Understanding the Falsification of Village Income Statistics

Lily L. Tsai

ABSTRACT   Despite the general consensus on problems with official income statistics, quantitative data on the falsification of income statistics have been scarce. This article draws on original survey data from 2001 to provide estimates of the extent and magnitude of income data falsification by village cadres and uses statistical analysis to identify factors that are correlated with the inflation of village income per capita. Evidence from survey data as well as village case studies suggests that village cadres were less likely to inflate village income per capita when they were cadre-entrepreneurs, when they were located in villages with well implemented elections, when they were embedded in village-wide solidary groups such as temples and lineages, when they experienced less direct supervision from township officials, and when they relied less on revenue from village levies.

Falsification of income statistics in China by local officials has been a longstanding and widely acknowledged problem.[1] As early as 1982, the director of the General Office of the Central Committee warned: "The most difficult thing for a leadership unit to do is to collect accurate information at the basic level …. Now the reports from the localities are written after repeated deliberations and they have been perfected so that you cannot see anything in them."[2] Local officials have often had powerful incentives to inflate income figures. Higher levels set ambitious targets that local officials have to meet in order to get promoted, earn salary bonuses or simply keep their jobs.[3] Before rural tax reform in the early 2000s, local officials in places with persistent

1 See Carsten A. Holz, "China governance project: the institutional arrangements for the production of statistics," OECD Statistics Working Paper, 19 January 2005; Albert Park and Sangui Wang, "China's poverty statistics," *China Economic Review*, Vol. 12, No. 4 (2001), pp. 384–98; and Yongshun Cai, "Between state and peasant: local cadres and statistical reporting in rural China," *The China Quarterly*, No. 163 (2000), pp. 783–805.

2 Yao Yilin, "Zai quanguo sheng, zizhiqu, zhixiashi danwei mishuzhang zuotanhuishang de jianghua" ("Speech at the National Conference of Secretary-Generals of the Provincial Party Committees"), in Ministry of Personnel (ed.), *Renshi bumen bangongshi gongzuo shiyong shouce* (*Handbook on Office Affairs of Personnel Departments*) (Beijing: Beijing gongye daxue chubanshe, 1991 [1990]), pp. 18–19, as cited by Yasheng Huang, "Administrative monitoring in China," *The China Quarterly*, No. 143 (1995), p. 832.

3 See Maria Edin, "Remaking the communist party-state: the cadre responsibility system at the local level in China," *China: An International Journal*, Vol. 1, No. 1 (2003), pp. 1–15; and Maria Edin, "State capacity and local agent control in China: CCP cadre management from a township perspective," *The China Quarterly*, No. 173 (2003), pp. 35–52.

revenue shortfalls also had strong incentives to overstate local income to allow them to increase the amount of levies they could legally collect from villagers.[4]

Despite the general consensus on problems with official income figures, hard evidence of data falsification has been relatively scarce.[5] Everyone knows about the issue, but there has been desperately little quantitative data or systematic analysis on how widespread the problem is or why it might be better or worse in different places.

This article uses survey data collected from 316 villages in four provinces in 2001 to begin to remedy this problem. In the survey I asked village officials for the village's official income per capita as reported to the township and their estimate of the village's real income per capita. These data allow us to accomplish several research objectives. The most basic one is to formulate conservative estimates of how many localities falsify income per capita figures and how much these figures are over- or understated. Since the temptation, of course, is for village officials to deny that they falsify the figures, it is reasonable to assume that the percentage who admit it form the minimum level of the true percentage. Similarly, even if village officials admit to falsifying income figures they will be tempted to understate how much distortion they introduce. Hence, again, we can estimate the lower bound of the magnitudes of distortion based on the distortions that village officials are willing to acknowledge.

Since, however, the survey also asked a variety of other questions about village economic, political and social conditions, we can use these data to assess the likelihood that village officials who claim they did not falsify village income per capita were telling the truth. When village cadres inflated official income per capita they increased the effective tax rate on villagers, which should have made it less likely that villagers would comply with tax collection. Conversely, when they did not inflate the figures the effective tax rate was lower, which should have made it more likely that villagers would comply. As long as village cadres generally told the truth about inflating village income, inflation should be negatively correlated with compliance. The second section of the article thus examines whether villager compliance with tax and fee collection was correlated with cadre inflation income (as reported by the cadres themselves) and argues that village cadres generally told the truth.

Finally, the article uses both survey data and comparative case study analysis to explore the conditions under which village cadres may be more or less likely to resist the pressures to inflate the figures and act in the interests of ordinary villagers. Given the political pressures and expenditure responsibilities from higher levels, it is not surprising that many village officials inflate income figures. What is surprising is that there may be some village cadres who choose *not* to do so when reporting to the township. Identifying the factors that are associated

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4 See Thomas P. Bernstein and Xiaobo Lü, *Taxation without Representation* (Cambridge: Cambridge University Press, 2003).
5 Holz, "China governance project," p. 7.

with accurate reporting of village income per capita can help us understand why some village cadres are more likely than others to respond to villager needs and represent villager interests.

The Data

In 2001 I surveyed 316 villages and carried out a set of detailed case studies in Shanxi, Hebei, Jiangxi and Fujian provinces. After two months of preliminary research in seven different provinces and eight months of in-depth fieldwork in one set of villages in Fujian, I designed a survey to examine a broad set of questions about village politics and economic development. All data from the survey are for 2000 unless otherwise indicated. The four provinces for the survey were chosen to reflect differences in levels of economic development as well as regional differences between north and south China in terrain, institutional history and social organization. Within each province, two counties were selected to vary in model county status for village democratic reforms but to have similar economic and geographic characteristics. Within each county, I selected eight townships through a random stratified sampling procedure (with stratification by official income per capita). I then randomly sampled five villages in each township, again with stratification by official income per capita. In townships with fewer than five villages, all the villages were surveyed. Townships with fewer than five villages account for the sample of 316 villages (as opposed to 320). In each of the sampled villages, we interviewed one, or in most cases, more than one village cadre in order to fill out village-level survey questionnaires about village conditions. In most cases, we also used village documents to corroborate interviewee responses. High levels of interviewee frankness and comfort were largely due to the highly skilled administration of the survey by Chinese student enumerators, most of who had grown up in villages themselves and were pursuing degrees in agricultural economics, rural sociology and other disciplines related to the topics of the survey.

Assessing the Extent and Magnitude of Income Per Capita Falsification

During the survey, we asked village cadres the following two questions, one straight after the other:

"What was your village's net income per capita in 2000 (as reported to higher levels)?" (*Ni cun renjun chun shouru shi duoshao (shangbao shu)* 你村人均纯收入是多少(上报数))

"About how much was your village's actual net income per capita in 2000?" (*Ni cun renjun chun shouru shiji shang dagai shi duoshao* 你村人均纯收入实际上大概是多少)

Village net income per capita (*chun shouru* 纯收入) was defined for survey respondents as cash income and income in kind, including income obtained from villagers or residents outside the village, and the value of products (such as

grain) produced for household consumption after deduction of production costs.[6]

It is important to stress that the responses to these questions *were in no way precise measures of a village's true income per capita*. The response to the "reported" income per capita question was the figure that village cadres decided to report to the township government. The response to the "real" income per capita question was the best rough estimate that village cadres could make given their limited capabilities and resources. Income per capita is notoriously difficult to measure, and serious attempts to do so necessarily include a long battery of questions and self-recorded diaries over weeks or months.[7] Village cadres generally lack technical expertise in accounting and data collection and rarely follow the procedures given by the Ministry of Agriculture or the National Bureau of Statistics carefully. They may simply add up the total income of the village and divide by the total population or simply estimate a figure for income per capita based on their common-sense knowledge about a typical household's grain production, grain prices and other important factors.[8]

My original intent behind asking these questions was to obtain a very rough estimate of village income per capita that I could use as a coarse indicator of a village's level of economic development. As Cai has argued,[9] the gap between village cadre estimates of village income and actual village income may not be particularly large since village cadres come from within the village and know much of the relevant information needed to make educated guesses.

More importantly for the purposes of this article, even if village cadre estimates of village income per capita do not correspond closely to reality, their *responses* to the survey questions about real and reported village income per capita may still be significant as indicators of whether or not village cadres *believe themselves to be inflating village income*. Cadres who believe they are inflating income have made a decision that is consistent with trying to achieve higher-level targets for economic growth and trying to maximize revenue collection at the expense of ordinary villagers. In contrast, village cadres who believe they are reporting the village's true income, or even understating it, are

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6 Note that income sources include individual wages, family business income, property income and transfer income but that the NBS concept of household net income does not include a major income component, the rental value of owner-occupied housing. See Park and Wang, "China's poverty," p. 390; and Shi Li and Chuliang Luo, "Re-estimating the income gap between urban and rural households in China," paper presented for the Conference on the Rural-Urban Gap in the PRC, Harvard University, 6–8 September 2006, p. 3.

7 See, for example, Chris Bramall, "The quality of China's household income surveys," *The China Quarterly*, No. 167 (2001), pp. 689–705; and John Gibson, Jikun Huang and Scott Rozelle, "Improving estimates of inequality and poverty from urban China's household income and expenditure survey," *Review of Income and Wealth*, Vol. 49, No. 1 (2003), pp. 53–68.

8 See, for example, Cai, "Between state and peasant," pp. 788–89. The Ministry of Agriculture (MOA) outlines procedures for calculating village net income per capita by sampling households, calculating each sampled household's income according to an MOA form listing a household's possible income sources, and dividing the net income of sampled households by the population of these households.

9 Cai, "Between state and peasant."

making a decision that is consistent with lowering taxes and benefiting the interests of ordinary villagers.

By asking first for reported income per capita and then for real income, I intended to signal that I saw the reporting of false figures to higher levels as a matter of fact rather than as a matter for condemnation. This signal, I hoped, would increase the probability that village cadres would give a relatively honest estimate for the village's real income.

To my surprise, I found that most village officials were willing to say that the reported and real figures for net income per capita in their village were different. Officials in 81 per cent of the villages in the survey said that their reported village income was higher than their real income. In 5 per cent of the villages officials said that the reported figure was lower than the real figure and in 14 per cent of villages they said that the reported figure was the same as the real figure.

Figure 1 graphs reported income per capita against real income per capita. Villages where officials gave exactly the same number for both questions lie on a line drawn at a 45 degree angle. Villages above the line inflated their income and villages below the line deflated it. Villages are represented by the first letter of the province in which they are located – Shanxi, Hebei, Jiangxi or Fujian.

The mean reported 2000 village net income per capita for the sample was 2,165 yuan, which was very close to the official national rural net income per capita of 2,263 yuan published by the National Statistics Bureau for 2000 and suggests that the survey sample may be reasonably representative of the general population in this dimension. In contrast, the mean real 2000 village net income per capita for the sample was 1,535 yuan. The mean discrepancy between real and reported village net income per capita in the sample was 668 yuan or 44 per cent of the mean real income per capita. These estimates contrast with Holz's observation that the degree of falsification is typically thought to be in the single-digit or lower double-digit percentage range.[10]

For those villages that reported a discrepancy between their real and reported income the magnitude of the discrepancy varied widely. Among villages that inflated their income, the magnitude of the inflation ranged from 2 per cent to 470 per cent of their real income with average magnitude 58 per cent. Villages that understated their income tended to distort the figure less than over-reporting villages. Among villages that understated their income, the magnitude of the distortion ranged from 2 per cent to 33 per cent of real income, and the average distortion was 14 per cent.

Since falsification of official statistics can be politically sensitive, it is safe to assume that the percentage of village cadres falsifying income per capita in their reports to higher levels and the magnitude of distortion in their reported figures are at least as high as those they are willing to admit in the survey. Since, however, so many village cadres are comfortable with admitting that they falsify the figures in their official reports to higher levels, there is also a reasonable

10 Holz, "China governance project," p. 7.

Figure 1: **Reported versus Real Village Net Income Per Capita in 2000**
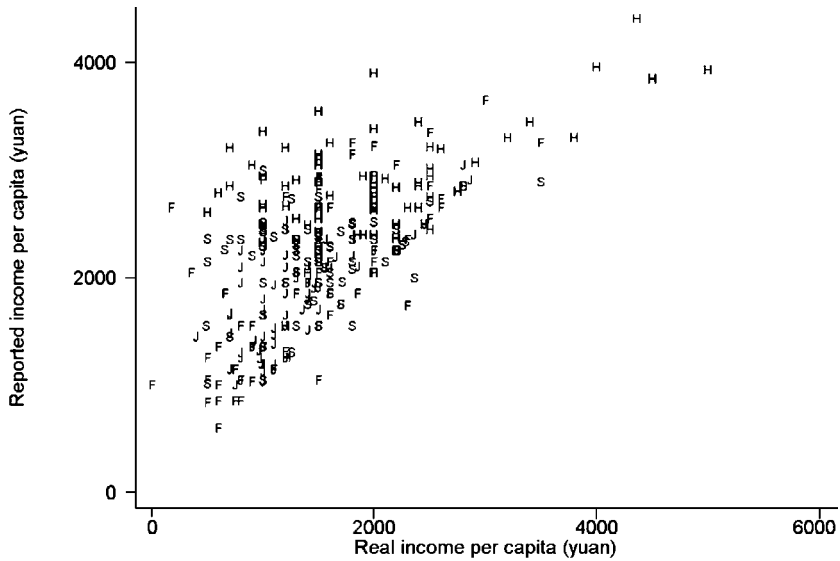
chance that the village cadres in the survey who say they are not falsifying the figures or that they are understating what they think the real figure is are telling something close to the truth.

Inflation of Village Income Per Capita and Villager Compliance with Tax Collection

If village cadres in the survey generally tried to give truthful answers to the questions about real and reported village income per capita, then we should see lower levels of tax compliance in places that are inflating income because this raises the effective tax rate in these villages, sometimes to above the legally allowed maximum of 5 per cent of the previous year's income.[11] In contrast, places that are not falsifying income per capita or are understating it should have higher levels of tax compliance, all other things being equal. In this section, I use the data on tax compliance in the survey to evaluate this possibility.

Rural taxes and fees in 2000

Before the abolition of rural taxation in 2006, inflation of village income per capita figures often increased tax burdens on rural residents. Until the beginning of the so-called tax-for-fee reforms in 2001, township and village governments were officially allowed to collect up to 5 per cent of the average net income per

11 Bernstein and Lü, *Taxation without Representation*.

capita of inhabitants in the township for the preceding year.[12] By inflating the figures reported to township governments, village officials helped township governments to inflate the official township income per capita, which enabled them to increase the amount of levies they were legally allowed to collect.

Findings from these survey data confirm that village local tax rates – the percentage of net income per capita paid in township and village levies – change substantially depending on whether township and village levies are calculated as a percentage of real or reported village income per capita. Township and village levies can themselves be divided into official levies (*tongchou tiliu* 统筹提留) and ad hoc charges and fees such as apportionments levied per person for public projects, processing fees for mandatory licences and fees (such as building permits or marriage certificates), and local surtaxes added to the price of electricity or tap water. Table 1 presents descriptive statistics on the per capita collection of state agricultural taxes, township and village levies, and township and village ad hoc fees. Since these data are from 2000, before the start of tax-for-fee reform, the vast majority of villages – 94 per cent – were still collecting township and village levies. Close to 10 per cent of villages reported that township and village levies amounted to 100 yuan or more per person.

We can therefore calculate local tax rates in two ways, by looking only at official township and village levies or by including both official levies and the ad hoc local fees and surtaxes. Looking just at official township and village levies, we find that only 6 per cent of villages have tax rates over 5 per cent of 2000 income per capita if we use reported income per capita figures. If we use real income per capita figures, however, this jumps to 26 per cent. When we add ad hoc fees and surtaxes, the percentage of villages with tax rates over 5 per cent is 15 per cent if we use reported income per capita and 38 per cent if we use real income. Similarly, official township and village levies for villages in the survey averaged 2.7 per cent of *reported* income per capita. When *real* income per capita figures are used, however, they averaged 4.1 per cent. Official levies plus local ad

Table 1: **Rural Taxes and Fees Per Capita (yuan)**

	Mean	Standard deviation	Minimum	Maximum	Number of observations
State agricultural tax	26	32	0	491	310
Township *tongchou*	32	27	0	358	312
Township ad hoc fees	4	12	0	86	311
Village *tiliu*	18	18	0	86	309
Village ad hoc fees	8	21	0	180	307

12 According to the Law on Agriculture passed in 1993, the combined total of township *tongchou* and village *tiliu* was not allowed to exceed 5% of the average township net per capita income. Bernstein and Lü have pointed out that this cap is frequently misinterpreted to apply to the entire tax burden of farmers and to include the state agricultural tax. See Bernstein and Lü, *Taxation without Representation*.

hoc fees and surtaxes averaged 3.3 per cent of *reported* income per capita and 5.2 per cent of *real* income per capita.

Assessing the relationship between inflation of income per capita and tax compliance

To investigate whether there is any correlation between inflated income per capita and levels of tax compliance, I use simple regression analysis. In this analysis, the level of inflation (or deflation) is calculated by subtracting the real village net income per capita for 2000 from the reported income ("reported" minus "real"). A positive value thus indicates that village cadres inflated income per capita when reporting it to higher levels whereas a negative value indicates that they deflated it. To measure compliance with tax and fee collection, I calculated the percentage of village levies, township levies and state agricultural taxes that village cadres succeeded in collecting from villagers in 2000.[13] Descriptive statistics on the measure of misreporting and the measures of compliance are presented in Table 2.

Inflation of village income per capita is negatively associated with villager compliance with all three types of officially permitted taxes and fees (Table 3). When we regress compliance with village *tiliu* collection on inflation of 2000 village income per capita as a percentage of real 2000 village income per capita using a simple ordinary least squares (OLS) estimation with county dummies, we

Table 2: **Descriptive Statistics on Inflation of Village Income and Compliance with Rural Taxes and Fees**

	Mean	Standard deviation	Minimum	Maximum	Number of observations
Discrepancy between "reported" and "real" village net income per capita ("reported" minus "real") (yuan)	616	591	−1114	2462	301
Discrepancy between "reported" and "real" village net income per capita as a percentage of "real" village net income per capita	58%	74%	−33%	471%	301
Percentage of state agricultural tax collected	87%	26%	0%	100%	283
Percentage of township *tongchou* collected	78%	32%	0%	100%	273
Percentage of village *tiliu* collected	68%	34%	0%	100%	211

13 Village officials were asked the following questions: (1) in 2000 how much total village levies (or township levies or state agricultural taxes) were you supposed to collect? (2) in 2000 how much did you collect? The answer to (2) was divided by the answer to (1) in order to obtain the percentage of taxes or levies that village officials were able to collect. The answer to (1) is a figure that is set from above by higher-level governments.

Table 3: **Compliance with Rural Taxes and Fees Regressed on Inflation of Village Income (OLS)**

	Village *tiliu*	Township *tongchou*	State agricultural tax
Level of inflation/deflation of village net income per capita as a percentage of real village net income per capita	−0.13*** (0.032)	−0.088** (0.036)	−0.026 (0.028)
County dummies	Yes	Yes	Yes
Constant term	0.86*** (0.082)	0.98*** (0.049)	0.98*** (0.031)
R-squared	0.19	0.12	0.11
Number of villages	201	259	271

Note:
  Huber robust standard errors reported.

find that inflation of village income per capita is negatively associated with compliance. This relationship is statistically significant at a 99 per cent confidence level (p-value = 0.00). To give us a more substantive idea of the relationship between inflation of village income per capita and tax compliance, the mean compliance rate with village *tiliu* collection in the average village where village cadres do not inflate or deflate village income per capita (so that reported income per capita equals real income per capita) is 76 per cent. In contrast, the mean compliance rate in the average village where cadres are at the 90th percentile in terms of how much they inflate income per capita drops to 59 per cent.

If we regress compliance with township *tongchou* collection on inflation of village income per capita, we find that inflation of village income is also negatively correlated with township tax compliance and statistically significant at a 95 per cent confidence level (p-value = 0.014). In the average village where officials do not inflate or deflate village income per capita, the mean compliance rate with township levies is 84 per cent. In contrast, in the average village where inflation is at the 90th percentile for the sample, the mean compliance rate with township levies drops to 71 per cent.

Finally, if we regress compliance with state agricultural tax collection on inflation of village income per capita, we find that inflation of village income is associated with a drop in compliance with state agricultural tax although this decline is smaller than the drops in compliance with township and village levies. This correlation is not statistically significant (p-value = 0.36). When inflation goes from zero to 90th percentile for the sample, the compliance rate with state agricultural tax drops slightly from 89 per cent to 85 per cent. Anecdotal evidence from my fieldwork suggests that villagers generally find state agricultural tax more legitimate than local levies. They may thus be more willing to comply with state agricultural tax collection regardless of whether or not village cadres falsify village income.

In short, villager compliance with local tax and fee collection is negatively associated with the level of inflation of village income per capita reported by village cadres, which is consistent with the hypothesis that village cadres are telling something close to the truth or what they think is the truth when they respond to the survey questions about real and reported income per capita in their villages. If village cadres are inflating village income per capita when they say they are inflating it, and not inflating it when they say they are not inflating it, then compliance with local tax collection should be lower when they say they are inflating income per capita – which is exactly what we see.

Accounting for Variation in Inflation of Village Income: A Preliminary Investigation

The next question, then, is why some village cadres actually decide not to inflate village income per capita. Inflating these figures can benefit local officials enormously by enabling them to increase local government revenues and achieve performance targets set by higher levels.[14] Given these incentives, why would village cadres ever decide against inflating these figures? According to the data, 19 per cent of villages in the survey report or understate what they estimate to be the village's true income per capita.

This section explores this question in two ways. First, we look at anecdotal evidence from two villages in the same township. Interview data from these two villages illustrate some of the differences between village cadres who decide to inflate village income and those who decide not to. Second, we use the survey data to evaluate which factors are statistically correlated with inflation of village income per capita.

To inflate or not to inflate: East Bank village and Big Bale village in Shanxi province

East Bank village and Big Bale village are two small villages in a flat, primarily agricultural area of south-western Shanxi province. Both have just over 500 people and are located in the same township. In both villages most people are farmers although some grow apples as a cash crop and about a quarter engage in some non-agricultural work during the year. During the survey, cadres in East Bank village reported that their real income per capita in 2000 was 1,550 yuan while cadres in Big Bale village reported that theirs was 1,800 yuan.

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14 For reports of local officials inflating income to increase tax extraction, see Andrew Wedeman, "Stealing from China's farmers: institutional corruption and the 1992 IOU crisis," *The China Quarterly*, No. 152 (1997), pp. 805–931; and Thomas P. Bernstein and Xiaobo Lü, "Taxation without representation: peasants, the central and the local state in reform China," *The China Quarterly*, No. 163 (2000), pp. 742–63. For a detailed discussion of the use of cadre responsibility contracts to enforce targets for economic development, see Edin, "State capacity and local agent control" and Edin, "Remaking the communist party-state."

Despite these similarities, officials in the two villages made very different decisions when reporting village income per capita to the township government. Officials in East Bank village inflated the estimated real village income by 490 yuan to make their reported income per capita 2,040 yuan, much closer to the official national rural income per capita for 2000 of 2,165 yuan. In contrast, village officials in Big Bale village took the opposite route, deflating their estimated real village income by 300 yuan to make their reported income per capita 1,500 yuan.

The difference in their decisions becomes more comprehensible when we consider who the cadres are in each of the villages and how they came to power. Big Bale village's cadres, who chose to understate village income, were newly elected through mid-term elections called in response to persistent citizen demands. For a number of years, villagers had registered complaints with the township and county governments about corruption in the village government. Finally, the county government responded to these complaints and audited the village accounts. After the audit, and despite state directives on village financial transparency, the county sealed the accounts so that villagers could not access them and use them as evidence to further their complaints. The county, however, also decided to placate villagers by removing Big Bale's cadres and organizing a special round of mid-term elections. Free and fair election procedures were well implemented. Votes were counted publicly and results announced immediately after the vote count. Candidates even gave campaign speeches, and village officials reported that competition was "very intense" (*hen jilie* 很激烈).

The winner of the election for village head was a private entrepreneur and political outsider who had never been a cadre before. Villagers admired him for how he had gradually built up a successful business as a long-distance truck driver transporting cargo. Because of his business he had not spent much time in the village, which, as far as villagers were concerned, was a good thing and meant that he had little connection with the previous cadres. Popular election by politically active villagers who were already especially attentive to public finance strengthened the pressure on the new village head to understand income per capita and thereby lower the effective tax rate on villagers.

In contrast, East Bank's village cadres were very much political insiders. They were notorious for their close relationship with officials in the township government. For example, the village Party secretary allegedly colluded with township officials to extort money from a villager seeking a permit to build a new house. The Party secretary told the villager that he could avoid the 1,000 yuan fee for a new permit by giving a 500 yuan bribe. After receiving the bribe, the secretary reported the villager to the township government for building on the land illegally. Township officials then apprehended the villager, only releasing him after his family paid them a penalty of 300 yuan. Villagers also criticized the Party secretary for using his political connections at the township level to waive his younger brother's fines for violating the birth control policy by having three children.

Over the past few years, many groups of villagers had visited the township and county to register formal complaints against the village's cadres about these and other issues. According to villagers, however, it was very difficult for them to get higher levels to address the situation because of the Party secretary's political connections at the township level. He had been a village cadre for 25 years and came from a large family in the village with a lot of brothers.

Given the political protection they enjoyed from the township, it is not surprising that village cadres in East Bank chose to inflate village income per capita figures. Because of the personal benefits that village cadres enjoy through their close relationship with township officials, they have strong incentives to help the township fulfil their targets for economic growth. Village cadres also know that the township will support them if they try to extract more tax and fee revenue from villagers.

Villagers in Big Bale, in contrast, were able to elect a new set of village cadres after intervention from the county government. The new village head is an example of a new but increasingly common breed – the cadre-entrepreneur. His personal wealth and status in the village come from economic success in business and the popular support of other villagers rather than political connections to higher-level officials. Compared to the traditional, politically entrenched lifelong village cadre, cadre-entrepreneurs owe far more to popular support from villagers than they do to political protection from higher levels. They are thus less likely to inflate income per capita figures and hurt the interests of ordinary villagers.

Findings from the survey data

Looking at the two cases of East Bank and Big Bale suggest some of the possible factors that can make village cadres more or less likely to inflate village income per capita, but it is of course hard to know whether the patterns seen in these two villages are generalizable. In this section I use the survey data to evaluate whether some of the potential factors suggested by the case studies are in fact correlated with the inflation of village income per capita figures in a much broader sample of villages. I assess the following sets of factors: level of economic development; village government reliance on revenue from village levies; top-down control and pressure from higher levels; bottom-up accountability from village democratic institutions and from village solidary groups; and the development of cadre-businessmen and rural economic elites. Descriptive statistics for all the variables are given in Appendix A Table 1.

Because we are primarily interested in whether or not village cadres decide to benefit citizen interests, in these analyses I look at whether or not village cadres said they inflated village income per capita as a simple dichotomous variable. This variable is equal to one when a village's reported income is greater than its real income and equal to zero when its reported income is equal to or less than its real income. Because this variable is dichotomous, I use logistic regression

analysis to assess whether different factors are correlated with the inflation of income per capita. With only cross-sectional data, these analyses cannot establish causal relationships but they can help us identify factors that are correlated with inflation of income per capita figures. Unless specified, the findings from regression analysis and the fitted values reported below are based on a model which includes county dummies and all of the variables listed in Appendix A Table 2.

Since local officials are evaluated primarily in terms of their performance in fostering their locality's economic development, we would expect officials in more developed villages to experience less pressure to inflate their village's income. To assess a village's level of economic development, I looked at two indicators: the percentage of the village labour force (defined as men between 18 and 60 years old and women between 18 and 55) who performed at least some non-agricultural work in 2000; and whether or not the village had enterprises, collective or private, in 1995. As Appendix A Table 1 shows, the average percentage of the village labour force engaged in non-agricultural activity for the sample was 31 per cent, and 51 per cent of villages in the sample had at least one collective or private enterprise in 1995.

As expected, non-agricultural employment had a negative relationship with the inflation of income per capita. This relationship was not statistically significant when all the control variables were included although it comes close to statistical significance in some model specifications.[15] There was, however, no consistent evidence of any relationship between the inflation of income per capita figures and the existence of village enterprises in 1995. Both the direction of the relationship and the level of confidence changed depending on what other variables were included or excluded in the model.

Given the heavy expenditure responsibilities placed on local governments before the start of the current rural tax reform programme in 2001, we might expect those village governments that rely primarily on revenue raised from village levies to have a stronger incentive to inflate village income in order to increase the levies they could legally collect. Although the state-mandated cap on the collection of local levies designated a maximum of 5 per cent of *township* income per capita that could be collected as township and village levies, this regulation was often misunderstood and misapplied at the local level, which might have led village officials to try to increase their revenue from village levies by inflating village income per capita figures. Table 4 shows descriptive statistics on the sources of village government revenue in 2000.

Village government reliance on revenue from village levies was positively associated with over-reporting of village income. This relationship was substantively important although not statistically significant by conventional

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15 As expected, non-agricultural employment had a consistently negative relationship with over-reporting. This effect held in a simple bivariate regression, when county dummies were added, and when other variables discussed in this section were also included in the model. The level of confidence we have in the relationship waxes and wanes with the inclusion and exclusion of different variables in the model.

Table 4: **Sources of Village Government Revenue**

Percentage of village government revenue from	Mean	Standard deviation	Minimum	Maximum	Number of observations
Village *tiliu*	35%	37%	0%	100%	301
Village *jizi*	10%	21%	0%	98%	301
Direct or indirect income generated from collective assets	28%	35%	0%	100%	301
Ad hoc subsidies from higher levels	19%	32%	0%	100%	301

standards (p-value = 0.12 in a simple bivariate regression with county dummies and 0.26 when all of the other variables discussed in this section are included in the model). To give us a more substantive idea of how much dependence on village tax revenue might matter, we can compare the average village with a high level of dependence and the average village with a low level of dependence. When 90 per cent of a village's revenue comes from village levies (and all other variables are set at their means), the mean probability of inflating village income per capita is 89 per cent. But when only 10 per cent of a village's revenue comes from village levies, the mean probability of inflating drops to 81 per cent.

We might also expect village cadres to be more likely to inflate village income when higher levels exert more pressure on them to meet targets for economic growth. To measure top-down party-state control of village cadres, I looked at several indicators. First was whether or not village cadres signed a performance contract with the township government, in which case they have formally specified bonuses and penalties for meeting performance targets. Targets for economic growth are often those with the highest priority.[16] In the survey 89 per cent of villages reported that they signed such a performance contract. Second, I looked at the percentage of village officials who are Party members. Although all those in the village Party branch are of course Party members, officials in the village committee are supposed to be elected through direct villager elections and may or may not be members of the Party. Top-down Party control of village officials should be stronger when more village officials belong to the Party. The mean percentage of village officials with Party membership was 69 per cent. Neither of these indicators, however, showed a statistically significant or substantively important relationship with inflation of village income per capita.

I also included a number of variables which may proxy for top-down control or influence: the distance between the village and the township seat; the distance between the village and the county seat; and whether the village was located in a flat or mountainous area. Villages that are further away from the township and county governments or located in a mountainous area are physically more difficult to supervise. When they need to understand village-level conditions, many higher-level officials tend to visit the villages that are easier to access and "drive around sitting in a car looking out behind a pane of glass" (*zuozhe qiche*

16 Edin, "State capacity and local agent control," p. 39.

zhuan, gezhe boli kan 坐着汽车转, 隔着玻璃看).[17] The mean distance from the township seat was about five kilometres, and the mean distance from the county seat was about 26 kilometres. About a third of villages in the sample were located in a flat area. Uncertainty about the estimated relationships between inflation of village income and distances from county and township seats fluctuated considerably depending on what variables were included or excluded in the analysis, which does not give us a lot of confidence in the estimated relationships.[18] The terrain of the village, however, did seem to have a positive and substantively important relationship with inflation of village income. Villages in flat areas were more likely to inflate village income per capita. When all possible variables were included in the model, the estimated relationship was statistically significant at a 95 per cent confidence level (p-value = 0.05).

My final indicator for top-down control was whether or not township officials came to the village to collect state agricultural taxes and township and village levies personally. Township officials personally participated in village tax collection in 85 per cent of surveyed villages. Such participation was positively associated with inflation of village income. This relationship was substantively important although not statistically significant by conventional standards (p-value = 0.11 in a simple bivariate regression with county dummies and 0.17 when all possible controls were included in the model). In an average village where township officials did not personally help to collect state and local taxes from villagers, the probability of inflation was 74 per cent. In an average village where township officials did personally help, the probability of inflation rose to 86 per cent.

To summarize, when we look at formal institutions of top-down control such as performance contracts and Party membership, the relationship between top-down control and inflation of income per capita figures is not apparent. When, however, we look at the actual behaviour of township officials – whether or not they come to the village to participate in tax collection directly – we can see that top-down control by the township is associated with a greater probability of inflating village income per capita. Formal institutions may have little impact unless they are accompanied by actual hands-on supervision. Performance contracts may be little more than a piece of paper unless higher-level officials actually take the time to monitor lower levels closely and observe their actions firsthand.

As seen in the case of Big Bale village, well implemented elections may enable villagers to choose village officials who act in their interests. Villagers may be able to exert influence over officials through either formal or informal channels. In terms of formal institutions, villagers are supposed to be able to nominate and

17 Zhu Xinfeng, "Nongcun xujia tongji xianxiang ji duice" ("The phenomenon and counter-measures of rural statistical misreporting)," 22 November 2004, available online at http://www. chinaelections. org/ xjzl/readnews. asp?newsid={50059C66-6540-4386-B159-C3868D550439}.

18 In a bivariate regression, for example, distance from the county seat is not statistically significant (p-value = 0. 60).

elect candidates for office through popular elections. Villager representative assemblies (VRAs) are another formal democratic institution through which villagers can potentially influence village government actions. VRAs are supposed to have the power to audit village accounts, approve reimbursements and vote on important village issues. In terms of informal institutions, villagers may also be able to hold village officials accountable through obligations and standards set by community solidary groups such as lineages and temple groups. These groups can enable villagers to offer increased moral standing to officials for contributing to the good of the village when they encompass the entire village and embed officials in their institutions and activities.[19]

To measure the implementation of formal democratic institutions, three separate indicators measure popular nomination procedures, voting procedures and villager representative assemblies. To measure the implementation of popular nomination procedures, a set of nine questions ascertain the degree of intervention by township officials, the Party and incumbents in the nomination of candidates for village elections. To measure the implementation of voting procedures, I asked a set of questions about seven basic voting procedures central to a free and fair election process. To measure the implementation of VRAs, I asked a set of seven questions about VRA powers. For each indicator, I constructed an index out of the set of questions pertaining to that indicator using the conventional technique of principal components analysis to weight each question (see Appendix B for details).

Findings from logistic regression analysis did not provide strong evidence of any relationship between inflation of village income and the implementation of nomination procedures or villager representative assemblies. The estimates for these relationships varied widely depending on which control variables were included or excluded in the model.

Findings from the analysis, however, did suggest that there was a negative relationship between the implementation of voting procedures and the probability of inflating income. Villages with better implemented voting procedures were less likely to inflate income. This relationship held regardless of what variables were included in the model. When all possible control variables were included, this relationship was statistically significant at a 90 per cent confidence level (p-value = 0.094). For the average village with relatively poor implementation of voting procedures (in the 10th percentile of the sample), the mean probability of inflating village income was 90 per cent. For the average village with relatively good implementation of voting procedures (in the 90th percentile of the sample), the mean probability of inflation dropped to 74 per cent.

Embedding and encompassing solidary groups such as temple groups and village-wide lineages also showed a large negative relationship with the

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19 See Lily L. Tsai, *Accountability without Democracy: Solidary Groups and Public Goods Provision in Rural China* (Cambridge: Cambridge University Press, 2007).

probability of inflating village income. Villages with temple groups as measured by the existence of a temple manager were less likely to inflate village income per capita. This relationship held regardless of what variables were included in the model and was statistically significant at a 90 per cent confidence level (p-value = 0.094) when all possible controls were included. In the average village without a temple manager, the mean probability of inflation was 86 per cent. This probability dropped to 66 per cent with a temple manager.

There was also some evidence that villages with village-wide lineages were less likely to inflate village income although the uncertainty about this estimated relationship was somewhat higher. When all controls were included in the analysis, this relationship was not statistically significant although the magnitude of the correlation was high enough and the uncertainty low enough to suggest that the estimate might be substantively important (p-value = 0.34). In the average village without a village-wide lineage, the mean probability of inflation was 85 per cent. With a village-wide lineage this dropped to 71 per cent.

In sum, there is some evidence that cadres in villages with stronger formal and informal institutions of accountability are less likely to inflate village income per capita and more likely to act in the interests of ordinary villagers.

Over the past decade, the Party has become increasingly aware of new economic elites in the countryside: private entrepreneurs, local businesspeople, and managers of township and village enterprises. These new elites often have access to resources and opportunities that are partly or fully independent of the Party and state.

Should we expect village cadre-entrepreneurs to be more or less likely to respond to top-down pressure to inflate village income per capita? On one hand, higher-level officials may have less leverage over village cadre-entrepreneurs who are independently wealthy. As the case of Big Bale village suggests, it may be the case that village economic elites who have resources of their own and who achieved status in the village through economic rather than political acumen may be less susceptible to top-down influence from higher-level officials and more likely to be motivated by a desire to live up to popular expectations. On the other hand, village cadre-entrepreneurs might value the informal connections and networks associated with being an official even more than village cadres who are farmers. In this case, they might be more rather than less likely to respond to top-down demands. There might also be a difference between village officials who manage or have managed collective enterprises and village officials who are private entrepreneurs. Officials who have managed collective enterprises may rely more heavily than private entrepreneurs on local government resources and connections to other local officials.

Findings from the survey data suggest that higher involvement in business by village officials, regardless of enterprise ownership form, is associated with a lower probability of inflating village income. To measure business involvement by village officials, I look at two indicators: the percentage of village officials who have been or are currently the head of a village collective enterprise and the

percentage of village officials who have been or are currently the head of a private enterprise or are a *getihu* (个体户).

Even when we control for a village's level of economic development and industrialization (as previously discussed) using the percentage of village labour engaged in non-agricultural work and the existence of village enterprises in 1995, both indicators of business involvement by village officials are negatively correlated with inflation of village income. The relationship between inflation of income and village officials engaged in private enterprise is statistically significant at a 95 per cent confidence interval when all possible controls are included (p-value = 0.013). The relationship between inflation of income and village officials engaged in collective enterprise is not statistically significant by conventional standards but still substantively important especially given the large magnitude of the estimated relationship (p-value = 0.20). When 10 per cent of village officials are involved in a collective enterprise in an average village, the mean probability of inflation is 84 per cent. When the percentage of village officials involved in collective enterprise rises to 90 per cent, the mean probability of inflation drops to 58 per cent. Similarly, when 10 per cent of village officials are involved in private enterprise in an average village, the mean probability of inflation is 84 per cent. This drops to 52 per cent when the percentage of village officials involved in private enterprise rises to 90 per cent.

To summarize, findings from the survey data support some of the anecdotal evidence provided by the two cases of East Bank village and Big Bale village. Like the village head in Big Bale village, cadres in the surveyed villages were less likely to inflate village income when they were engaged in business and when they were located in villages with well implemented elections, or when they were embedded in village-wide solidary groups. There was also some evidence that they were less likely to inflate income when they experienced less direct supervision from township officials of village tax collection and when they relied less heavily on revenue from village levies.

Of all of these factors, the percentage of village officials involved in business was perhaps associated with the largest drop in the probability of inflating village income. An increase in the percentage of officials engaged in private enterprise from 25 to 75 per cent was associated with a 20 per cent drop in the probability of inflating village income on average. Formal and informal institutions of bottom-up accountability also had a considerable impact, but to get the same 20 per cent drop in an average village it either had to have a temple manager or increase the quality of its voting procedures from the first percentile to the 99th percentile of the sample. Top-down township involvement in village governance as measured by whether or not township officials come to the village personally to help with tax collection was associated with a smaller change. The probability of inflation dropped only 13 per cent in the average village where township officials did not come to collect taxes. Similarly, when village government reliance on higher-level subsidies dropped from 100 per cent to zero, the probability of inflation dropped by only 10 per cent. In short, village cadre

involvement in business enterprise was associated with the most sizeable drop in the inflation of village income per capita. Although the Party has increased its efforts to co-opt businesspeople and persuade them to join the Party over the last decade, it may be that, at least at the village level, village cadres who are also businesspeople are more autonomous from higher-level governments and more likely to act in the interests of the village as a whole.

Conclusions

This article contributes to our understanding of income data falsification by local officials by providing systematic data on how widespread the problem is at the village level, estimating how large the discrepancies may be between official and actual income statistics, and identifying some of the possible factors that are associated with the inflation of village income per capita figures.

Examining the conditions under which village cadres are more or less likely to inflate income per capita figures also sheds light on the more fundamental political issue of how village cadres negotiate conflict between the interests of villagers below them and higher-level officials above them. The abolition of rural taxation in 2006 may reduce both the impact of income data falsification on villagers and the incentives of village officials to inflate village income. Nevertheless, the factors that we find to be correlated with the inflation of village income per capita in 2000 – village official involvement in business, the existence of village-wide solidary groups, the implementation of democratic reforms – may continue to be important explanatory factors in accounting for the responsiveness of village officials to villager interests more generally.

Appendix A Table 1: **Descriptive Statistics**

	Mean	Standard deviation	Number of observations
Inflation of village income per capita (1=yes, 0=no)	0.81	0.40	302
Measures of economic development			
Percentage of labour force in non-agricultural activity	0.31	0.24	311
Existence of village enterprises in 1995	0.51	0.50	316
Measure of village government reliance on tax revenue			
Percentage of village government revenue from village levies	0.45	0.38	301
Measures of top-down control			
Performance contract signed with township government (1=yes, 0=no)	0.89	0.31	316
Percentage of village officials with Party membership	0.69	0.46	316
Distance from township seat (km)	5.26	5.17	316
Distance from county seat (km)	26.45	20.97	316
Village terrain (1 = flat, 0 = not flat)	0.36	0.48	316
Township participation in state and local tax collection (1=yes, 0=no)	0.85	0.35	316
Strength of formal democratic institutions			
Index for implementation of pre-election institutions	0	1.63	299
Index for implementation of voting institutions	0	1.27	312
Index for implementation of villagers' representative assemblies	0	1.29	285
Measures of informal solidary groups			
Existence of a village temple manager (1=yes, 0=no)	0.14	0.35	311
Existence of a single active lineage hall (1=yes, 0=no)	0.07	0.26	315
Village official involvement in business			
Percentage of village officials involved in collective enterprises	0.05	0.12	314
Percentage of village officials involved in private enterprise or *getihu* activity	0.08	0.19	311

Appendix A Table 2: **Factors Correlated with Over-reporting (logit)**

	Over-reporting (1=yes, 0=no)
Measures of economic development	
Percentage of labour force in non-agricultural activity	−0.72 (0.79)
Existence of village enterprises in 1995	0.12 (0.39)
Measure of village government reliance on tax revenue	
Percentage of village government revenue from village levies	0.81 (0.71)
Measures of top-down control	
Performance contract signed with township government (1=yes, 0=no)	0.15 (0.67)
Percentage of village officials with Party membership	−0.28 (0.44)
Distance from township seat (km)	−0.013 (0.037)
Distance from county seat (km)	−0.0081 (0.0097)
Village terrain (1 = flat, 0 = not flat)	1.27* (0.69)
Township participation in state and local tax collection (1=yes, 0=no)	0.78 (0.56)
Strength of formal democratic institutions	
Index for implementation of pre-election institutions	0.12 (0.13)
Index for implementation of voting institutions	−0.36* (0.21)
Index for implementation of villagers' representative assemblies	−0.051 (0.15)
Measures of informal solidary groups	
Existence of a village temple manager (1=yes, 0=no)	−1.12* (0.67)
Existence of a single active lineage hall (1=yes, 0=no)	−0.77 (0.82)
Village official involvement in business	
Percentage of village officials involved in collective enterprises	−1.48 (1.3)
Percentage of village officials involved in private enterprise or *getihu* activity	−2.16* (0.93)
Constant	1.80* (1.06)
County dummies	Yes
R-squared	0.20

Notes:
Huber standard errors reported. N=235 villages. * indicates statistical significance at a 90% confidence level.

Appendix B

To measure the implementation of pre-election institutions, the survey asked about interference by higher-level township officials, the village Party organization and incumbent village officials in the nomination of primary election candidates, the nomination of final candidates and the selection of the election administration committee. For each of these nine questions, a dichotomous variable was created. Principal components analysis was then used to construct an index out of these nine items measuring the implementation of pre-election institutions.

To measure the implementation of voting institutions, the survey asked the following seven questions: whether the results of elections were announced immediately after polls closed; whether there were more candidates than offices; whether ballots were counted publicly; whether a secret ballot was used; whether

candidates gave campaign speeches; whether proxy voting was regulated; and whether the ballot box was fixed in a designated polling place rather than brought around to each household, which increases the chances of fraud. Again, I used principal components analysis to create an index reflecting the implementation of voting procedures.

To measure the implementation of villagers' representative assemblies (VRAs), the survey asked whether the village had implemented the following seven institutions: competition for VRA seats; election through secret ballot; formal regulations on when the VRA was supposed to be convened; formal power of the VRA to recall the village head; formal power to inspect village expenditures; formal power to audit village accounts; and whether the VRA had vetoed a village government decision in the past year. Based on these seven measures, I constructed an index measuring VRA implementation using principal components analysis.