The University of Manchester
Brooks World Poverty Institute

MANCHESTER 1824

Welfare Effects of Regressive Taxation and Subsidies in China

Xiaobing Wang[1]

Jenifer Piesse[2]

November 2009

[1] School of Social Science and Centre for Chinese Studies
The University of Manchester

[2]Department of Management
King's College London

xiaobing.wang@manchester.ac.uk
jenifer.piesse@kcl.ac.uk

BWPI Working Paper 108

Creating and sharing knowledge to help end poverty

Brooks World Poverty Institute
ISBN : 978-1-907247-07-1

www.manchester.ac.uk/bwpi

Abstract

Using three comparable national representative household surveys for China in 1988, 1995 and 2002, this paper provides micro level evidence of a policy of absolute regressive taxation and an inverted welfare system. It reviews the economic effects of taxes and subsides and shows that a dual and regressive taxation system increases the urban rural income gap and enhances overall inequality. The empirical evidence indicates that the relatively poorer rural population pay net tax while those in the richer urban areas receive net subsidies. This biased system of taxes and welfare payments is one of the major causes of the persisting urban-rural income gap and is largely responsible for overall income inequality in China.

Keywords: regressive tax, subsidy, income inequality, China.

JEL Classifications: I32, I38, K34, Q12, R11, R13, R20

Xiaobing Wang
School of Social Science and Centre for Chinese Studies
The University of Manchester,
Oxford Road, Manchester M13 9PL, UK
Email: xiaobing.wang@manchester.ac.uk
Tel: +44 (0) 161 275 4871

Jenifer Piesse
Department of Management
King's College London
150 Stamford Street, London, SE1 9NH
Email: jenifer.piesse@kcl.ac.uk
Tel: +44(0)20 7848 4164

and University of Stellenbosch, South Africa

Acknowledgements

The authors thank Jeremy Clegg, Katsushi Imai, Xiaming Liu, Paul Ryan, Roger Strange and the seminar participates at various universities for valuable comments and suggestions.

I. Introduction

GDP in China has grown significantly during the last few decades since the reforms began in 1978, averaging around 10% per annum. However, this rate of growth is matched by increasing inequality. The National Bureau of Statistics (NBS) estimates indicate that the Gini coefficient increased consistently from 0.33 in 1980 to 0.40 in 1994 and to 0.46 in 2000 (Chang 2002).

While inequality has risen nationally, the urban-rural wage gap in particular has increased significantly. A disparity between rural and urban incomes has existed in China since the establishment of the household registration (Hukou) system in 1955. According to Sicular et al (2007), the urban-rural income gap[1] increased from 2.83 in 1995 to 3.01 in 2002, based on NBS data and from 3.11 in 1995 to 3.18 in 2002, based on unadjusted household survey data. The urban-rural income gap in China is now amongst the biggest in the world and this would be even bigger if the differences in the standard of living, welfare benefits and infrastructure between the two groups were taken into account.

This paper examines one of the causes of this income disparity. Although there has been considerable interest in income inequality and the urban-rural divide in China in the literature, few studies have explored the role that taxes and subsidies contribute to this. Many studies attribute inequality to the dualistic economic structure (Griffin and Zhao 1993), the economic transition and transformation (Knight and Song 1999), market forces (Gao 2006) and regional differences (Gustafsson and Li 1997). One exception is Tao and Liu (2005), which argues that one of the main reasons for the rural-urban disparity as well as the overall inequality is the highly regressive Chinese system of taxation where the rural poor had to pay a disproportionally high share in the form of the agricultural tax. Although the incomes of rural households were much lower than those of their urban counterparts, rural households were taxed much more heavily. This study empirically examines the impact of taxes and subsidies on income inequality in China between 1988 and 2002. The paper addresses the origins of the urban-rural divide that developed in China during the Mao era but increased during the reform period. Two closely related questions are discussed. First, at the micro level, how does the system of taxes and subsidies affect household incomes in rural and urban China? And second, at the macro level, has this system reduced or increased the overall urban-rural income gap and general inequality in China? Three national representative household surveys in 1988, 1995 and 2002 are used to identify household incomes, the burden of taxation and the receipt of subsidies. The major conclusions are that the distortionary dual tax system and provision of subsidies increased the urban rural divide and overall inequality, and thus the status of the lower income class that exists in rural China was a direct result of the urban-rural segregation policy and the regressive tax system. These policies have jointly exacerbated the situation created by the imposed divisions in the labour market.

The contribution of this paper to the literature on inequality in China is threefold. First, this is among the very few studies on the dual tax system in China and is the first study to analyse and decompose the impact of the this and the allocation of subsidies on the urban rural gap and overall inequality. Second, it shows that the regressive tax system has greatly increased inequality both within the rural population and between the rural and urban sectors. Third, it provides a rationale for the abolishment of the agriculture tax and the associated fees and charges in 2006 since it clearly illustrates the negative impact of these tax policies on the welfare of the rural population.

The paper is organised as follows. Section 2 reviews the literature on taxation, including the models most commonly used to allocate the burden of taxation and the system of subsides in China. Section 3

[1] This is the ratio of the average urban to average rural per capita income levels.

presents a descriptive data analysis. The models, estimation and empirical results are in Section 4, which links the pattern of taxes and subsides to the rise in income inequality. Section 5 decomposes overall inequality into the effects between and within the urban and rural sectors and compares the changes before and after the transfer of income. Section 6 concludes with a discussion of the implications of the tax and subsidy policies in China and emphasises the importance of competitiveness in labour markets, which will, along with a more directed welfare programme encourage a more equitable distribution of income.

2 Literature and theory

a) The theory of taxation

The design of a national system of taxation has consequences for prosperity and economic growth (Slemrod 2006) and it also has important effects on income distribution. Different kinds of taxes and tax regimes are used by governments to influence the macroeconomic performance of the economy, to modify patterns of consumption or employment and to make some classes of transaction more or less attractive. However, inappropriate taxation distorts the market and results in economic inefficiency.

Economists traditionally have used two different principles for evaluating how the tax burden should be allocated: the benefit principle and the ability-to-pay principle (Slemrod, 1994, 2006 and Musgrave, 1994). Under the benefit principle, taxes are the contribution paid by the population for receipt of services provided by the state. The ability-to-pay principle posits that the tax burden should be assigned, not on the basis of who benefits from government provision, but rather who has the ability to pay. In 1971, James Mirrlees's seminal paper on optimal taxation put the decision in a utilitarian framework. In this approach, the tax burden should be assigned to maximise social welfare or efficiency. The case for distributing the tax burden in order to minimise aggregate loss was simply a by-product of the general case for distributing income in order to maximise welfare. The entitlement basis for distributive justice was thereby replaced by that of utilitarian welfare maximisation. An important feature of a tax system is to establish whether there should be proportional (tax as a percentage of income that is constant across all income levels), progressive (tax as a percentage of income that rises as income rises), or regressive (tax as a percentage of income that falls as income rises). Progressive taxes reduce the tax burden of people with smaller incomes, and increase it for those with higher incomes, while regressive taxes have the opposite effect.

In the economics literature the main debate about the optimal system of taxation is to balance two objective functions: to raise sufficient revenue through tax to achieve economic growth and provide welfare for the population (see Vickrey 1947, 1992 and Slemrod 1994). The modern approach to evaluating progressivity focuses on the trade-off between the potential social benefit of a more equal distribution of income and the economic costs caused by the disincentive effects of the high marginal tax rate that is required by a redistributive tax system. In most developed countries, the social welfare system (taxation and subsidies) is a major means of income redistribution, although this varies considerably depending on the political climate of each individual country.

Two common taxes that are clearly regressive is an ad valorum tax, for example, value added tax (VAT) and a head or poll tax. The former is a consumption tax, which can have positive welfare effects, particularly if goods that are considered to be necessities are excluded. The latter has never been a popular tax for the majority of the population as rich and poor pay the same regardless of income and therefore there are huge discrepancies in the real tax burden. Historically, the nobility were supported by

taxes imposed on the poor, whereas modern social security systems are intended to support them. The introduction of a poll tax in medieval England was the primary cause of the 1381 Peasants' Revolt, and in the United Kingdom the change from a progressive local tax based on property values to a single-rate form of taxation regardless of ability to pay in 1990 (the Community Charge, but more popularly referred to as the Poll Tax) was instrumental in the demise of the Conservative Prime Minister, Margaret Thatcher.

A policy of subsidies can be equally contentious. Many developed countries, in particular the US and the EU, tend to protect farmers and subsidise agriculture, while developing countries exploit their farmers and agricultural sector to support urban industries and subsidise urban residents. There are two main explanations for this urban-bias, one based on questions of political economy and the other on strategic industrial policy. The political economy explanation attributes urban-bias to the stronger political power in the cities. The logic of collective action proposed by Olsen (1965) states that the dispersed distribution of farmers results in the high costs of collective action due to the difficulties associated with communication. Furthermore, the low output produced by individual farmers is an incentive to free ride, despite the fact that farmers in aggregate account for a large proportion of the population. Thus, they have a very limited influence on policy making. Bates (1981) explores how governments have intervened and diverted resources from farmers to other sectors of society in Africa. Most Africans live in rural areas and derive their incomes from farming, but because African governments follow policies that are adverse to most farmers' interests, these countries fail to produce enough food to feed their populations. However, in terms of the numbers of people involved, the Soviet Union under Stalin and pre-reform China under Mao, are the worst examples of this[2].

The industrial policy explanation attributes urban-bias to the government's development strategy. Governments in many developing countries take industrialisation as the ultimate goal, and believe it is necessary to tax agriculture to support urban industries. Schiff and Valdes (1992) present the results of the World Bank research project, *A Comparative Study of the Political Economy of Agricultural Pricing Policies*. The project included eighteen countries from Latin America, Asia, Africa, and the Mediterranean. Over the period 1960-84, the overall effect of government intervention was a tax on agricultural producers by more than 30% on average. While such a high level of tax did stabilise agricultural producer and consumer prices, it led to lower growth rates of both agricultural output and GDP.

However, there is virtually no discussion in the literature on systems in which those on lower incomes pay more tax than those with higher incomes, while at the same time, those with higher incomes receive greater subsidies or social benefits. An example of such an extreme regressive tax and subsidy system is rare and would not be tenable in developed democratic economies. However, such a system existed in China during the reform period up to the end of 2005 and to a large extent is responsible for the increasing income inequality and the urban-rural disparities.

b) The urban-rural gap in China

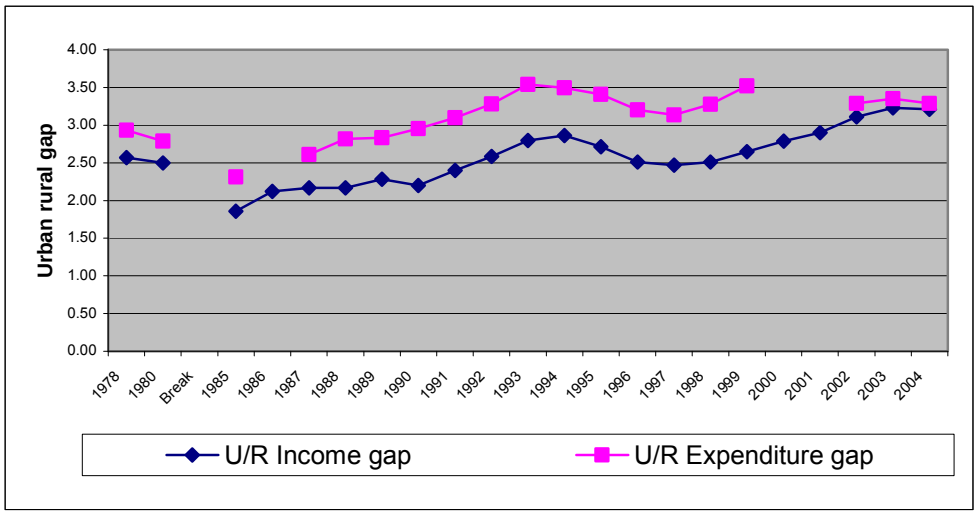
The system of Hukou has divided the population in China into two groups: those in the urban sector with the associated rights and privileges, and those in the rural areas, who generally had no political rights and few opportunities to participate in or influence policy. This has resulted in differences in the lives and

[2] As noted by Lipton (1977, p.1): "The most important class conflict in the poor countries of the world today is not between labour and capital. Nor is it between foreign and national interests. It is between the rural classes and the urban classes. The rural sector contains most of the poverty, and most of the low-cost sources of potential advance; but the urban sector contains most of the articulateness, organisation and power. So the urban classes have been able to 'win' most of the rounds of the struggle with the countryside; but in so doing they have made the development process needlessly slow and unfair."

livelihoods of people in several aspects. Based on the NBS data published in the Chinese Statistic Yearbook, the income differences between the urban and rural population in China from 1978 to 2005 is calculated and shown in Figure 1. From the figure it is clear that the urban rural income gap has increased over time with two exceptions. It fell between 1978 and 1985 because of rural reform and the Household Responsibility System, which ended collective farming and reallocated land to individual households.[3] The gap then increases again until 2005, although there is a fall between 1994 and 1997 when many workers in the formal urban sector were made redundant from their government employment. It is important to note that these calculations use only household disposable income and therefore capture a small amount of the difference in real well-being of individuals. When all other non-monetary factors are included, such as those discussed below, the real urban rural gap is much higher.

[3] Lin (1992) provides a detail discussion of rural reforms and agricultural growth in China during this period.

Figure 1: Income and Expenditure Gap of Urban and Rural Households



Notes: Calculated by authors based on Chinese Statistic Yearbooks. Breaks are where the data is not available.
The urban-rural income gap is the ratio of average urban per capita income to average rural per capita income.
Figure based on the per capita annual income of urban and rural households are at current prices. All units are in nominal Yuan of the given year. The ratio does not eliminate the effect of price differentials between urban and rural areas on consumption expenditure.

c) The system of taxation and subsidies in China

As discussed above, tax revenues can be used by government to provide goods and services to the public and to adjust the distribution of income across the population. In most developed countries, a system of progressive taxation to some degree exists and is based on income with revenue providing benefits to the overall population. To a greater or lesser extent, this ensures some level of social justice. However, China still fails to follow these principles. Although the rural population accounts for two thirds of the total, the system of taxes and subsidies favours the privileged urban class and exploits the impoverished rural class.

In China, two types of taxes are imposed on households: income tax and agricultural tax. There is a universal requirement to pay income tax when incomes are above a certain benchmark and it is a progressive regime by law. However, urban residents do not pay agriculture tax as they are not involved in agricultural production. But rural residents are required to pay the agricultural tax simply because they live in a rural area and it is assumed they are involved in agricultural production, although in many cases this is not true. Agricultural taxes are due by every citizen that has been allocated a piece of land regardless of whether this is farmed.

The income tax legislation in China was passed in 1980, with the tax threshold set at 800 yuan a month, 20 times higher than the 40 yuan, which was the average monthly wage at that time. This rate did not change until 2006, when the benchmark income for taxation was increased to 1600 yuan, slightly higher than the average monthly wage in China.[4] The problem is that the requirement to pay tax was not

[4] The benchmark is still set at a national level despite the widely varying prosperity and economic growth across the provinces.

seriously implemented until recently. Urban residents rarely paid any income tax, either because their wages were below the benchmark income in the 1980s and early 1990s or because the law was not enforced. Furthermore, if the tax threshold was the same in the rural and urban sectors, the vast majority of rural residents would not be liable for tax. However, the inconsistency is that the tax liability for the rural population is a function of the number of family members and the cropland acreage under their management, not the income of the household.

The agriculture tax is a liability on all companies or individuals that produce farm output or have income from agriculture and is at a regionally differentiated flat rate[5]. According to the Agriculture Tax Regulations, the national average rate is 15.5% of the value of the yield in a normal year. In most cases, the Agriculture Tax is paid in kind, supplemented by currency. The tax on agricultural specialties is computed on an ad valorum basis, with a rate between 5% and 25%. There is another main tax item levied on the rural population: fees and administrative charges. These charges have to be paid to the village for social welfare, infrastructure and management and to the township for education, family planning, paramilitary support, infrastructure and irrigation. However, most of those services are never received or the work is not done, despite payments that are made (Knight and Song, 1999).

An agriculture tax was first introduced in China during the early War States period, about 600BC. Since 1949, the state has relied heavily on indirect as well as direct taxation of agriculture, first to mobilise investment for an ambitious programme of industrialisation (1949–85), and later during the reform period to ensure urban stability through affordable food supplies (1985–92). Since the mid-1990s, the rural tax burden has remained heavy simply due to the need to support the functions of local government (Lu and Wiemer 2005).

Overall, there have been hundreds of different kinds of taxes and fees imposed on farmers by various levels of government. In order to relieve farmers' financial burdens, central government introduced the fees-for-tax plan in early 2000, which required farmers to pay only the agricultural tax, the special agricultural product tax and few additional taxes. The Tax of Special Agricultural Products is a major item in rural areas and is levied on rural people who produce almost all special local products, including fruits, flowers and mushrooms as well as aquatic products. This was imposed at an average tax rate of 8%. According to the China Statistic Yearbook, the income from agricultural taxes made up 39% of the total national financial revenue in 1950. This proportion declined to 4.6% in 1995 and to 3.7% in 2000. At the national level, the share of agricultural taxes to total tax is decreasing, however, the share of agriculture tax to added value in agriculture is increasing, which means that the tax burden in rural areas is heavier rather than lighter than before. This tax, which accounts for a small part of government revenue, means large financial burdens for farmers, who have suffered consecutive falls in their income growth. Official figures (China Statistic Yearbook) suggest that farmers' per capita income grew around 4% after 1996, far below the income growth of urban residents or of GDP growth. This has resulted in the increasing urban-rural income gap shown in Figure 1: per capita income earned by urban dwellers was 250% that of rural residents in 1998, and by 2002 this gap in per capita income was 330%.

The analysis presented here supports the view that two tax systems exist in China, and this is a major factor in economic inequality between the rural and urban sectors. The tax liability for urban households was very low and essentially ineffective as enforcement was negligible. Tax on rural households was higher and enforced more rigorously. As a consequence, the system of taxation and the unequal distribution of subside and provision of public goods and services has contributed to inequality between the sectors over the past two decades. Some reform has now been implemented and since 2004 the Tax of Special Agricultural Products has been abolished except that on tobacco. The

[5] There is little literature on the rural tax system in China, but two examples are Bernstein and Lu (2000) and Tao and Liu (2005).

agricultural tax was exempted in most provinces in 2005 and waived across the country in 2006. A unified tax system is finally in line with the principal of fair taxation but the legacy continues.

3 Data

In order to model the extent of the distortion that has resulted from past policies it is necessary to consider the tax burden and the degree of inequality that exists as a result. Because of different tax and other charges imposed by individual local governments, sometime not officially regulated, it is not possible to explain the tax burden by simply using the tax rate imposed at the national level. Household surveys are necessary to obtain detailed data on individual levels of income and of tax. The survey data is then used to examine the distribution of taxes and subsidies and provide estimates of the impact of these on household incomes.

a) Sample.

The data are taken from three cross sectional national household surveys, the Chinese Household Income Project (CHIP) for 1988, 1995 and 2002.[6] The 1988 survey covers several provinces, although the distribution is uneven. Ten provinces are well represented for both rural and urban households: Anhui, Beijing, Gansu, Guangdong, Henan, Hubei, Jiangsu, Liaoning, Shanxi, and Yunnan. In addition, rural households only are available for some other provinces. In the 1995 survey, Sichuan was also included in both the urban and rural datasets. In the 2002 survey, Chongqing was treated as a separated provincial-level city from Sichuan. The three years allow comparisons between 1988, 1995 and 2002, allowing the analysis to cover this fourteen year period.

The data in all three surveys were drawn from a large-scale sample selected by the National Bureau of Statistics (NBS) from the annual household survey (approximately 65,000 rural households and 35,000 urban households), using a multistage, stratified probability sampling method. The original CHIP 1988 dataset has 31,827 urban and 51,352 rural residents; the original CHIP 1995 dataset has 21,694 urban and 34,739 rural residents; and the CHIP 2002 dataset has 20,632 urban and 37,968 rural residents plus 5,318 migrants.

The CHIP study is considered the best publicly available data source on household income and expenditures and includes samples from provinces in the eastern, central, and western regions of China (Riskin, Zhao & Li 2001). They provide the only comprehensive data base that uses a measure of income that overcomes the limitations of the official definitions that underlie published income data in China. Detailed analyses of the three surveys are published in Griffin and Zhao (1993) and Riskin, Zhao, and Li (2001), and Gustafsson, Li and Sicular (2008).

b) Notes on data processing.

In this paper, urban (rural) households refer to members of the household that have urban (rural) Hukou, have registered with the police as urban (rural) residents and are living and sharing economic resources as a unit. Household income is based on cash payments and a broad range of additional components, such as payments in kind valued at market prices, agricultural output produced for self-consumption

[6] The CHIP data are the result of a joint research effort sponsored by the Institute of Economics, Chinese Academy of Social Sciences, the Asian Development Bank and the Ford Foundation. Additional support was provided by the East Asian Institute, Columbia University.

valued at market prices, the value of food and other direct subsidies, and the imputed value of housing services.

Total disposable household income is the sum of wages and salaries, net business income, income from property and income from transfers provided by members of the household. It includes income from various activities by members of rural households, but excludes income from selling property and borrowed funds. Thus, it is the total household income per year minus the rental value of property and net transfer income.

The reason that housing subsidies and the rental value of owner-occupied housing is excluded is because houses in urban areas have an average higher market value and rental value than those in rural areas. If this were to be included, it is likely that the actual income of urban residents would be over-estimated as the data on property valuation is approximate and thus unreliable. In any case, property is a measure of wealth rather than disposable income.

Taxes and fees include various items, such as surcharges, fees retained by villages and townships, ad hoc fees, and various apportions and contributions to fund-raising, which are paid by households, in cash and in kind, with respect to their production and operations. There are also local fees in addition to those collected in compliance with state regulations.

For rural households, transfer payments (subsidies) from the state and collectives include relief payments, subsidies for the aged and medical expenses paid by the collective or by government. Taxes include taxes on primary, secondary and tertiary sector activities paid to state and local government, and miscellaneous fees paid to the state and collectives. For urban households, transfer payments include total net income in kind, price subsidies and relief payments and hardship subsidies received from government.

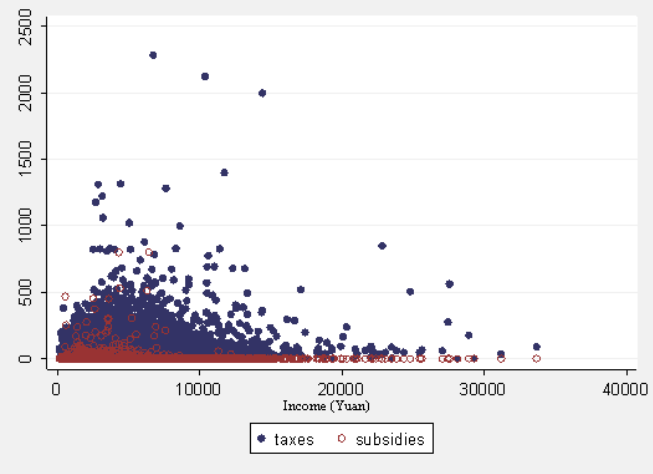
c) Data description.

Figure 2 shows taxes paid and subsidies received by rural (figure 2a) and urban (figure 2b) households in 1988. The horizontal axis denotes household income and the vertical axis the levels of taxes or subsidies[7]. It is clear that rural households paid far more in taxes and received a small amount of subsidies at all income levels, while the urban households paid no tax but received subsidies. There is also a clear pattern in that the subsidies urban residents were receiving are positively related to household income.

[7] All the units are in nominal Yuan of the given year.

Figure 2: Taxes/Subsidies (Yuan) as a Share of Income (Yuan) – 1988

2a. Rural 1988



2b.Urban 1988

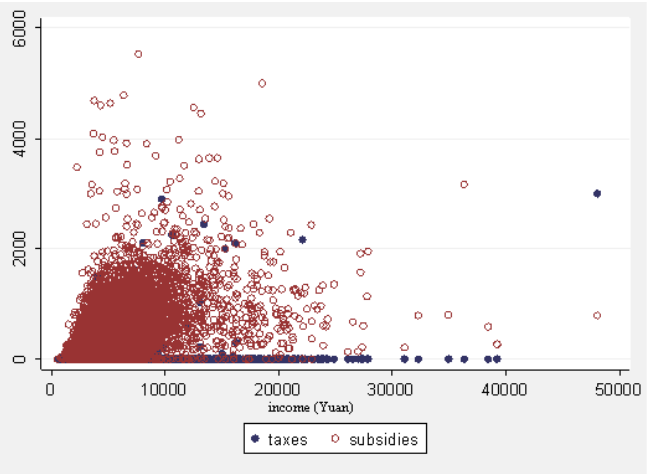


Figure 3a

Tax Burdens (Yuan) of Rural and Urban in 1988

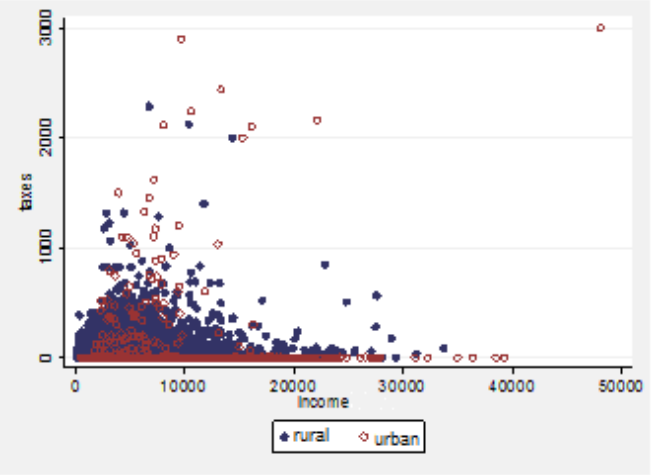


Figure 3b Subsidies (Yuan)

Received by Rural and Urban Residents in 1988

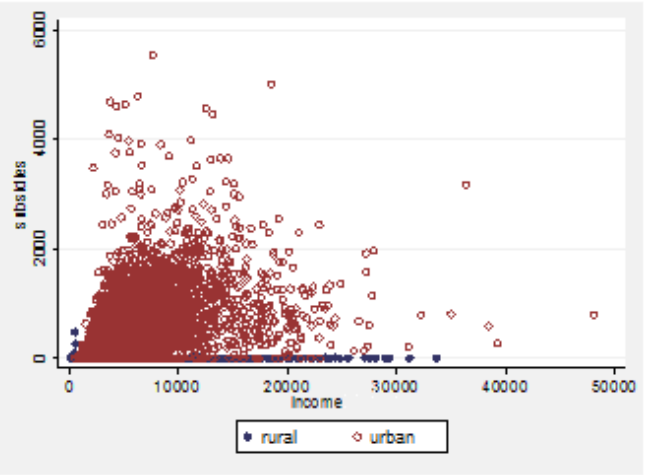
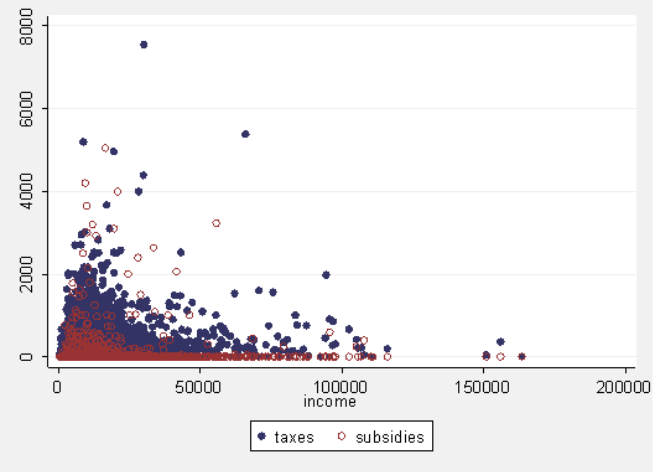


Figure 4: Taxes/Subsidies (Yuan) as a Share of Income (Yuan) – 1995

4a. Rural 1995



4b.Urban 1995

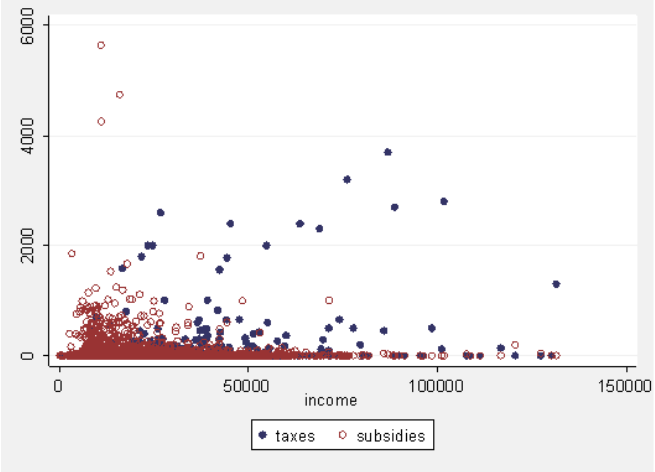


Figure 5a

Tax Burdens (Yuan) of Rural and Urban in 1995

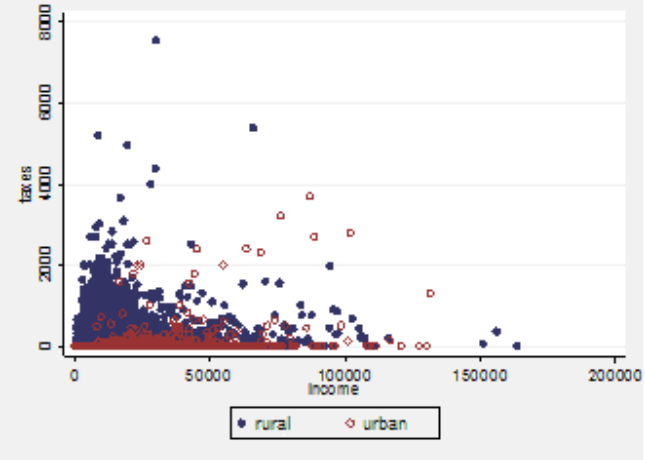


Figure 5b Subsidies (Yuan)

Received by Rural and Urban Residents in 1995

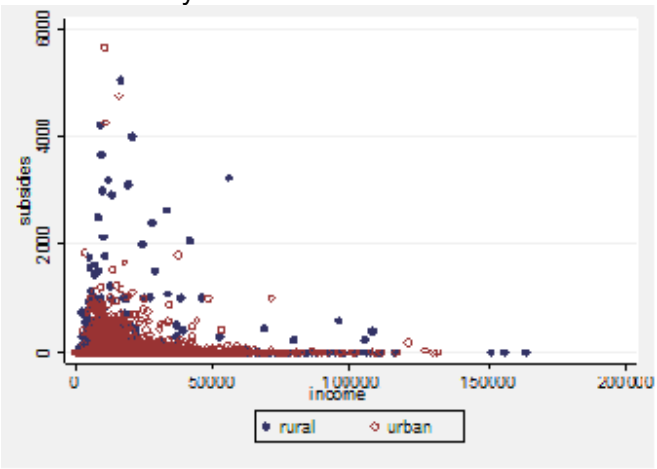
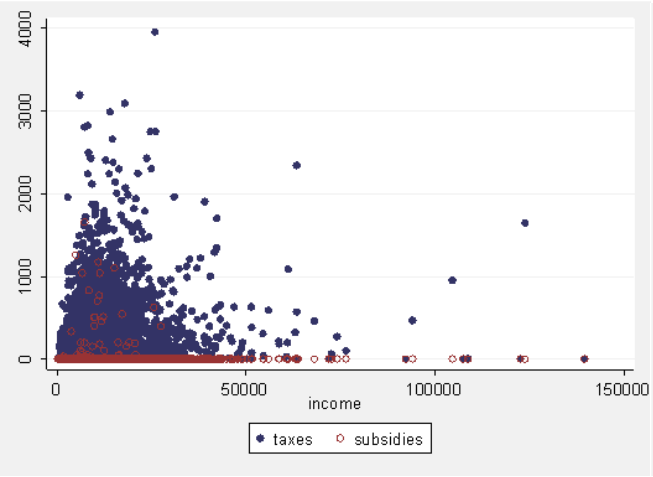


Figure 6: Taxes/Subsidies (Yuan) as a Share of Income Yuan) in 2002

6a. Rural 2002



6b. Urban 2002

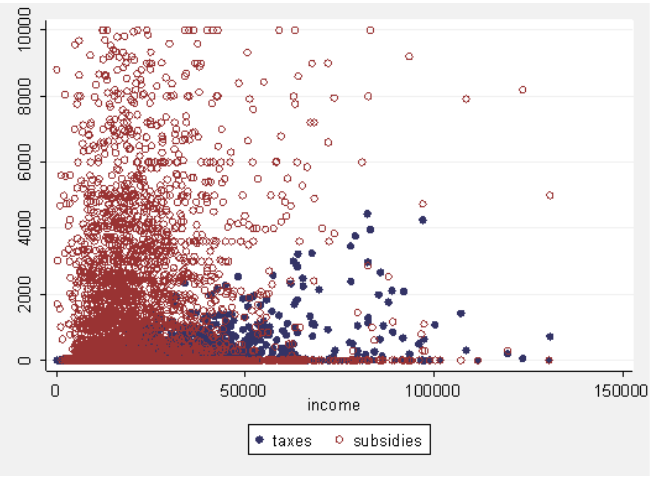


Figure 7a
Tax Burdens (Yuan) of Rural and Urban in 2002

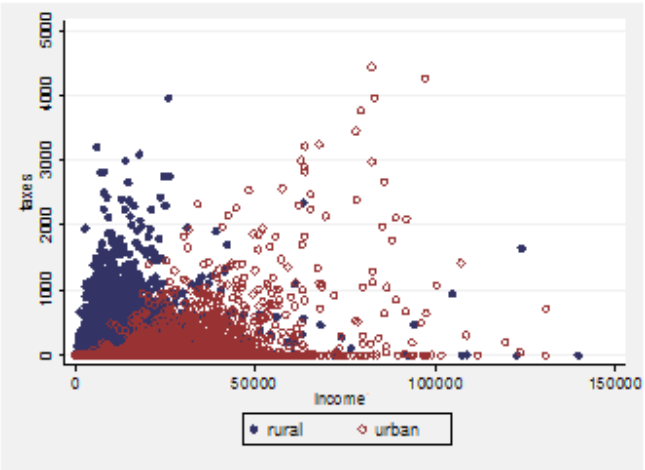


Figure 7b Subsidies (Yuan)
Received by Rural and Urban Residents in 2002

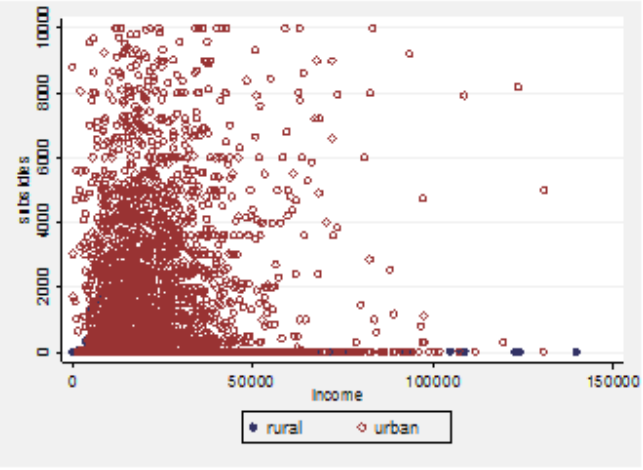


Figure 4 is similar to Figure 2 but uses the 1995 data. By 1995, urban residents received fewer subsidies than in 1988 although the tax burden for rural households is not significantly changed. Figure 6 provides similar data for 2002. It is clear from this figure that while rural households still pay large amounts of tax, subsidies to this group have also increased and the gap between total taxes paid and subsidies received is smaller than in previous years. Urban residents have higher incomes but have now started to pay taxes and the relatively poor households receive more subsides than the richer ones. Also, compared with previous years, urban households pay more tax and rural households get more support from the state or collectives, although changes in the burden of taxation for rural households is still not clear.

In order to make a straightforward comparison, the data in these figures are reordered, which makes it possible to compare the level of the tax burden and the subsidies received separately by rural and urban residents each year. Figure 3a shows the tax burden on rural and urban households in 1988 and Figure 3b subsidies received by rural and urban residents. In Figure 3a taxes are predominately paid by rural households and those with lower income pay more tax than urban residents with higher income levels. Figure 3b shows that the relatively richer urban residents receive more subsidies than rural households.

Data for 1995 (Figure 5a and 5b) and 2002 (Figure 7a and 7b) also provide strong comparisons, although this is less regressive in the later years.

To consider the regressivity of tax within the rural population, Table 1 shows the average tax levels of pre-tax income deciles for rural households[8]. Here households have been divided into deciles according to their gross income. This indicates that the tax system in China has been regressive over the years, with the tax rate for the first decile of households with the lowest income is 4 times higher than those in the highest income decile, although this situation does improve by 2002. The average tax rate of the lowest decile was 7.61 larger than the top decile in 1988, 10.53 in 1995 and 6.36 in 2002.

Table 1: Average tax rate by income decile for rural household

Income decile	1988	1995	2002
1 (Bottom 10%)	13.7	13.7	8.9
2	7.3	7.3	5.6
3	5.6	5.6	4.7
4	4.7	5.9	4.1
5	4.2	5.8	3.6
6	4.2	4.9	3.4
7	3.5	4.7	3.1
8	3.2	4	2.7
9	2.9	2.8	2.1
10	1.8	1.3	1.4

4 Estimation

a) Model specification

To test the regressivity of tax and subsidies, the following base model is used, applying cross section regressions, pooled across the provinces, for three years 1988, 1995 and 2002:

$$Tax = \alpha + \beta_1 Income + \beta_2 d_i \cdot Income + \sum \gamma_{ij} d_i \cdot g_j + \varepsilon \qquad (1)$$

where Tax is the tax and fees levied, and $Income$ is the household income. d_i is the dummy variable equal to one if the household is rural and zero otherwise. Thus, when d = 0, β_1 is for the coefficient on urban incomes and when d = 1, the coefficient for rural incomes is $\beta_1 + \beta_2$. A dummy variable is used to differentiate between urban and rural households and a provincial dummy controls for regional effects.

A similar expression is used to estimation the relationship between subsidies and incomes, with similar controls:

$$Subsidies = \alpha + \beta_1 Income + \beta_2 d_i \cdot Income + \sum \gamma_{ij} d_i \cdot g_j + \varepsilon \qquad (2)$$

In this case, if β is positively related to income, it shows a systematic distribution of subsidies as a positive function of income. Again controls for urban and rural households and a provincial dummy are included.

b) Results

i) Taxes and Subsidies – 1988

Table 2 shows the estimated coefficients for equations (1) and (2), in columns 1 and 2 respectively. Column 3 reports the result of net tax, that is, tax minus subsidies. For these three regressions, the

[8] Urban household is not included as they merely pay any tax.

specification is the same, with dummy variables for urban and rural households in 10 provinces and rural households in Gansu province as the reference group. Thus, the coefficients for urban/rural household income indicate the tax rates for these two groups. The coefficients for all the dummy variables adjust the intercepts with the constant, that is, the reference group, which is the tax/subsidy level for rural Gansu.

Table 2: China 1988, Rural and Urban Compared by Provinces

	Taxes	Subsidies	Net tax
Income(urban)	-0.000102	0.067207	-0.067309
	(0.25)	(35.99)***	(35.18)***
Income(rural)	0.006953	-0.067591	0.074544
	(13.71)***	(29.41)***	(31.65)***
Beijing(urban)	-37.950	432.990	-470.940
	(10.69)***	(26.90)***	(28.55)***
Beijing(rural)	-36.653	8.729	-45.382
	(5.91)***	(0.31)	(1.58)
Shanxi(urban)	-38.034	286.805	-324.839
	(13.61)***	(22.63)***	(25.02)***
Shanxi(rural)	-3.659	-2.459	-1.200
	(1.09)	(0.16)	(0.08)
Liaoning(urban)	-38.007	521.273	-559.280
	(13.14)***	(39.75)***	(41.63)***
Liaoning(rural)	7.451	-2.461	9.911
	(2.03)**	(0.15)	(0.58)
Jiangsu(urban)	-38.004	301.184	-339.187
	(13.96)***	(24.40)***	(26.82)***
Jiangsu(rural)	6.402	-2.425	8.827
	(2.23)**	(0.19)	(0.66)
Anhui(urban)	-38.025	323.632	-361.657
	(13.02)***	(24.45)***	(26.67)***
Anhui(rural)	46.009	-2.349	48.359
	(16.17)***	(0.18)	(3.66)***
Henan(urban)	-38.031	166.993	-205.024
	(13.88)***	(13.44)***	(16.11)***
Henan(rural)	20.314	-2.849	23.162
	(7.94)***	(0.25)	(1.95)*
Hubei(urban)	-38.033	345.025	-383.058
	(13.76)***	(27.55)***	(29.85)***
Hubei(rural)	82.307	-2.239	84.547
	(28.92)***	(0.17)	(6.40)***
Guangdong(urban)	-37.820	502.346	-540.165
	(11.36)***	(33.30)***	(34.95)***
Guangdong(rural)	28.491	-1.590	30.081
	(8.46)***	(0.10)	(1.92)*
Sichuan(urban)	-38.053	340.322	-378.376
	(0.63)	(1.23)	(1.34)
Sichuan(rural)	5.787	-2.002	7.789
	(2.52)**	(0.19)	(0.73)
Yunnan(urban)	-36.818	431.900	-468.719
	(12.88)***	(33.34)***	(35.31)***
Yunnan(rural)	-22.585	-0.704	-21.881
	(6.70)***	(0.05)	(1.40)
Gansu(urban)	-38.007	456.365	-494.372
	(11.70)***	(30.99)***	(32.77)***
Gansu(rural)	Ref	Ref	Ref
Constant	38.400	4.016	34.385
	(28.85)***	(0.67)	(5.56)***
Observations	18887	18887	18887
Adjusted R-squared	0.3013	0.6013	0.6344

Absolute value of t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

From the results in column 1, the coefficient on rural income is positive and significant at 1% level, but small (0.00695). This indicates that the sensitivity of the tax burden on income is negligible, that is, it is almost a flat rate of tax. This suggests that tax revenues increase by 7 yuan when incomes increase by 1,000 yuan in the case of rural households and confirms that the tax system in rural China at that time was a flat tax, based on land allocation, or the size of the household, regardless of income. [9]

There are two things worth noting in this analysis of the urban tax burden. Firstly, the coefficient on urban income is negative but not significantly different from zero, implying there was no correlation between tax and income. That is, tax liability was not a function of income. Secondly, the impact of households that are urban in each province is close to zero, measured by the coefficient on the control variable plus the intercept, which means that zero tax is paid by people with lower income. These joint effects make it clear that urban residents paid no tax.

The interpretation of the results with respect to the dummy variable on rural households in each province is that all pay taxes, that is, the rural province dummy plus the intercept, although again there are large spatial differences across provinces with respect to the mean levels of tax paid. The highest level of tax is in Hubei province, which is largely rural, where residents paid on average 120 yuan more than rural households in Beijing (that is, the rural income dummy in Hubei of 82.307 plus the intercept of 38.4). However, in Beijing, there is little difference between the level of urban and rural tax paid.

In column 2, it is shown that rural households received no subsides (that is, the rural dummy plus the intercept is zero) and most of the coefficients are not significantly different from zero. However, urban residents received large subsidies, with the lowest in Shanxi (286 Yuan) and the highest in Liaoning and Guangdong (more than 500 Yuan). Column 3 reports regression results for net tax, where a negative value is interpreted as a subsidy. Rural households paid a positive net tax and urban residents a negative net tax in all provinces. The goodness of fit for these regressions is very high for a cross section model, with an adjusted R^2 of 30%, 60% and 63% for taxes, subsidies and net tax, respectively. As noted above, rural taxation is slightly progressive (0.00695 in column 1) while from column 2, the coefficient of urban income of 0.0672 means that subsidies are slightly regressive for urban residents, that is households with lower income receive fewer subsidies while people with higher income receive more.

ii) Taxes and Subsidies – 1995

Table 3 reports total taxes paid, subsidies received and net taxes paid by rural and urban residents in ten provinces in 1995. In column 1, the coefficient on urban households is 0.00197, which is small but positive and significant, indicating a tax regime that is marginally progressive. The coefficient on rural households is 0.00398, indicating a slightly higher degree of progressivity than that in the urban areas but still trivial. The key points to note in this table are again the coefficients on the dummy variables on rural and urban in each province. The estimated value of the urban dummy cancels out the intercept, indicating that zero taxes are paid. However, for the rural dummies in all provinces, there are positive taxes paid. Clearly, large variations between the provinces still exist in 1995. There are conflicting results in column 2 (subsidies) and column 3 (net tax). The low adjusted R^2 for the subsidies model indicates low explanatory power. Subsidies appear to be random with respect to income in this urban-rural framework.

[9] This amounts to the same thing in most of China, as land is allocated according to the size of household.

Table 3: China 1995, Rural and Urban Compared by Province

	Taxes	Subsidies	Net tax
Income(urban)	0.001968	-0.000195	0.002163
	(4.47)***	(0.89)	(4.40)***
Income(rural)	0.003977	0.001510	0.002467
	(6.74)***	(5.15)***	(3.74)***
Beijing(urban)	-250.622	88.903	-339.525
	(17.92)***	(12.80)***	(21.73)***
Beijing(rural)	-285.361	40.318	-325.679
	(12.20)***	(3.47)***	(12.46)***
Shanxi(urban)	-253.366	4.077	-257.443
	(22.79)***	(0.74)	(20.72)***
Shanxi(rural)	-91.071	-4.273	-86.799
	(6.67)***	(0.63)	(5.69)***
Liaoning(urban)	-263.138	16.878	-280.016
	(23.28)***	(3.01)***	(22.18)***
Liaoning(rural)	-12.962	11.872	-24.834
	(0.96)	(1.77)*	(1.65)*
Jiangsu(urban)	-263.992	6.968	-270.960
	(22.84)***	(1.21)	(20.98)***
Jiangsu(rural)	-96.310	-10.262	-86.048
	(8.75)***	(1.88)*	(7.00)***
Anhui(urban)	-257.743	11.063	-268.806
	(21.00)***	(1.82)*	(19.61)***
Anhui(rural)	79.722	15.194	64.528
	(7.07)***	(2.71)***	(5.12)***
Henan(urban)	-254.763	3.369	-258.132
	(22.30)***	(0.59)	(20.23)***
Henan(rural)	43.318	-0.650	43.969
	(4.63)***	(0.14)	(4.21)***
Hubei(urban)	-262.859	9.055	-271.914
	(23.44)***	(1.63)	(21.70)***
Hubei(rural)	336.058	26.052	310.005
	(28.34)***	(4.42)***	(23.40)***
Guangdong(urban)	-255.399	18.195	-273.595
	(16.58)***	(2.38)**	(15.90)***
Guangdong(rural)	-133.780	-3.045	-130.735
	(11.62)***	(0.53)	(10.17)***
Sichuan(urban)	-262.612	4.301	-266.914
	(24.60)***	(0.81)	(22.38)***
Sichuan(rural)	-3.191	-1.381	-1.810
	(0.36)	(0.31)	(0.18)
Yunnan(urban)	-255.961	31.066	-287.027
	(22.19)***	(5.42)***	(22.28)***
Yunnan(rural)	-177.776	-3.208	-174.568
	(13.10)***	(0.48)	(11.52)***
Gansu(urban)	-256.333	117.184	-373.516
	(19.70)***	(18.13)***	(25.69)***
Gansu(rural)	Ref	Ref	Ref
Constant	238.927	0.037	238.890
	(47.83)***	(0.01)	(42.81)***
Observations	14761	14761	14761
Adjusted R-squared	0.3312	0.0425	0.2898

Absolute value of t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

iii) Taxes and Subsidies - 2002

Table 4 reports results in a similar manner for 2002. In column 1, the coefficient on rural households is 0.072 and for urban households 0.009, showing that rural households have a higher tax burden. In column 2, the subsidies equation has a coefficient on urban households of 0.0112 and for rural 0.0016, although this is not significantly different from zero. This suggests that urban households still receive subsidies under a progressive system while those for rural households are not a function of income. In column 3, the coefficient on urban households is negative but insignificant, as expected. The coefficient on rural households is significant, meaning that this group still have a positive net tax liability. Examining the dummy variables on rural and urban income in each province, there is a general finding that rural households pay more tax than urban ones (column 1) and that most rural dummy variables are not significantly different from zero (column 2). The adjusted R^2 shows a higher goodness of fit in the taxation model (0.299), but there is lower explanatory power in the subsidies model, which can be attributed to the insignificant amounts of subsidies received by rural households.

Table 4, China 2002, Rural and Urban Compared by Province

	Taxes	Subsidies	Net tax
Income(urban)	0.009465	0.011175	-0.001710
	(11.54)***	(4.77)***	(0.68)
Income(rural)	0.072359	0.001647	0.066433
	(44.79)***	(0.36)	(12.50)***
Beijing(urban)	22.424	1,676.244	-1,672.706
	(0.32)	(8.36)***	(6.76)***
Beijing(rural)	193.482	112.849	341.938
	(2.29)**	(0.47)	(1.09)
Shanxi(urban)	132.505	266.840	-153.221
	(2.13)**	(1.50)	(0.67)
Shanxi(rural)	343.394	102.775	332.563
	(5.32)***	(0.56)	(1.35)
Liaoning(urban)	143.444	545.094	-420.535
	(2.31)**	(3.07)***	(1.86)*
Liaoning(rural)	828.178	5.472	827.798
	(13.15)***	(0.03)	(3.21)***
Jiangsu(urban)	101.090	862.573	-780.368
	(1.63)	(4.85)***	(3.44)***
Jiangsu(rural)	461.247	474.545	-16.964
	(7.13)***	(2.56)**	(0.07)
Anhui(urban)	178.655	373.689	-213.920
	(2.76)***	(2.02)**	(0.92)
Anhui(rural)	125.289	23.166	86.962
	(1.98)**	(0.13)	(0.35)
Henan(urban)	140.123	107.685	13.552
	(2.28)**	(0.61)	(0.06)
Henan(rural)	41.804	15.222	49.249
	(0.69)	(0.09)	(0.22)
Hubei(urban)	151.707	762.848	-630.026
	(2.45)**	(4.31)***	(2.79)***
Hubei(rural)	466.709	114.154	190.594
	(7.62)***	(0.65)	(0.79)
Guangdong(urban)	200.685	2,762.547	-2,580.747
	(2.94)***	(14.14)***	(10.64)***
Guangdong(rural)	-162.558	333.963	-425.546
	(2.53)**	(1.82)*	(1.82)*
Sichuan(urban)	119.465	416.669	-316.090
	(1.90)*	(2.31)**	(1.38)
Sichuan(rural)	165.028	152.311	27.924
	(2.68)***	(0.87)	(0.12)
Chongqing(urban)	124.253	862.627	-757.260
	(1.69)*	(4.10)***	(2.95)***
Chongqing(rural)	250.983	31.370	235.787
	(3.24)***	(0.14)	(0.88)
Yunnan(urban)	122.142	1,346.844	-1,243.588
	(1.95)*	(7.54)***	(5.47)***
Yunnan(rural)	127.357	79.665	4.557
	(1.78)*	(0.39)	(0.02)
Gansu(urban)	142.190	1,586.039	-1,462.735
	(2.11)**	(8.24)***	(6.10)***
Gansu (rural)	Ref	Ref	Ref
Constant	-273.210	28.141	-282.465
	(5.51)***	(0.20)	(1.44)
Observations	11545	11545	10589
Adjusted R-squared	0.2993	0.0909	0.1389

Absolute value of t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

iv) Trends in Taxes and Subsidies: An inter-year comparison

Comparing the tax burden on rural households and the subsidies received by urban households during the three years of these data, provides an opportunity to examine the impact of policy change over this 14 year period. In particular, it is interesting to identify whether there has been any reduction in the urban-rural income gap. Three trends are worth noting.

First, urban residents do face some degree of tax liability, and indeed do pay tax, while some rural households have begun to receive subsidies. In 1988, almost no tax was paid by urban residents, but by 2002 the number of urban residents paying tax has increased and the amount of tax they pay as a share of income has increased. Further, rural households that received no financial support in 1988 are now getting modest subsidies.

Second, in the urban sector, the structure of the tax burden has become slightly more progressive from the high levels of regressivity in the urban areas. For this group, the coefficient has changed from negative in 1988 (-0.0001) to positive in 1995 (0.0020) and in 2002 (0.0094). These values are still small, but growing.

Third, subsidies have started to play a role in helping households at the lower end of the income distribution move out of extreme poverty. Households in the lowest decile by pre-tax pre-transfer income received some support in the form of subsidies. Although this is directed mostly towards the urban poor, this is a positive step in redistributing income from the rich to the poor and reversing the inequality that has increased during the reform period.

5 Decompositions and comparisons of the impact of tax

This section decomposes inequality by urban and rural using the Theil L (mean Logarithmic Deviation, or GE(0)) and Theil T (GE(1)) entropy measures. Shorrocks (1984) and Shorrocks and Wan (2005) provide detailed discussion on this approach. This decomposition allows a separation of the overall inequality to the weighted sum of inequality within urban and rural sectors, and the inequality measured across mean incomes of urban and rural households (see Sicular et al 2007).

Table 5 reports the two Theil indices and the results of inequality decompositions using both the income before and after taxes and subsidies in 1988, 1995 and 2002. By comparing the inequality indices before and after taxes and subsidies, the impact of these on overall inequality and each component of inequality can be determined.

From table 5, two points can clearly be seen from both Theil L and Theil T decomposition: first, taxes and subsidies increase the urban-rural income gap as a contributor to overall inequality. For example, in 1988, the Theil L indices increases from 0.165 before tax and subsidies to 0.185 after the transfer of income is imposed. This increases the urban-rural income gap as it's contribution urban-rural to overall inequality increases from 11.41 percent to 18.50 percent. Second, taxes and subsidies increase overall inequality in China over the years, which confirms the earlier regression analysis. For example the share of between effects for Theil L increases from 18.50 percent in 1988 to 24.83 percent in 2002.

Table 5: Inequality decomposition by urban and rural, before and after taxes and subsidies.

	1988				1995				2002			
	Theil L		Theil T		Theil L		Theil T		Theil L		Theil T	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Total	0.16480	0.18514	0.16279	0.17478	0.27183	0.28243	0.31214	0.32034	0.23154	0.24337	0.22031	0.23012
Between	0.01881	0.03425	0.01872	0.03384	0.03741	0.04120	0.03697	0.04063	0.04903	0.06042	0.04565	0.05560
Within	0.14599	0.15089	0.14407	0.14094	0.23442	0.24123	0.27517	0.27971	0.18251	0.18295	0.17466	0.17452
Contribution of between and within effects (%)												
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Between	11.41	18.50	11.50	19.36	13.76	14.59	11.84	12.68	21.18	24.83	20.72	24.16
Within	88.59	81.50	88.50	80.64	86.24	85.41	88.16	87.32	78.82	75.17	79.28	75.84

6 Conclusions and welfare implications

The increase in inequality in China has been especially pronounced in the past two decades of the reform period and so did the urban-rural gap. Understanding the cause and trends is important for a number of reasons, including the impact on social welfare and political stability. The urban-rural income gap and inequality is a legacy of a historical development strategy that fulfilled a political ideology. The heavy industry oriented development strategy had to be supported by exploiting rural agriculture, which was the case for many developing countries, but none to the extent that has occurred in China. This has resulted in different regimes for taxation and the social support offered to rural and urban populations. It has also been exacerbated by institutional barriers to restrict labour mobility.

The paper first identified the taxes and fees paid and subsidies received by urban and rural households in 1988, 1995 and 2002. This showed the distortions that resulted from policies that allowed urban households to escape most of the tax burden, because of both a high tax threshold and the lack of any enforcement to those that did face a positive tax liability. These urban households also received subsidies. The data also showed that the rural population did pay tax although they received very little in terms of either private transfer or public services, both at the national or local level. The econometric models in this paper confirmed these finding and support the hypothesis of a system of regressive taxation and progressive subsidies in China. The decomposition analysis also establishes that these policies have contributed to the persistent and widening urban-rural income gap. From these results it is clear that the rural population pay not only a higher proportion of their income in tax, but also more taxes in absolute terms, compared with urban households at the same income level.

Throughout history, people have migrated to avoid the burdens imposed by heavy taxation, one example being the mass movement across Europe during the Middle Ages. In an economy with freedom of movement, rural populations migrate to urban areas in order to increase their income and avoid the exploitation that frequently occurs in the countryside. However, in China, taxes and subsidies are based on individual Hukou status, which is determined largely by place of birth. Even when rural labourers migrate to urban areas, they still face the rural tax and fee liability simply because of their rural Hukou status and changing this is extremely rare. Further, their situation is exacerbated because of the huge discrimination in terms of occupational attainment and wages.

In many developed economies, the principal of labour-leisure choice allows individuals to balance their amount of labour with the legislated tax liability. If they wish to work longer to increase their standard of living, they do so in full knowledge of the tax implications. In this way, the income effect of tax policy induces more work and hence increases economic efficiency (Salanie 2003). However, in any country with high levels of surplus labour such as China, high taxation of the poor will only result in a reduction in the livelihoods of the rural population while not increasing economic efficiency. Because of the surplus labour, most of the potential income-increasing opportunities have already been exploited. Therefore, high taxation will not increase the overall national product as it does in developed countries with a progressive system of taxation. Any tax liability on the poor will have a redistribution effect that will be inequality increasing. But if tax revenues are spent in a way that enhances output, or are redistributed effectively back to those on low incomes in the form of subsidies, the negative effects of tax may be minimised with respect to the wealthy and have a positive effect on those that are not. This paper has shown that there was virtually no redistribution of income to rural residents directly prior to the reforms in China. There has also been a lack of public infrastructure in the countryside as the major investment has been concentrated in the urban areas. The rural population neither received subsidies nor any improvement in local facilities, while providing the majority of tax revenues.

Wide ranging reforms in China have led to high levels of economic growth but this has resulted in increasing income inequality and discrimination. At these levels of development, a major objective of the national social benefit system should be to reduce income inequality. It is shown that the structure of the tax system has improved during the reform, and although it is very slow, the differential in the tax burden

between rural and urban households is finally decreasing. Some reform has now been implemented and since 2004 the Tax of Special Agricultural Products has been removed except on tobacco. The agricultural tax was exempted in most provinces in 2005 and waived across the country in 2006. Because of this reform, fees and administrative charges that were levied with this tax lost their legitimacy. Although there are still some small fees introduced by some local government, rural the burden on rural households has been greatly reduced.

However, the urban-rural income gap is still increasing even after the rural agricultural tax has been abolished. This can be attributed to the increasing role of the market in allocating wages, which means the reform of the tax system is not sufficient to improve the earning capacity of these who were previously disadvantaged. More should be done to improve the opportunities for rural labourers, such as eliminating the barriers of migration, improving the infrastructure of rural areas and reducing the discrimination that would allow those that migrate to the urban areas to compete fairly in an integrated labour market.

References

Bates, R. (1981). *Markets and States in Tropical Africa*, Berkeley: University of California Press.

Bernstein, T. and Xiaobo L. (2000). 'Taxation without Representation: Peasants, the Central and Local States in reform in China'. *The China Quarterly,* 163: 742-763.

National Bureau of Statistics of China (eds.), *China Statistic Yearbook*, various years, Beijing: China Statistics Press.

Chang, G. H. (2002). 'The Cause and Cure of China's Widening Income Disparity'. *China Economic Review*, 13: 335-40.

Gao, Qin. (2006). 'The Social Benefit System in Urban China: Reforms and Trends from 1988 to 2002'. *Journal of East Asian Studies, 6*(1), 31-67

Griffin K. and Zhao, R. (Eds.) (1993). *The Distribution of Income in China*. New York, NY: St. Martin's Press, Inc.

Gustafsson, B., and Li, S. (1997). 'Types of Income and Inequality in China at the End of the 1980s'. *Review of Income and Wealth*, Volume 43, Issue 2, Pages 211 – 226.

Gustafsson, B., Li, S. and Sicular, T. (eds.) (2008). *Income Inequality and Public Policy in China Inequality and Public Policy in China*, New York: Cambridge University Press.

Knight, J. and Song, L. (1999). *The Rural-Urban Divide: Economic Disparities and Interactions in China.* Oxford: Oxford University Press.

Lipton, M. (1977). *Why Poor People Stay Poor: Urban Bias in World Development*, Cambridge, MA: Harvard University Press.

Lu, M. and Wiemer, C. (2005). 'An End to China's Agriculture Tax'. *China: An International Journal* 3(2): 320-330

Meng, X. and Zhang, J. (2001) 'The Two-Tier Labor Market in Urban China: Occupational Segregation and Wage Differentials between Urban Residents and Rural Migrants in Shanghai'. *Journal of Comparative Economics* 29(3): 485-504

Mirrlees, J. (1971) 'An Exploration in the Theory of Optimum Income Taxation'. *Review of Economic Studies*, 38(2): 175–208.

Musgrave, R. (1994). "Progressive Taxation, Equity, and Tax Design" in Joel Slemrod (*eds*) *Tax Progressivity and Income Inequality*, Cambridge: University Press

Olson, M. (1965). *The Logic of Collective Action*. Cambridge, MA: Harvard University Press.

Riskin, C., Z.hao, R. and Li, S. (Eds.) (2001). *China's Retreat from Equality: Income Distribution and Economic Transition*. Armonk, NY: M. E.Sharpe, Inc.

Salanie, B. (2003) *The Economics of Taxation*. Cambridge, MA: MIT Press.

Schiff, M. and Valdes, A. (1992). *The Political Economy of Agricultural Pricing Policy: Volume 4, A Synthesis of the Economics in Developing Countries: A World Bank Comparative Study.* Baltimore and London : Johns Hopkins University Press.

Shorrocks, A. (1984). 'Inequality Decomposition by Population Subgroups'. *Econometrica*, 52 (6), 1369-85

Shorrocks, A. and Wan, G. (2005). "Spatial Decomposition of Inequality", *Journal of Economic Geography*, 5(1), 59-81

Sicular, T. Yue, X. Gustafsson, B. and Li, S. (2007). 'The Urban–Rural Income Gap and Inequality in China'. *Review of Income and Wealth*, 53 (1): 93-126

Slemrod, J. (1994). 'Introduction' in Joel Slemrod (*eds*) *Tax Progressivity and Income Inequality*, Cambridge: University Press.

Slemrod, J. (2006). 'The Consequences of Taxation'. *Social Philosophy and Policy*, 23 (2): 73-87

Tao, R. and Mingxing L. (2005). 'Urban and Rural Household Taxation in China. Measurement, Comparison and Policy Implications'. *Journal of the Asia Pacific Economy*, 10 (4): 485-505.

Vickrey, W. (1947). *Agenda for Progressive Taxation*. New York: The Ronald Press Co.

Vickrey, W. (1992) 'An updated agenda for progressive taxation. *American Economic Review*, 82 (2): 257-262

The University of Manchester
Brooks World Poverty Institute

MANCHESTER 1824

Executive Director
Professor David Hulme

Research Director
Professor Armando Barrientos

The Brooks World Poverty Institute (BWPI) creates and shares knowledge to help end global poverty.

BWPI is multidisciplinary, researching poverty in both the rich and poor worlds.

Our aim is to better understand why people are poor, what keeps them trapped in poverty and how they can be helped - drawing upon the very best international practice in research and policy making.

The Brooks World Poverty Institute is chaired by Nobel Laureate, Professor Joseph E. Stiglitz.

Contact:

Brooks World Poverty Institute
The University of Manchester
Humanities Bridgeford Street Building
Oxford Road
Manchester
M13 9PL
United Kingdom

Email: bwpi@manchester.ac.uk

www.manchester.ac.uk/bwpi