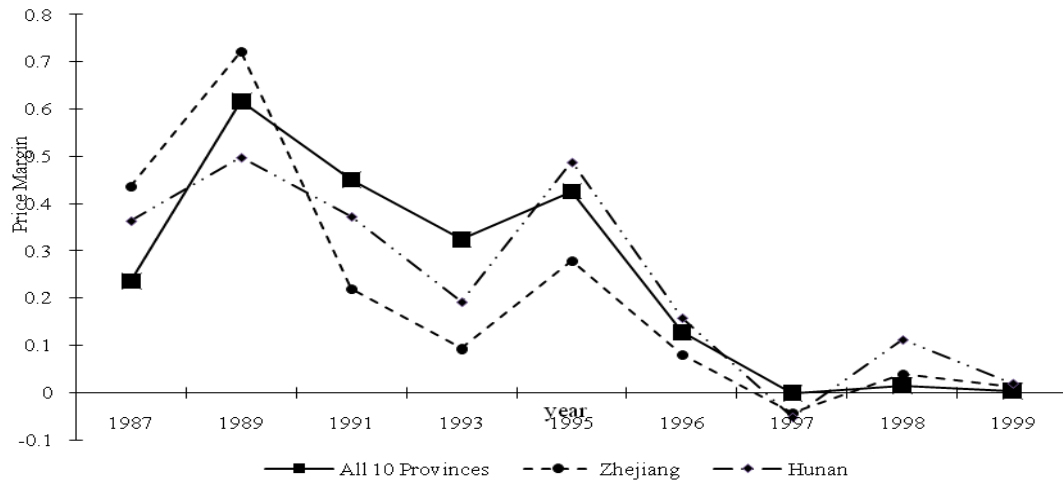
Note: The provincial grain quota per capita is calculated by first summing the state grain quotas of all surveyed households within a province then dividing them by the total household population



Note: *Nondesha* represents the share of rural households whose state agricultural tax was higher than

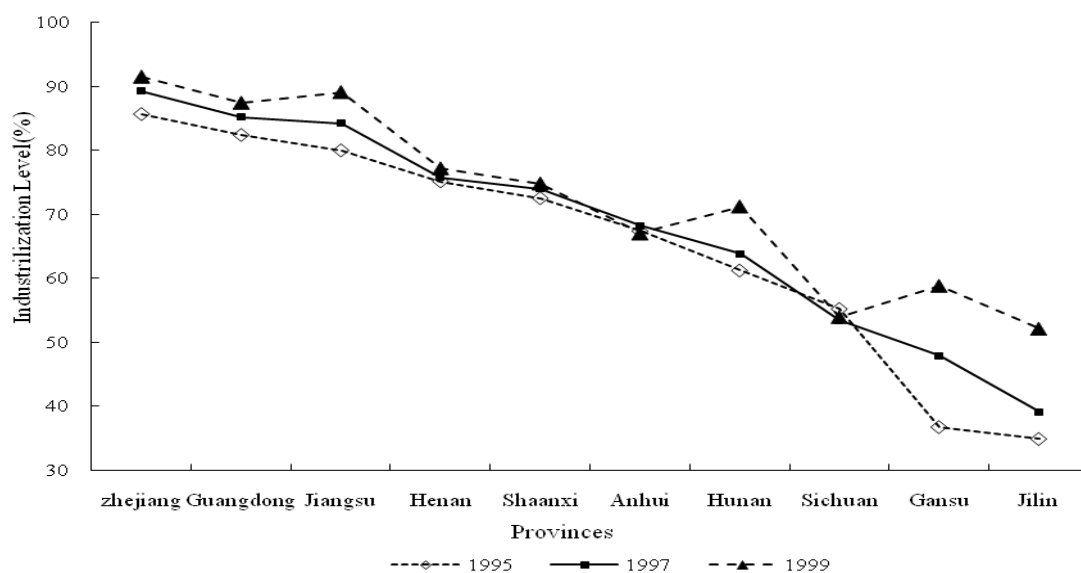
(thus cannot be fully deducted from) their grain procurement payment for the 10 provinces. *Nondeshb* represents the share of rural households whose state agricultural tax and the “Five Township Pooling Funds” and “Three Village Deductions” was higher than the value of their grain procurement. *Nondeshc* represents the share of villages whose value of state agricultural tax was higher than the values of their grain procurement for the 10 provinces. *Nondeshd* represents the share of villages whose value of state agricultural tax, the “Township Pooling Funds” and “Village Deductions” were higher than the values of their grain procurement.

Figure 4 Market/State Procurement Price Margin, 1987-1999



Note: The price margin is calculated by the following formula: (market price – state procurement price)/state procurement price. For each province, we first calculate the price margin for each village then calculate an arithmetic average of all villages in the province. Adopting such an approach is to avoid the possible heterogeneity in grain varieties across villages within a province.

Figure 5 Level of Industrialization by Province, 1995, 1997, 1999



Note: The provincial industrialization is measured by first summing the industrial output of all counties within a province in which RCRE has fixed-point observation villages for its survey, and then divided by the sum of industrial and agricultural output of these counties.

Table 1. Peasant Burdens as a Percentage of Rural Net Income, 1986, 1993, 1999

Province	Year	Total Burdens
Zhejiang	1986	4.9
	1993	3.1
	1999	4.2
Guangdong	1986	6.6
	1993	3.9
	1999	3.6
Jiangsu	1986	6.0
	1993	6.0
	1999	8.8
Henan	1986	4.6
	1993	5.3
	1999	7.3
Shaanxi	1986	7.3
	1993	5.1
	1999	5.3
Anhui	1986	4.8
	1993	3.9
	1999	5.4
Hunan	1986	5.7
	1993	6.3
	1999	8.6
Sichuan	1986	5.6
	1993	6.4
	1999	9.5
Gansu	1986	3.7
	1993	7.0
	1999	7.6
Jilin	1986	8.6
	1993	7.0
	1999	9.1

Note: Level of industrialization is defined as the share of industrial output in the total industrial and agricultural outputs in a region. In our calculation for the provincial industrialization level, we identified all the counties where the surveyed households and villages are located in a province and used the average of these counties' industrialization levels to rank these provinces.

Table 2. Rural Tax Burden Regressions, 1987-1999

	Regressions without IVs			Regressions with IVs		
	Hfeetotal	Hfee1	Hfee2	Hfeetotal	Hfee1	Hfee2
Key independent variables						
Vgrainquota	0.067 (16.15)***	0.054 (13.70)***	0.012 (7.79)***	0.221 (9.59)***	0.153 (7.14)***	0.068 (6.93)***
Vnondesh	1.311 (11.88)***	0.969 (9.40)***	0.341 (8.36)***	4.278 (9.84)***	2.870 (7.06)***	1.408 (7.87)***
Pricemargin	-1.097 (1.79)*	-0.719 (1.20)	-0.378 (2.66)***	-0.848 (1.37)	-0.518 (0.86)	-0.329 (2.32)**
Control variables						
Hlandpc	0.613 (3.40)***	0.516 (3.51)***	0.097 (2.61)***	0.581 (3.20)***	0.495 (3.34)***	0.086 (2.29)**
Hlabshare	7.721 (6.42)***	5.654 (5.88)***	2.067 (5.84)***	7.461 (6.21)***	5.487 (5.69)***	1.974 (5.62)***
Vinc	-0.007 (4.59)***	-0.006 (5.20)***	-0.001 (0.61)	-0.010 (6.05)***	-0.008 (6.20)***	-0.002 (1.67)*
Vsize	-0.004 (6.82)***	-0.004 (8.45)***	0.000 (1.57)	-0.002 (3.33)***	-0.003 (5.90)***	0.001 (3.51)***
Vpub	2.278 (1.76)*	0.927 (0.83)	1.351 (1.99)**	2.443 (1.89)*	1.032 (0.93)	1.411 (2.10)**
Constant	28.518 (17.58)***	23.583 (15.96)***	4.934 (8.74)***	39.094 (16.46)***	30.357 (14.05)***	8.737 (9.38)***
Endogeneity test				Yes	Yes	Yes
R-squared	0.11	0.08	0.18	0.11	0.08	0.18
Observation	66721					

Note: 1. Robust t statistics in parentheses;

2. Village and year dummies controlled;
3. * significant at 10%; ** significant at 5%; *** significant at 1%;
4. All tax and income data are deflated into 1986 prices using the NSB provincial CPI.

Table 3. Rural Tax Burden Regressions, 1995-1999

	Regressions without IVs			Regressions with IVs		
	Hfeetotal	Hfee1	Hfee2	Hfeetotal	Hfee1	Hfee2
Key independent variables						
Vgrainquota	0.041 (8.39)***	0.031 (7.80)***	0.010 (9.39)***	0.125 (3.61)***	0.116 (4.32)***	0.009 (1.01)
Vnondesh	1.032 (6.74)***	0.719 (5.89)***	0.313 (8.64)***	2.961 (3.71)***	2.667 (4.31)***	0.294 (1.42)
Pricemargin	-2.115 (4.40)***	-1.710 (4.36)***	-0.405 (3.86)***	-2.437 (4.68)***	-2.035 (4.88)***	-0.401 (3.32)***
Countyind	-7.489 (5.42)***	-4.628 (4.14)***	-2.861 (8.78)***	-7.701 (5.60)***	-4.842 (4.34)***	-2.859 (8.86)***
Control variables						
Hlandpc	4.746 (21.58)***	4.081 (22.11)***	0.665 (16.50)***	4.634 (20.49)***	3.967 (20.98)***	0.666 (15.63)***
Hlabshare	4.942 (3.25)***	4.395 (3.34)***	0.548 (2.43)**	5.032 (3.31)***	4.486 (3.42)***	0.547 (2.44)**
Vinc	0.006 (5.19)***	0.005 (5.49)***	0.001 (3.41)***	0.001 (0.53)	0.000 (0.14)	0.001 (1.63)
Vsize	-0.001 (1.18)	-0.001 (0.87)	-0.001 (1.81)*	-0.001 (1.01)	-0.001 (0.67)	-0.001 (1.80)*
Vpub	1.671 (0.77)	1.505 (0.83)	0.166 (0.42)	3.260 (1.44)	3.109 (1.65)*	0.150 (0.34)
Constant	34.107 (20.69)***	26.872 (19.91)***	7.235 (19.55)***	45.088 (9.22)***	37.961 (9.95)***	7.126 (5.74)***

Endogeneity test				Yes	Yes	Yes
R-squared	0.56	0.60	0.37	0.56	0.60	0.37
Observation			28540			

- Note: 1. Robust t statistics in parentheses;
2. Village and year dummies controlled;
3. * significant at 10%; ** significant at 5%; *** significant at 1%;
4. All tax and income data are deflated into 1986 prices using the NSB provincial CPI.