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IN CHINA AND INDIA, 1986-2015**

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## ABSTRACT

### Income Inequality and Progressive Income Taxation in China and India, 1986-2015\*

This paper evaluates the prospects for income tax reform in China during the coming decade (with a comparison to India), and argues that such reforms should rank high on the policy agenda in these two countries. Due to high average income growth and sharply rising top income shares during the 1990s and early 2000s, progressive income taxation is about to raise non-trivial tax revenues in China and India and to become an important political object. According to our projections, the income tax should raise at least 4% of Chinese GDP in 2010 (versus less than 1% in 2000 and 0,1% in 1990), in spite of the 20% nominal rise in the exemption threshold that took effect in 2004. The fact that progressive income taxation is becoming an important policy tool has important consequences for China's ability to finance social spending and to keep under control the rise in income inequality associated to globalization and growth. Due to faster income growth and to a higher fraction of wage earners in the labor force, the prospects for income tax development look better in China than in India. This potential is however limited by the fact that Chinese top wage-earners are under-taxed relatively to top non-wage income earners.

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## **1. Introduction**

Current debates about policy reform in LDCs generally focus on improving the delivery of social services, the design of market-friendly economic institutions, the effectiveness of poverty reduction programmes, or the role of trade and market liberalization, and very rarely deal explicitly with tax reform and the need to develop modern income tax systems in those countries.<sup>1</sup>

This is unfortunate for at least three reasons. First, poor countries tend to rely excessively on highly distortionary tax instruments such as taxes on trade or indirect taxes on specific consumption goods. The gradual shift towards modern and transparent income and payroll tax systems is generally regarded as an important, efficiency-enhancing aspect of the modernization process.

Next, many LDCs need to raise more tax revenues in order to properly finance education and health investment, and income taxation can be part of the solution, especially in an international context characterized by sharp downward pressures on tariffs and various indirect taxes. In countries like China and India, in spite of very rapid growth, tax revenues are currently stagnating around 10%-15% of GDP, which is probably far too little. There is no example of a country in the West that has been able to develop a proper education and health system with total tax revenues around 10-15% of GDP. Improving the efficiency of social services delivery is probably a good idea, but might well be illusory in case those services are not properly funded.

Finally, many LDCs have witnessed a sharp rise in income inequality during the recent period. Progressive taxation is probably one of the least distortionary policy tools available to keep the rise in inequality under control and to redistribute a bit more equally the gains from growth (it is less distortionary than more radical policy tools such as nationalization, minimum wages or autarky). In India, the fact that many people did not benefit from the 5%-6% annual growth rates advertised by the government and felt left behind of “shining India” probably played an important role in recent electoral outcomes.

In this paper, we choose to focus on the case of progressive income taxation in China. Although a progressive individual income tax system has been in place in China since 1980, it has received very little attention so far, probably because the

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<sup>1</sup> See, e.g., the list of topics covered in World Development Reports over the past few years.

fraction of the population with income above the exemption threshold was negligible until the 1990s (less than 1%). Using annual, 1986-2003 tabulations from urban household income surveys collected by China's National Statistical Bureau (NSB), we compute series on levels and shares of top incomes in China over this period, as well as series on theoretical numbers of taxpayers and total income tax receipts (based on actual tax law).<sup>2</sup> We also make projections about the evolution of the number of taxpayers and total receipts over the 2004-2015 period, assuming constant income trends and income tax schedules.

One additional motivation for computing theoretical numbers of taxpayers and tax receipts is the fact that there is widespread presumption that official Chinese income tax law is not being applied very rigorously by tax authorities. In particular, many observers seem to believe that tax authorities make deals with large firms and autonomous regions or cities whereby the latter offer a lump-sum payment to tax authorities and their employees and residents are not subject to the official income tax schedule. Although at this stage there does not seem to exist detailed tabulations of income tax returns by income brackets or tax liability in China (such tabulations exist in most countries with an income tax system), we were able to use aggregate 1996-2003 income tax receipts series (broken down by wage income, business income and capital income for 2000-2003) and compare them with our theoretical series. It turns out that although there is some evidence that the law is not fully applied, actual receipts and theoretical receipts are reasonably close.

We were also able to compare our Chinese findings with similar series for India. Contrarily to its Chinese counterpart, the Indian tax administration has been compiling detailed tabulations of income tax returns every year since the creation of a progressive income tax in India (1922). Indian tax returns tabulations were recently exploited by Banerjee and Piketty (2004, 2005) to study the long run evolution of top income shares in India, and we use their results for the 1986-2001 sub-period as a comparison point for our Chinese series.

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<sup>2</sup> A number of economists have used NBS's household surveys and have documented the rise in income inequality that took place in China during the 1990s (see e.g. Chen and Wang (2001), Eckaus, Lester and Qian (2003) and Ravallion and Chen (2001)). However these works generally focus on poverty: they generally do not deal specifically with the top of the distribution and (most importantly) do not look at the issue of progressive income taxation. Chen and Wang (2001) show that income dispersion has increased at the top of the distribution (which is fully consistent with our findings) but do not mention the issue of income taxation. For more details on the NSB tabulations used in this study (these tabulations were designed explicitly to focus on top income brackets and to facilitate tax simulations), see section 2 below.

Our main conclusions are the following. First, our general conclusion is that progressive income taxation is about to become an important economic and political object in China and India, and that income tax reform should rank high on the policy agenda in these two countries. Due to high average income growth and sharply rising top income shares during the 1990s and early 2000s, progressive income taxation is starting to hit non-negligible fraction of the population in both countries (as more and more workers pass the exemption threshold, following what happened in Western countries half-a-century ago) and to raise non-trivial tax revenues. According to our projections, the income tax should raise at least 4% of Chinese GDP in 2010 (versus less than 1% in 2000 and 0,1% in 1990), in spite of the 20% nominal rise in the exemption threshold that took effect in 2004. In case no further rise in exemption threshold occurs (which seems fairly unlikely), we predict that over 80% of urban wage earners will be subject to tax by 2015, and that income tax revenues will well exceed 10% of Chinese GDP (i.e. more than in a number of developed countries).

The fact that progressive income taxation is becoming an important policy tool has important consequences for China's ability to finance social spending and to keep under control the rise in income inequality associated to globalization and growth. Due to faster income growth, to lower bracket indexation and to a higher fraction of wage earners in the labor force, the prospects for income tax development look better in China than in India. This potential is however limited by the fact that Chinese top wage-earners are under-taxed relatively to top non-wage income earners.

The rest of the paper is organized as follows. Section 2 briefly describes the NSB data used in this paper. In Section 3, we present our findings for the evolution of top income shares in China, and compare them to the Indian series of Banerjee and Piketty (2003). The results of our income tax simulations are presented and analyzed in section 4. Section 5 offers some concluding comments.

## **2. Data and Methodology**

The Chinese data used in this paper comes from the urban household income surveys collected by China's National Statistical Bureau (NSB). These surveys are designed so as to representative of urban China. Between 13 000 and 17 000

households are being surveyed each year until 2002, up to 45 000-50 000 in 2002 and 2003 (see appendix Table A1). The micro-files for these surveys are unfortunately not available for all years,<sup>3</sup> and we asked NSB to provide us with annual, 1986-2003 tabulations based on the micro-files. We asked for two series of tabulations: household tabulations and individual tabulations.<sup>4</sup> Household tabulations report for a large number of income brackets (and in particular a large number of top income brackets) the number of households whose total household income falls into that bracket, their average total income and household size, as well as their average income broken down by income sources (wage income, business income, capital income and transfer income). Individual tabulations report for a large number of income brackets (and in particular a large number of top income brackets) the number of individuals whose individual income falls into that bracket, their average age, years of education, income and household size, as well as their average income broken down by income sources. In practice, some forms of income cannot be properly attributed to a specific individual within the household (this is particularly true for transfer income and capital income), so that the total income aggregates reported in household tabulations are larger than in individual tabulations, and various adjustments are necessary when one uses the latter (see appendix Tables A1 and A2). However the important advantage of individual tabulations is that China's income tax applies to individual income (rather than household income).

We used standard Pareto interpolation techniques to approximate the form of the Chinese household and individual distribution of income, and we then used these structural parameters to compute top fractiles incomes and to make income tax simulations.<sup>5</sup> The Chinese data appears to be very well approximated by a Pareto distribution (for any given year, Pareto coefficients are extremely stable within the top decile), although there is some presumption that top incomes are underestimated in the survey data (more on this below).<sup>6</sup>

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<sup>3</sup> The micro-files for urban household surveys are available for researchers for years 1988 and 1995 only (see Eckaus, Lester and Qian (2003)).

<sup>4</sup> We also asked for "age tabulations" (reporting for each age cell the relevant number of individuals, their average years of education and income, as well as their average income broken down by income sources). We did not use these tables in the current version of this paper.

<sup>5</sup> For recent use of Pareto interpolation techniques, see e.g. Piketty (2003) and Piketty and Saez (2003).

<sup>6</sup> The Pareto coefficients, as defined by the ratio between average income above a given threshold and the threshold (the definition of a Pareto distribution is that this ratio does not depend on the threshold), appear to be extremely low in China (around 1,2 in the late 1980s, up to around 1,4 in the late 1990s and early 2000s), much lower than in any country for which we have seen similar data. In



We did not attempt to use similar tabulations from rural household surveys, but given that our focus is on top incomes and progressive income taxation this should not be too much of a problem: average rural income was in 2001 more than 3 times smaller than average urban income,<sup>7</sup> so that there are probably very few rural households and individuals in the national top decile, and even less so within the top incomes subject to progressive income taxation (agricultural income is exempt from the income tax and is being taxed separately).

We did not use any new Indian data in this research. All our series regarding India are borrowed from Banerjee and Piketty (2003), who used Indian income tax returns tabulations published in “All-India Income Tax Statistics” brochures (annually available since 1922) to estimate top income levels and national accounts to compute the average income denominator. Top income shares estimates based upon income tax returns are likely to be higher than estimates based on survey data (as the latter generally underestimates top incomes), but there is no obvious reason why the trends should not be comparable. Note also that the standard household surveys used by economists working on India (NSS surveys) can hardly be used to compute top income shares, as these are mostly expenditure surveys: except for particular years, and contrarily to NSB surveys, NSS surveys contain no systematic information on incomes.<sup>8</sup>

### **3. Top Income Shares in China and India, 1986-2001**

Did income inequality in China increase as much as in India during the 1990s? Before we look at our top income shares series, it is useful to recall one important difference between Chinese and Indian incomes during the past 15 to 20 years. While real per capita GDP increased by almost 160% in China between 1986 and 2001 (6,4% per year), it increased by slightly more than 60% in India (3,4% per year) (see Figure 1). According to the best available PPP conversion factors, real per

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the 1990s, similarly defined Pareto coefficients are around 1,7-1,8 in France and 2,3-2,4 in the U.S. A higher Pareto coefficient means a fatter upper tail of the distribution (a coefficient equal to 1 means that there is nobody above the given threshold, i.e. the distribution is truncated) and generally implies higher top income shares.

<sup>7</sup> See appendix Table A0.

<sup>8</sup> This important difference between China’s NSB and India’s NSS surveys has probably a lot to do with the fact that the Indian population includes a much higher fraction of independent workers with ill-defined income (including in the urban sector) and a much smaller fraction of formal wage-earners than China (more on this below).

capita GDP was virtually identical in China and India in 1986 (less than 20% larger in China), and it is almost twice as large in China as in India by 2001.<sup>9</sup> Note that the growth gap is even larger if we look at survey data rather than national accounts. While total 1986-2001 income growth is virtually the same in Chinese national accounts and household surveys, there exists a well-known “growth paradox” in Indian statistics: real GDP per capita (as measured by Indian national accounts) has increased by 64% between 1986 and 2001 (3,4% per year), but real consumption per capita (as measured by NSS surveys) has increased by only 24% (1,4% per year).<sup>10</sup> According to official Chinese statistics, there exists no such growth paradox in China: real GDP per capita (as measured by Chinese national accounts) has increased by 154% between 1986-2001 (6,4% per year), and real per capita income (as measured by NSB surveys) has increased by 140% (6,0% per year).<sup>11</sup>

Insert Figure 1: Real per capita GDP in China and India, 1986-2001

If we now look at the evolution of the top decile income shares in China over the same period, we find that income inequality has increased at a very high rate during the 1986-2003 period. According to our urban survey estimates, the top decile income share rose from about 17% in 1986 to almost 28% in 2003, i.e. by more than 60% (see Figure 2). The levels are probably underestimated (during most of the period they are even lower than in the most egalitarian developed countries, e.g. Scandinavia), but the upward trend seems large and robust.

Insert Figure 2: The top 10% income share in China, 1986-2003

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<sup>9</sup> See appendix Table A0.

<sup>10</sup> See appendix Table A0. This “Indian growth paradox” has attracted a lot of attention from economists. Here we use as an end point the latest NSS figures corrected by Deaton (2003) on the basis of the 1999-2000 NSS round (we adjusted upwards this figure to make it comparable to other estimates available for 2001). Deaton’s corrections did reduce the size of the gap between national accounts and NSS figures (until these corrections, there was basically no growth at all in the NSS during the 1990s), but the gap is still substantial. Banerjee and Piketty (2003) argue that the gap can be partly explained by the rise in top incomes in India during the 1990s (top incomes are not properly recorded in the NSS).

<sup>11</sup> See appendix Table A0. Note that rural per capita income has increased much less rapidly than urban per capita income and national per capita GDP (both increased at approximately the same rate), but that this was almost exactly compensated by the rise in the urban population share.

As we move up in the income hierarchy, the trend gets even bigger. For instance, the top 1% income share more than doubled between 1986 and 2001, from slightly more than 2,6% in 1986 to 5,9% in 2003 (see Figure 3 and Appendix Table A5). If we compare these results with those obtained for India,<sup>12</sup> we find that the levels are much lower in China than in India (the Chinese 2003 top 1% share is still lower than the Indian 1986 top 1% share), which again suggests that survey-based measures underestimate top incomes, but that the trend is substantially larger in China. The top 1% income share has increased by more than 90% in China between 1986 and 2001, and by less than 50% in India (see Figure 4).

Insert Figure 3: The top 1% income share in China and India, 1986-2001

Insert Figure 4: The top 1% income share in China and India, 1986-2001 (1986=100)

These results can be used not only to evaluate the prospects for progressive income taxation in China and India (see Section 4 below), but also to shed some new light on the on-going debate about globalization and the rise in inequality. Although our data does not allow us to identify precisely the causal channels at work, and in particular to isolate the impact of globalization, we note that the fact that the rise in income inequality was so much concentrated within top incomes in both countries seems more consistent with a theory based on rents and market frictions (see e.g. Banerjee and Newman (2003)) than with a theory based solely on skills and technological complementarity (i.e. inequality rises in the South because low-skill southern workers are too low-skill to benefit from globalization; see e.g. Kremer and Maskin (2003)), which would seem to imply more gradual shifts in the distribution. To the extent that the skill distribution is more unequal in India than in China (e.g. literacy rates are substantially higher in China), the skill-based theory would also seem to imply that income inequality should have risen more rapidly in India than in China, whereas we find the opposite (as far as the top 1% income share is concerned).

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<sup>12</sup> Banerjee and Piketty (2003) were only able to compute the income shares for the top percentile (and above) for India (and not the top decile), due to the low proportion of individuals subject to the income tax.

## **4. Progressive Income Taxation in China and India, 1986-2010**

### **4.1. Income Tax Schedules and Exemption Levels**

We now come to the issue of progressive income taxation. Table 1 describes the evolution of Chinese income tax schedules during the 1980-2004 period.<sup>13</sup> In the pre-reform era, all workers worked for the state and paid an implicit tax from their wages. Expansion of the private sector by the market reforms decreased the government's ability to tax directly. Following other countries, China developed an individual income taxation system, which officially began in 1980. In order to avoid negative public opinion, the deductible amount was set so high such that virtually no one had to pay income taxes in 1980.

However the striking fact is that China's income tax law has remained basically unchanged in nominal terms since its creation in 1980. The only major change is that the nominal exemption threshold for wage earners has been raised from 9 600 yuans per year in fiscal years 1980-1998 to 12 000 yuans in 1999-2003 and 14 400 yuans since 2004. Also note that the Chinese income tax systems treats wage income in a much more favourable manner than business income and capital income: while wage-earners are subject to the progressive income tax only if their annual wage is large enough, all business and capital income earners are subject to the tax (with no exemption). Business income is taxed by applying graded progressive rates, while capital income is taxed at a flat 20% rate. Many Western countries had a similar system when they first introduced income taxation (i.e. varying rates and deductions for different sources of income, with general a large exemption for wages and little or no exemption for business and capital income), before gradually shifting to a more integrated system.<sup>14</sup>

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<sup>13</sup> Keeping track of all the changes in China's tax law is not an easy business, so unfortunately we cannot exclude the possibility that we missed some important changes. However to the best of our knowledge all parameters reported on Table 1 are accurate. Tax laws are enacted jointly by the National People's Congress and the Standing Committee of the National People's Congress. Some local tax regulations may be formulated at the provincial level. However, individual income tax brackets are set by the central government and it is illegal for regional governments to alter it although in fact, some rapidly growing cities such as Shanghai and Shenzhen have on occasion increased the threshold above the centrally threshold to alleviate the tax burden of its lower income citizens.

<sup>14</sup> For instance, a similar schedular system existed in France when the income tax was put in place in 1914, and it was turned into an integrated system in 1948-1959.

### Insert Table 1: Progressive Income Tax Schedules in China, 1980-2004

In contrast to the Chinese income tax, the Indian income tax is a much older institution, since it was created in 1922 by the British. Moreover, it has always been an integrated system treating all income sources equally: Indian progressive tax schedules apply to total individual income, irrespective of where the income comes from. Another important difference is that the tax schedule has been changed almost constantly in India during the 1986-2004 period, resulting into a general decline in tax rates and a continuous increase in the exemption threshold (see Table 2).

### Insert Table 2: Progressive Income Tax Schedules in India, 1986-2004

From our perspective, the first important implication of these differing evolutions is that the exemption threshold (for wage earners) has increased less than inflation (and much less than nominal incomes) in China since 1986, while it increased approximately at the same rate as inflation in India, resulting into a massive increase in the proportion of the population subject to the income tax in China and a more modest increase in India (see Figures 5, 6 and 7). In China, the exemption threshold in 1986 (9 600 yuans) was about 7 times larger than average individual urban income (1 394 yuans), so that less than 0,1% of all wage earners were subject to the income tax in 1986. By 2003, the exemption threshold (12 000 yuans) has passed below average individual urban income (13 383 yuans), so that according to our estimates 44,1% of all urban wage earners were subject to tax. In India, the exemption threshold has always been set around 2-3 times average income during the 1986-2001 period, and it is only because of the rise in top income shares that the proportion of the population subject to the income tax has increased somewhat during this period (from 0,7% in 1986 to 3,8% in 2001). This is an important rise from an historical perspective (the proportion of the population subject to the Indian income tax had been relatively stable around 0,5%-1% between the 1920s and the early 1990s), but this is clearly much less than in China.<sup>15</sup>

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<sup>15</sup> The levels reported on figure 7 are not strictly comparable, since the Chinese figure applies to urban wage earners, while the Indian figure applies to all tax units (i.e. adult individuals). Note however that the fraction of urban wage earners is fairly large in China: in 2003 total urban population (adults and children) was about 500 millions, and the total numbers of urban wage earners was about 260 millions (see Appendix Tables A0 et A2).

In other words, due to lower bracket indexation and higher real income growth, the Chinese income tax has become a mass tax during the 1990s, while it has remained an elite tax in India. Assuming that China's 2004 income tax law applies until 2010 (i.e. there is no further rise in the exemption threshold after 2004) and the income trends (both in average income and top income shares) continue after 2001 at the same rate as during the 1996-2001 period, our projections indicate that almost two thirds of Chinese urban wage earners (over 200 millions individuals) will be subject to the income tax by 2010, and over 85% by 2015 (see Figure 8). As we shall see below, it is fairly likely that the exemption threshold will be increased again in order to keep this booming trend under control.

Insert Figure 5: Income tax exemption threshold, average income and P99 threshold in China, 1986-2003

Insert Figure 6: Income tax exemption threshold, average income and P99 threshold in India, 1986-2001

Insert Figure 7: The fraction of individuals subject to the income tax in China and India, 1986-2001

Insert Figure 8: Projected fraction of individuals subject to the income tax in China, 1986-2015

## **4.2. Income Tax Revenues**

One important question, however, is whether the Chinese income tax law is really being applied in practice. I.e. do all individuals who are supposed to be subject to the income tax according to the law really pay the income tax? Chinese tax laws are reasonably well documented, but there is almost no documentation of the actual implementation of these laws. Many observers in and outside China seem to believe that tax authorities make deals with large firms and autonomous regions or cities whereby the latter offer a lump-sum payment to tax authorities and their employees and residents are not subject to the official income tax schedule. We conducted a series of interviews with managers of six firms in Shanghai and several former employees of local tax ministries from another large city. We interviewed 2 large public sector firms (4 000-10 000 employees), 2 middle size private sector firms (a non-Chinese firm and a Chinese firm, 200-500 employees), and 2 small private

sector Chinese firms (30-100). According to these firms, the amount of income tax deducted from salaries is determined by the tax bureau that sends a representative to the firm once every couple of years. The duration is not set or announced ex ante. However, all the firms we met with had been visited by the tax bureau in the past three years. The visit entails an examination of the employment records and salaries. It is unclear whether the tax bureau determines an average tax rate for the firm on the basis of average wage only, or whether the full progressive schedule is really being applied. In many cases, all employees within a firm seem to share the same proportional tax liability. In other words, income taxation often seems to be progressive across firms, but not within firms.

Although this kind of anecdotal evidence is suggestive, one would obviously need systematic tabulations of taxpayers and effective tax rates by income brackets in order to better understand how income tax is really collected in China. Unfortunately, such tabulations by income brackets (similar what is being published by the tax administration in India and other countries) are not available in China. There does not even seem to exist any reliable statistics on the number of income tax taxpayers in China, so we cannot compare our theoretical numbers of taxpayers with the actual numbers.<sup>16</sup> However we can use published statistics on aggregate income tax revenues and compare it to theoretical tax revenues in order to evaluate how strictly the law is being applied. We compiled from China Tax Yearbooks aggregate income tax revenues series for 1996-2003. Starting in 2000, published aggregate revenue statistics are broken down by income source (wage income, business income, capital income and other income).<sup>17</sup> This very useful decomposition of tax revenues does not seem to be available prior to 2000. The comparison between actual tax revenues and theoretical tax revenues is given on Table 3. The theoretical tax revenues were

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<sup>16</sup> Estimates according to which there were approximately 10-11 millions income tax taxpayers in China in 1997-1998 have been published in the China Tax Yearbooks, but we were unable to find out what these numbers exactly refer to and how they were constructed. If they were true, these numbers would be substantially smaller than our theoretical estimates (about 25% of 200 millions wage-earners subject to income tax in 1997-1998, i.e. approximately 50 million taxpayers; see appendix Tables A2 and A6), which would seem to suggest that the law is not being applied properly. However the missing taxpayers might well have very low average tax liabilities, so it is hard to know how these figures should be interpreted (if the Chinese tax authorities were able to produce reliable estimates of the total number of taxpayers, they should also be able to break down this total number by income bracket or tax liability).

<sup>17</sup> « Other income » includes small items such as « author's remuneration » and « property transferring income » (these income types are not properly recorded in income surveys, and we did not attempt to replicate the corresponding tax revenues).

computed by applying the relevant tax schedules to the individual distributions of wage income, business income and capital income estimated from urban household income survey tabulations.

### Insert Table 3: Simulated vs. Actual Income Tax Revenues in China, 1996-2003

The first conclusion emerging from Table 3 is that actual income tax revenues are reasonably in line with theoretical tax revenues (as a first-order approximation), thereby suggesting that income tax collection in China is somewhat less chaotic and arbitrary than what many observers tend to assume. In 1996, actual income tax receipts made 0,28% of GDP, and theoretical receipts 0,33% of GDP; in 2003, actual income tax receipts made 1,21% of GDP, and theoretical receipts 1,13% of GDP (cf. Table 3). If we look separately at receipts by income source for 2003, we find theoretical receipts on capital income were equal to 40% of actual receipts (this reflects the fact capital income is under-reported in surveys), and that the corresponding figure was over 120% for business income and wage income. The latter figure could be interpreted as saying that business income and wage income have an excellent reporting rate in household surveys, and that the tax law is reasonably well applied: almost all business income earners and wage earners who are supposed to pay the income tax do pay it and are charged the right rate.

Such an interpretation might be misleading, however. There are good reasons to believe that top business incomes and top wages are under-reported in NSB household surveys, in which case the fact that theoretical receipts (based upon under-reported top business incomes and wages) and actual receipts coincide merely reflects the fact that collection rate is much less than 100%. If we adjust top survey wages and business incomes so as to obtain reasonable Pareto coefficients for the distribution,<sup>18</sup> we find that theoretical receipts for wage and business income are equal to 170%-180% of actual receipts (see Table 3), i.e. the tax collection rate for wage and business income is less than 60%. Although the problem is probably less severe than what many observers tend to assume, these illustrative (and highly

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<sup>18</sup> In order to obtain Pareto coefficients in line with what we observe in the most egalitarian Western countries, NSB coefficients (and therefore top decile wages and business income) need to be raised by about 20%: the Pareto coefficient is around 1,4 in Chinese survey tabulations in the early 2000s, while it is at least in 1,6-1,7 in Western countries. This is of course purely illustrative, as we have no reason to believe that the true Chinese Pareto coefficient is the same as in the West.



uncertain) computations suggest that there does exist a tax collection problem in China.

It is also interesting to note that actual receipts have increased at a significantly higher rate than theoretical receipts during the 1996-2001 period. One interpretation could be that tax collection has improved. Another interpretation is that household surveys underestimate not only the levels of top incomes, but also the upward trend in top income shares. In order to get a sense of the likely magnitude of this effect, we computed by how much the upward trend in top income shares needs to be scaled up in order to ensure that the trend in theoretical receipts does match the trend in actual receipts. We find that the 2001 top 1% share should be scaled up by about 35% relatively to the top 1% share in 1996, which is substantial.

Insert Figure 9: : Simulated vs. Actual Income Tax Revenues in China, 1996-2003

Although there is some uncertainty about the quality of tax collection and survey data, actual and theoretical tax receipts both show that income tax receipts (as a fraction of GDP) have increased substantially during the 1990s and 2000s. The contrast with India is particularly striking: while Indian income tax revenues have stagnated around 0,5%-0,6% of GDP during the 1990s, Chinese income tax revenues have been multiplied by more than 10, from less than 0,1% of GDP in the early 1990s to over 1,2% of GDP in 2003 (see Figure 10). The stagnation of Indian tax revenues reflects the fact that tax rates have been continuously reduced (see Table 2) and that the proportion of individuals subject to tax has increased only modestly (see Figure 7). The substantial rise in Chinese tax revenues reflects the facts that tax rates have remained the same (see Table 1) and that the proportion of individuals subject to tax has increased enormously (see Figure 7).

Insert Figure 10: Income tax revenues as a fraction of GDP in China and India, 1986-2001

Note that Chinese tax revenues would be substantially larger in the absence of a preferential tax treatment given to top wage earners over top business and capital income earners. We computed that if the business income tax schedule was applied to wage income as well, then Chinese income tax revenues in 2001 would be more

than 3% of GDP (instead of 1%). Although this preferential tax treatment of wage income might raise serious political problems in the medium run (as independent workers feel more and more disadvantaged as compared to top wage earners in large firms), as it did in other countries where similar preferential tax treatment was applied, removing this legal provision is however unnecessary to ensure the growth of Chinese income tax revenues. Because of the phenomenal growth in average incomes (and even more so of top incomes), income tax revenues should make much more than 1% of GDP in 2010. According to our projections, which are based on the assumption that tax law will not be changed after 2004 and that income trends will remain the same as in the 1996-2003 period, income tax revenues in China should make about 4,1% in GDP by 2010 (see Figure 11).<sup>19</sup>

The assumption that the exemption threshold will not be raised in the short run does not seem unreasonable, given that the 2004 increase in the exemption threshold was fairly high (from 12 000 to 14 400 yuans, i.e. 20%) and that inflation is currently very close to 0%. Moreover our projected tax revenues estimates should be viewed as a lower bound, first because we assumed that the survey-based trends and levels in top shares were not under-estimated (in particular we did not make the adjustment reported on Figure 9), and next because we assumed that there would be no improvement in tax collection. In other words, there are good reasons to believe that the income tax will raise at least 4% of GDP in China by 2010.

Insert Figure 11: Projected income tax revenues (as a fraction of GDP) in China, 1986-2010

If this happens, then China will have gone through its fiscal revolution. As Table 4 illustrates, moving from an elite income tax raising less than 1% of GDP to a mass income tax raising around 4-5% of GDP is exactly the kind of process through which Western countries have gone during the 1914-1950 period (when their income levels were similar to current Chinese levels). Although Indian income tax revenues will probably increase during the coming years, the prospects for India look less good, both because of lower income growth and higher bracket indexation. One reason

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<sup>19</sup> We did not make similar projections for India, first because it depends a lot on how tax law will evolve (if exemption levels are increased as much as during the 1990s, then revenues won't increase very much), next because available income data is poorer than in China (we do not know much about incomes immediately below the current exemption threshold).

why India faces more difficulties than China in making its income tax a mass tax might also be that the proportion of formal wage earners in the labor force is ridiculously low in India.<sup>20</sup>

Insert Table 4: Income tax development in historical perspective

Finally, note that according to our projections Chinese income tax revenues will exceed 10% of GDP by 2015, with over 85% of the urban workforce paying the income tax. This is again assuming fixed income trends, and most importantly no nominal change in income tax schedules until 2015, which seems very unlikely over such a long time period. As the income tax becomes larger and starts hitting the majority of the population, it is likely that the Chinese authorities will need to start adjusting exemption thresholds and tax brackets in line with inflation and real growth.

## **5. Concluding comments**

One might be tempted to conclude from this paper that the high growth performance of the Chinese economy is going to solve every problem, including the fiscal modernization problem, and that there is nothing else to worry about. We indeed found that due to high income growth and low bracket indexation, income tax revenues are currently booming in China, and that they should exceed 4% of GDP by 2010 (assuming constant tax law and income trends). The prospects look much less promising in India, where the income tax will probably remain an elite tax (rather than a mass tax) in the coming years.

The main conclusion that we draw from this paper, however, is that there is a lot policy makers and economists can do in order to improve the functioning and implications of progressive income taxation in countries like China and India. Given that income taxation is about to become something big, it is urgent to put income tax reform at the top of the policy agenda. For instance, China will not be able to under-index its exemption threshold forever, and the preferential tax treatment of wage earners will need to be addressed at some point. Next, there is clearly a problem with income tax collection in China (although our estimates suggest that it is less massive

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<sup>20</sup> See e.g. Tendulkar (2003).

than what it sometimes assumed). At the very least, China's tax authorities should start compiling and publishing detailed income tax tabulations by income bracket and tax liability (which every other country in the world with an income tax actually does), so that the tax collection problem can be properly evaluated and addressed.

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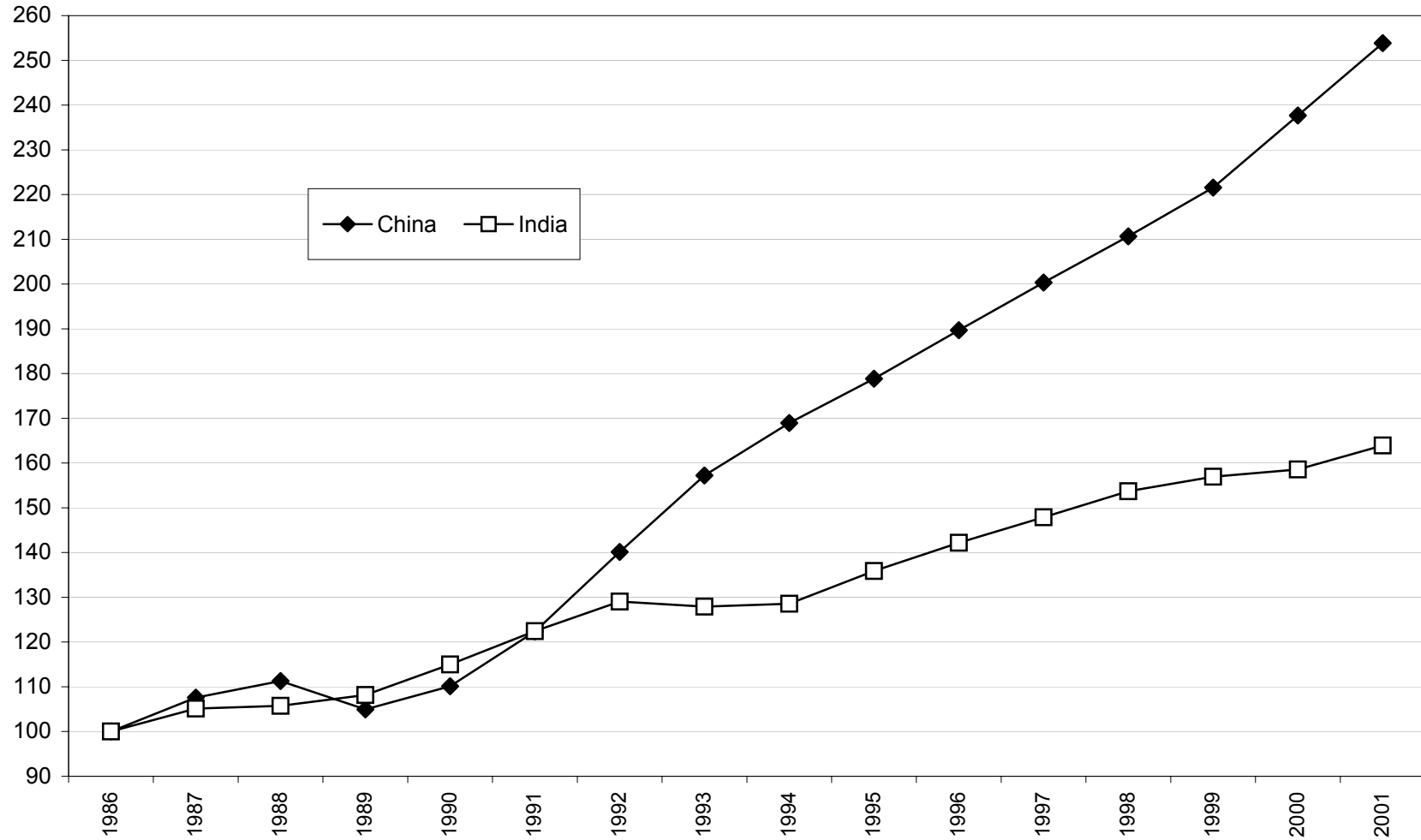
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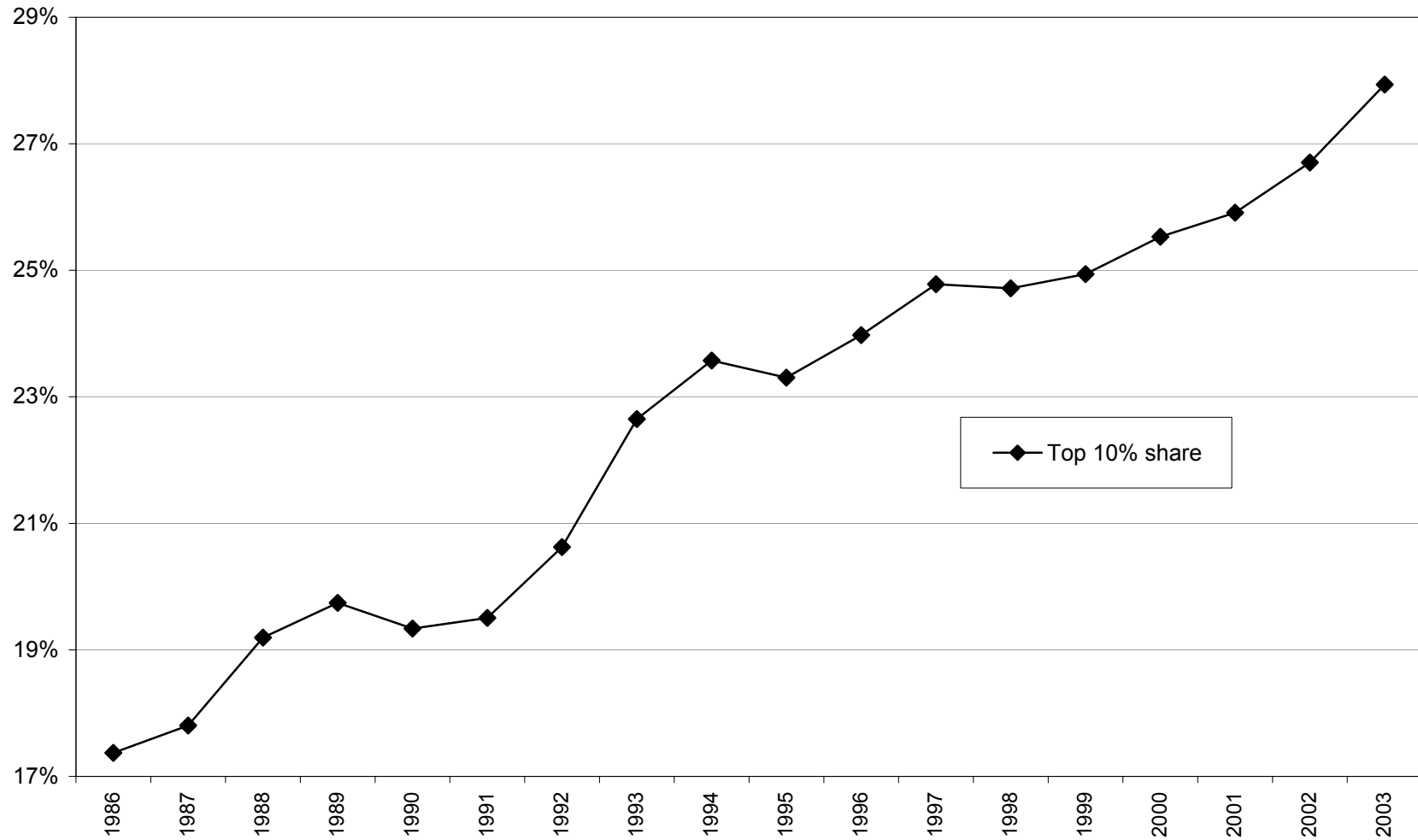
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**Figure 1 : Real per capita GDP in China and India, 1986-2001 (1986 = 100)**



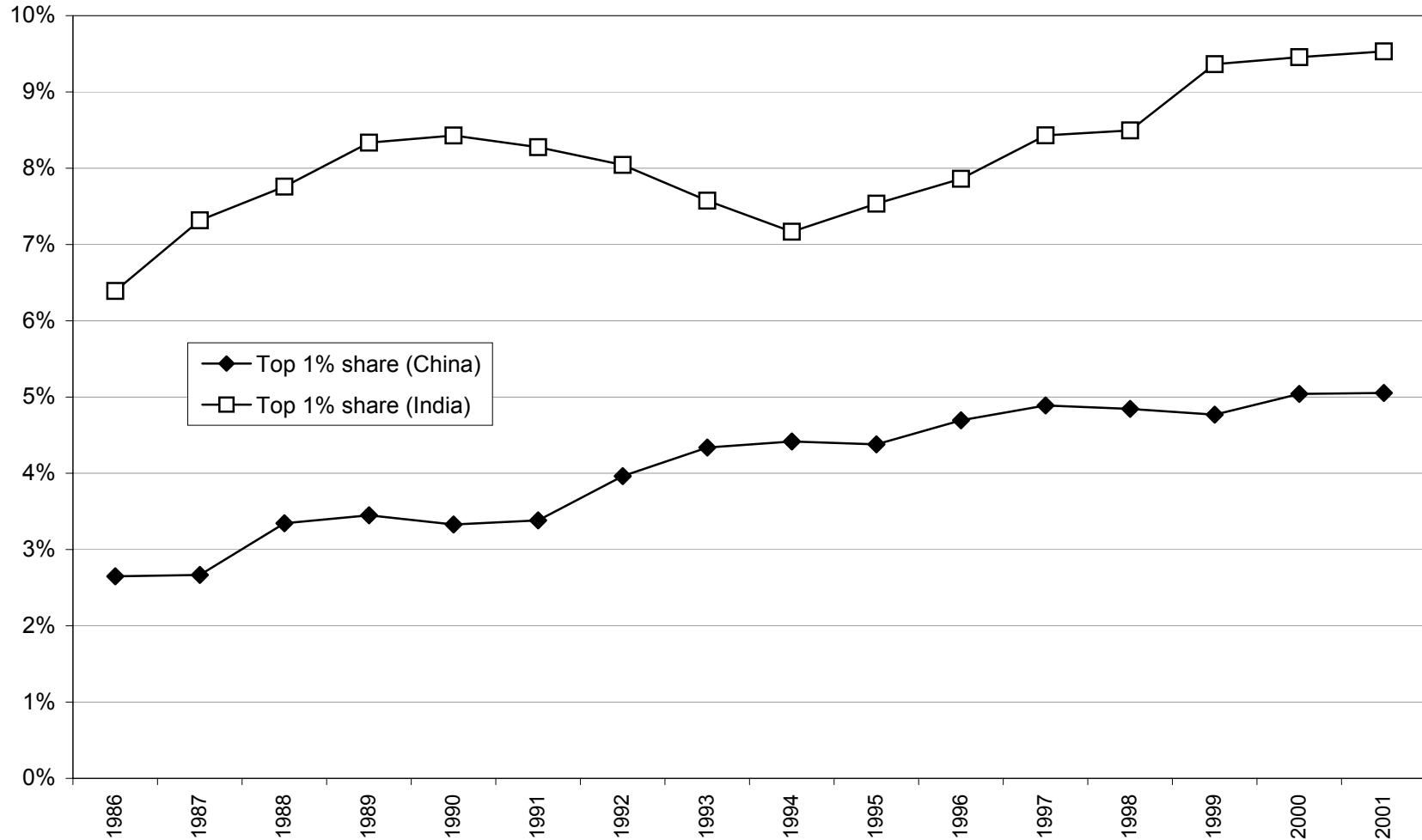
Source: Authors' computations using national accounts (see Table A0, col. (5) and (16))

**Figure 2 : The top 10% income share in China, 1986-2003**



Source: Authors' computations using urban household surveys tabulations (Table A5, col. (1), ind.income)

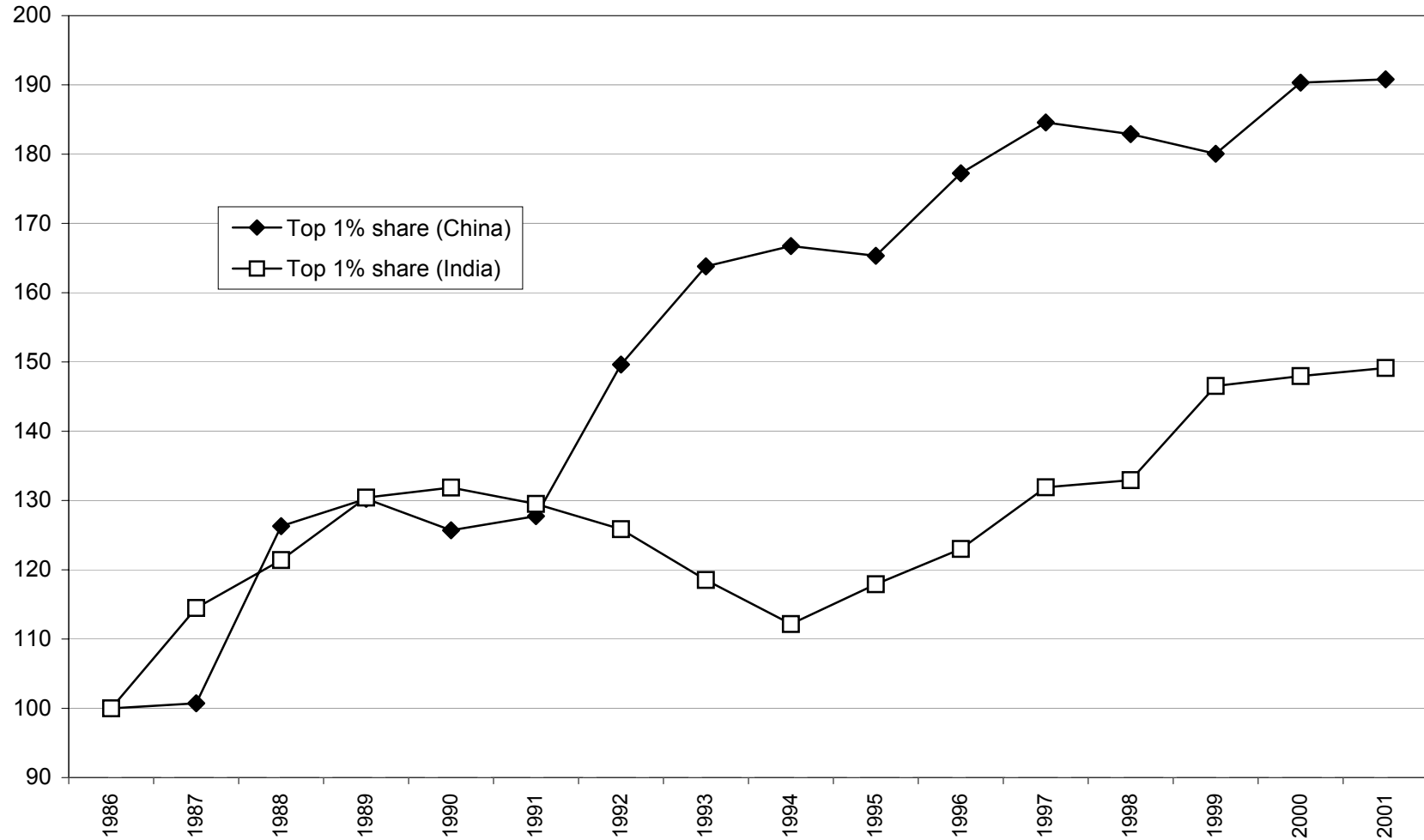
**Figure 3 : The top 1% income share in China and India, 1986-2001**



Source: China: authors' computations using urban household surveys tabulations (Table A5, col. (4), ind. distribution) ;  
India: authors' computations using income tax returns data (see Banerjee and Piketty (2003, Table A3, col.(1)))

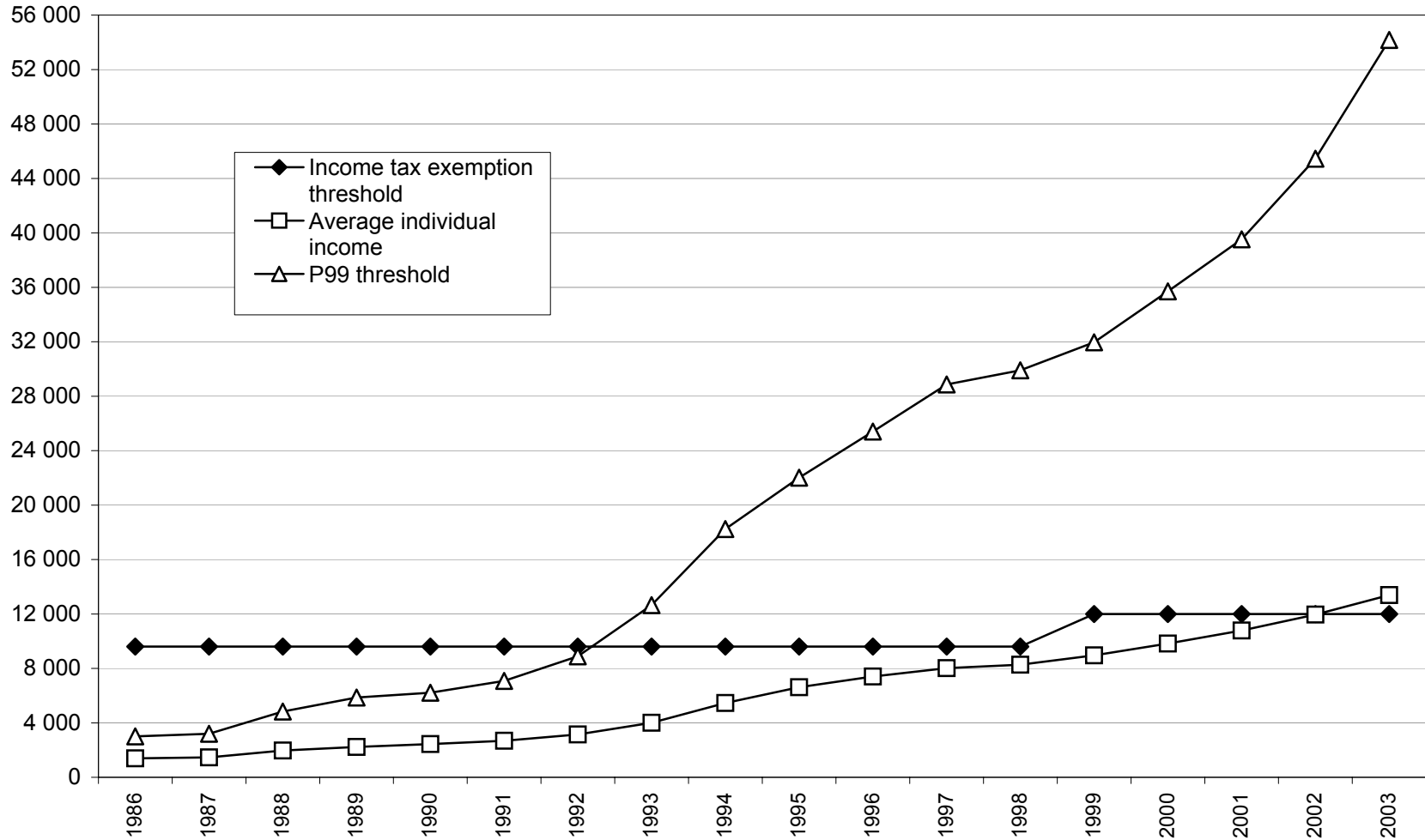


**Figure 4 : The top 1% income share in China and India, 1986-2001 (1986 = 100)**



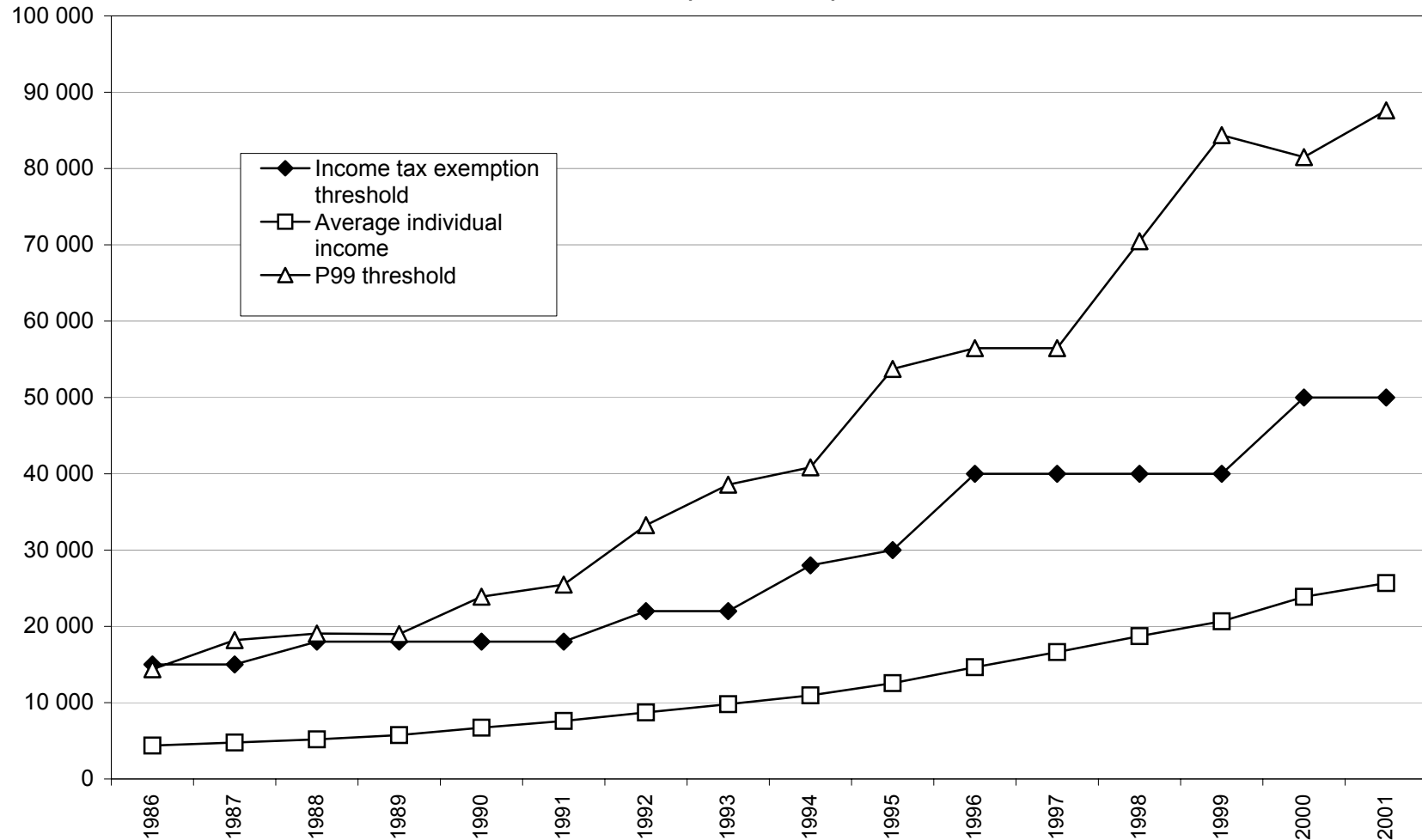
Source: China: authors' computations using urban household surveys tabulations (Table A5, col. (4), ind. distribution) ;  
India: authors' computations using income tax returns data (see Banerjee and Piketty (2003, Table A3, col.(1)))

**Figure 5: Income tax exemption threshold, average income and P99 threshold in China, 1986-2003  
(current yuans)**



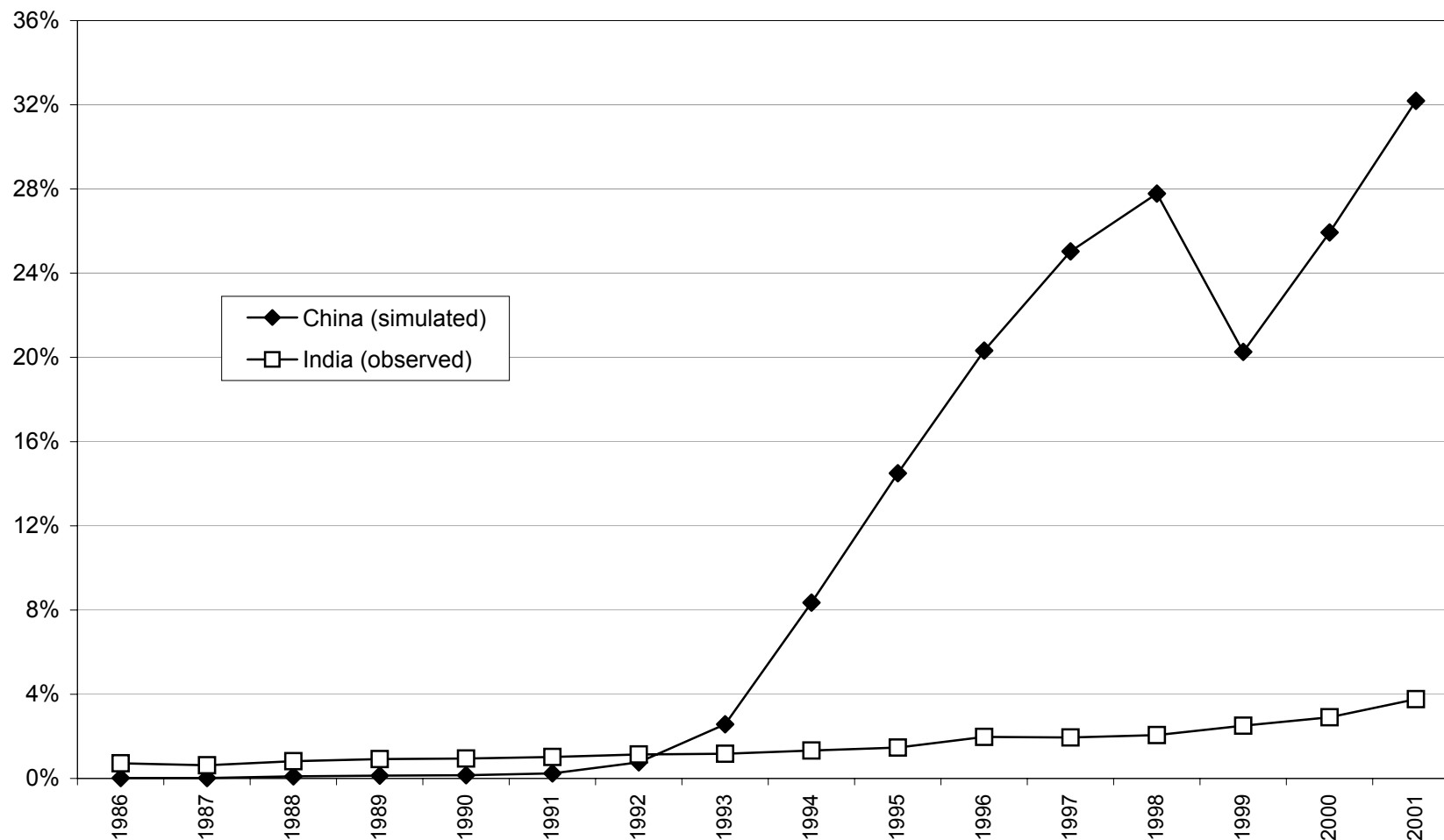
Source: Exemption threshold: Chinese tax law (see Table 1); average income and P99 threshold: authors' computations using urban household surveys tabulations (Table A1, col. (10), and Table A4, col. (15))

**Figure 6: Income tax exemption threshold, average income and P99 threshold in India, 1986-2001  
(current Rs)**



Source: Exemption threshold: Indian tax law (see Table 2); average income and P99 threshold: authors' computations using national accounts and income tax returns data (see Banerjee and Piketty (2003, Table A0, col. (7), and Table A1, col. (9))

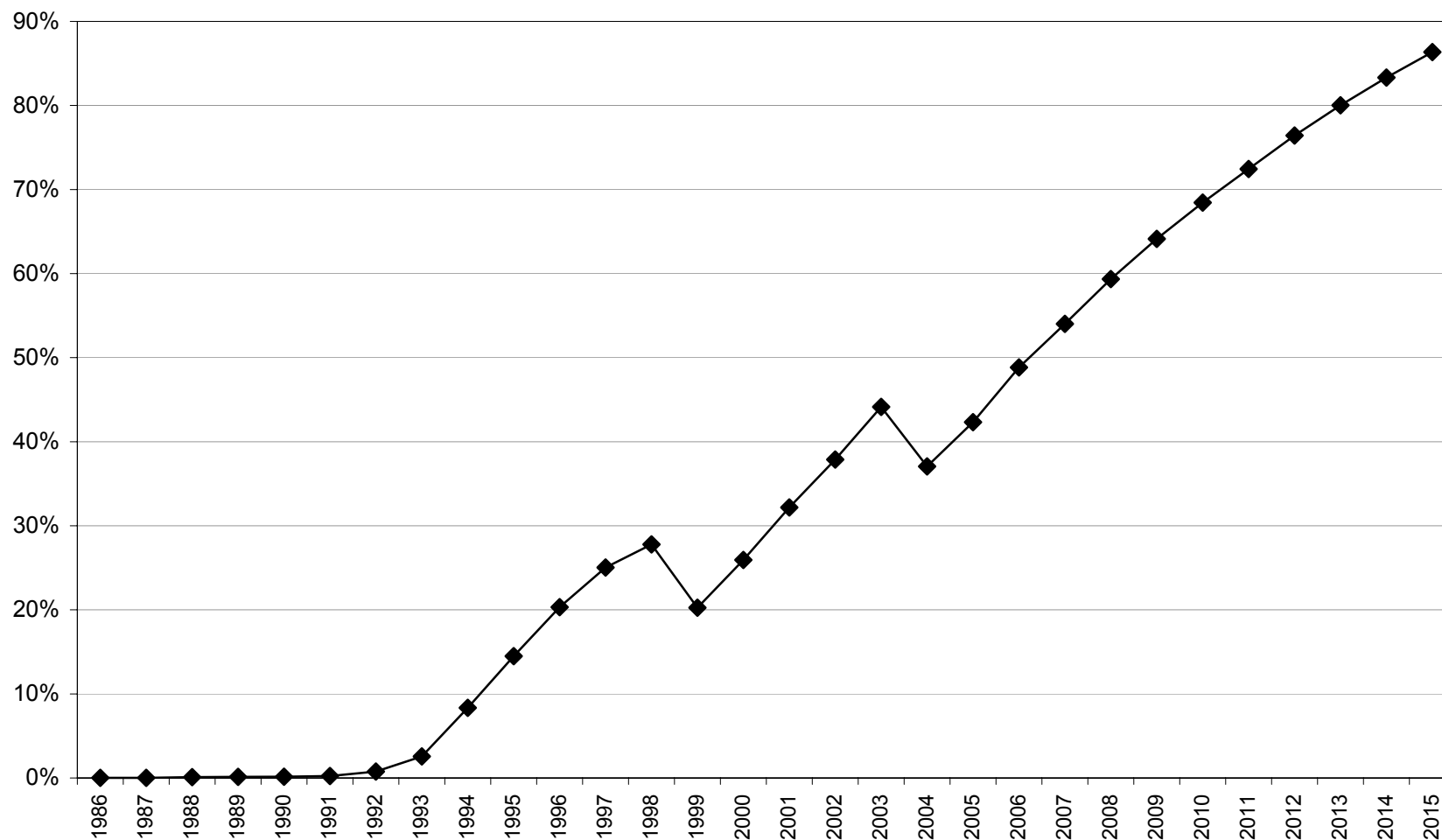
**Figure 7: The fraction of individuals subject to the income tax in China and India, 1986-2001** (fraction of urban wage earners for China; fraction of all tax units for India)



Source: China: authors' computations using urban household surveys tabulations (Table A6, col. (1)) (fraction of urban wage earners subject to tax); India: authors' computations using tax returns data (see Banerjee and Piketty (2003, Table A0, col.(4)))

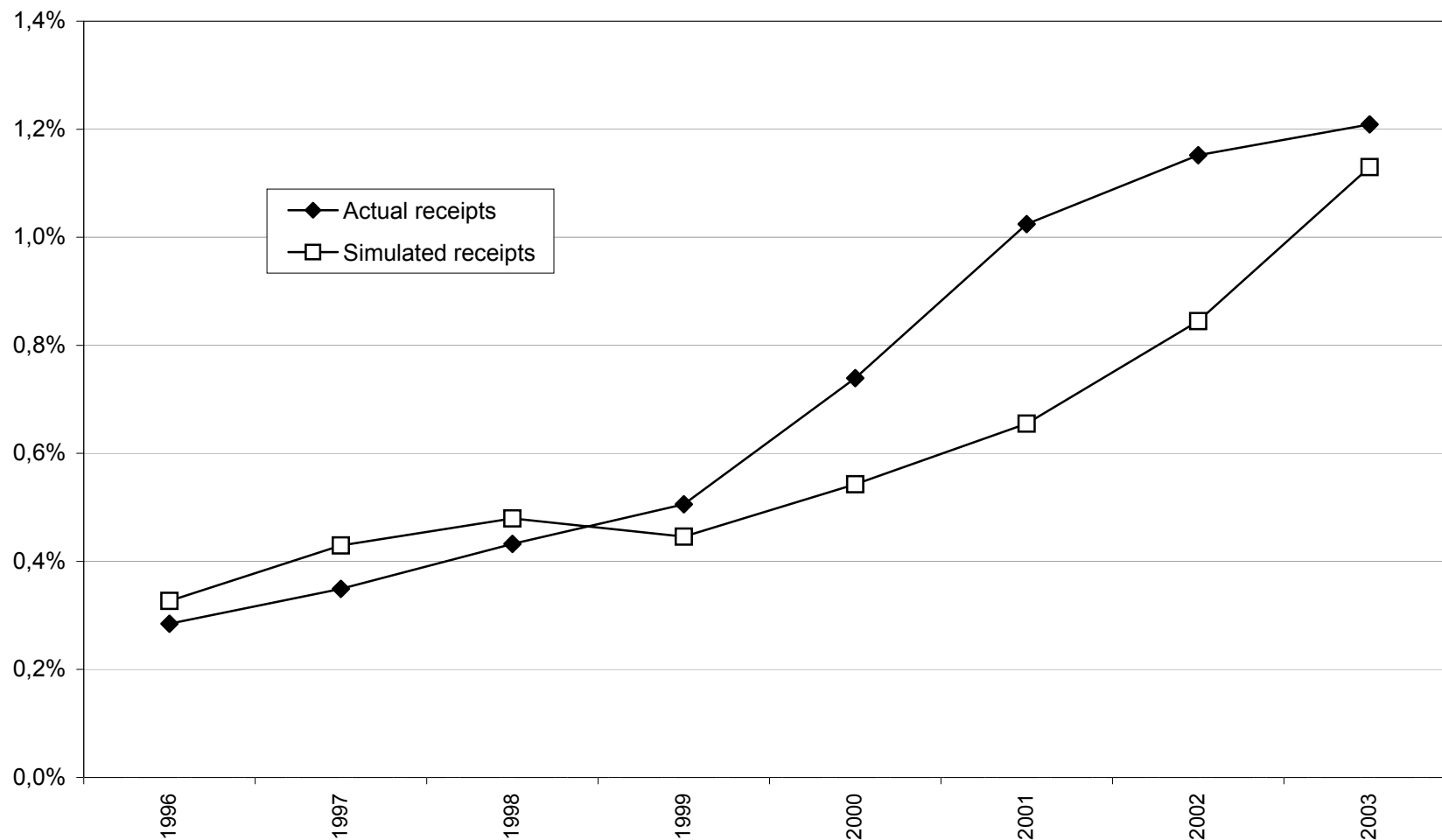
**Figure 8: Projected fraction of urban wage earners subject to the income tax in China, 1986-2015**

(assumptions: tax law unchanged after 2004; post-2003 income trends similar to 1996-2003)



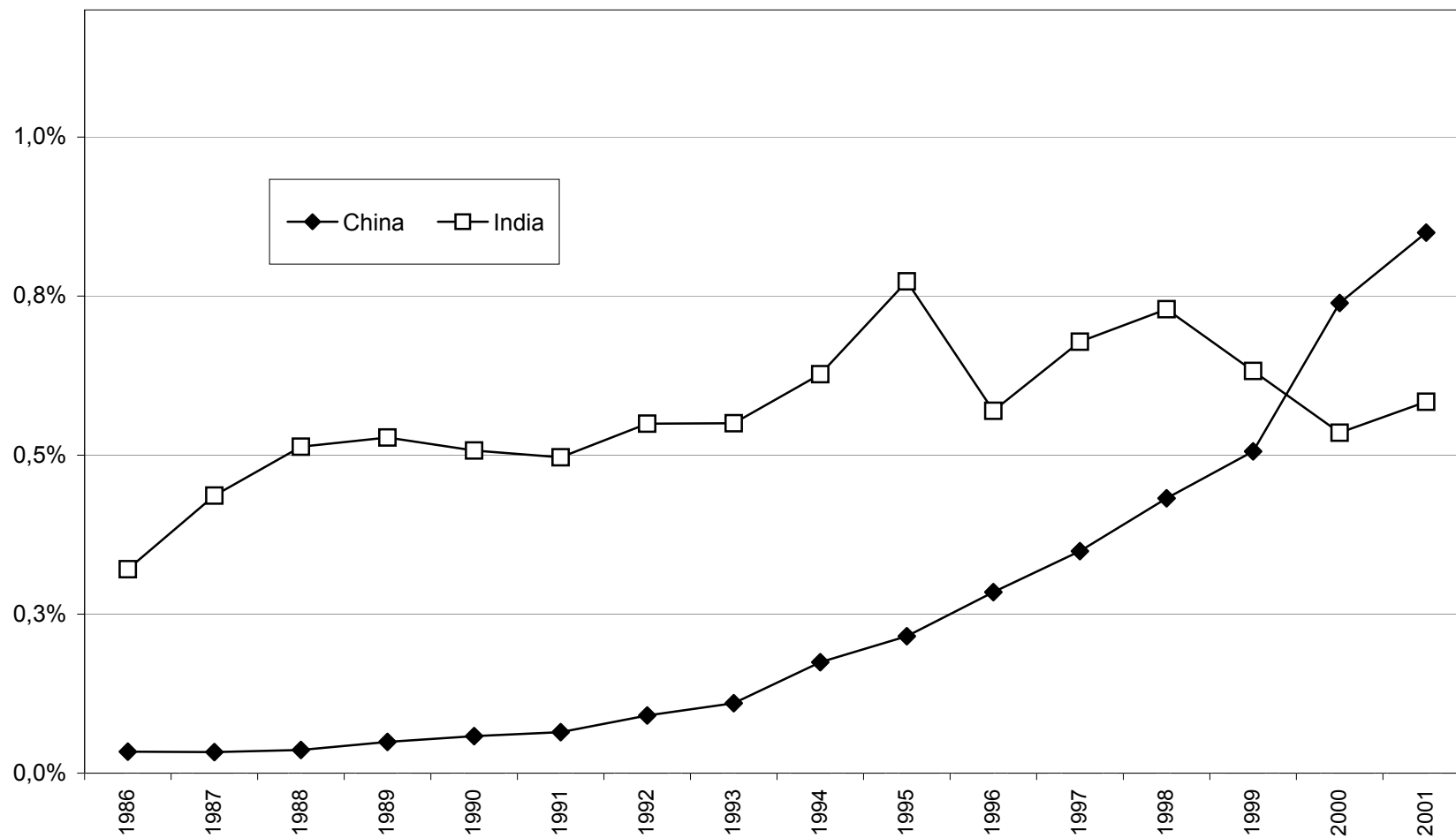
Source: Authors' computations using urban household surveys tabulations (Table A6, col. (1))

**Figure 9: Simulated vs actual income tax revenues as a fraction of GDP in China, 1996-2003**



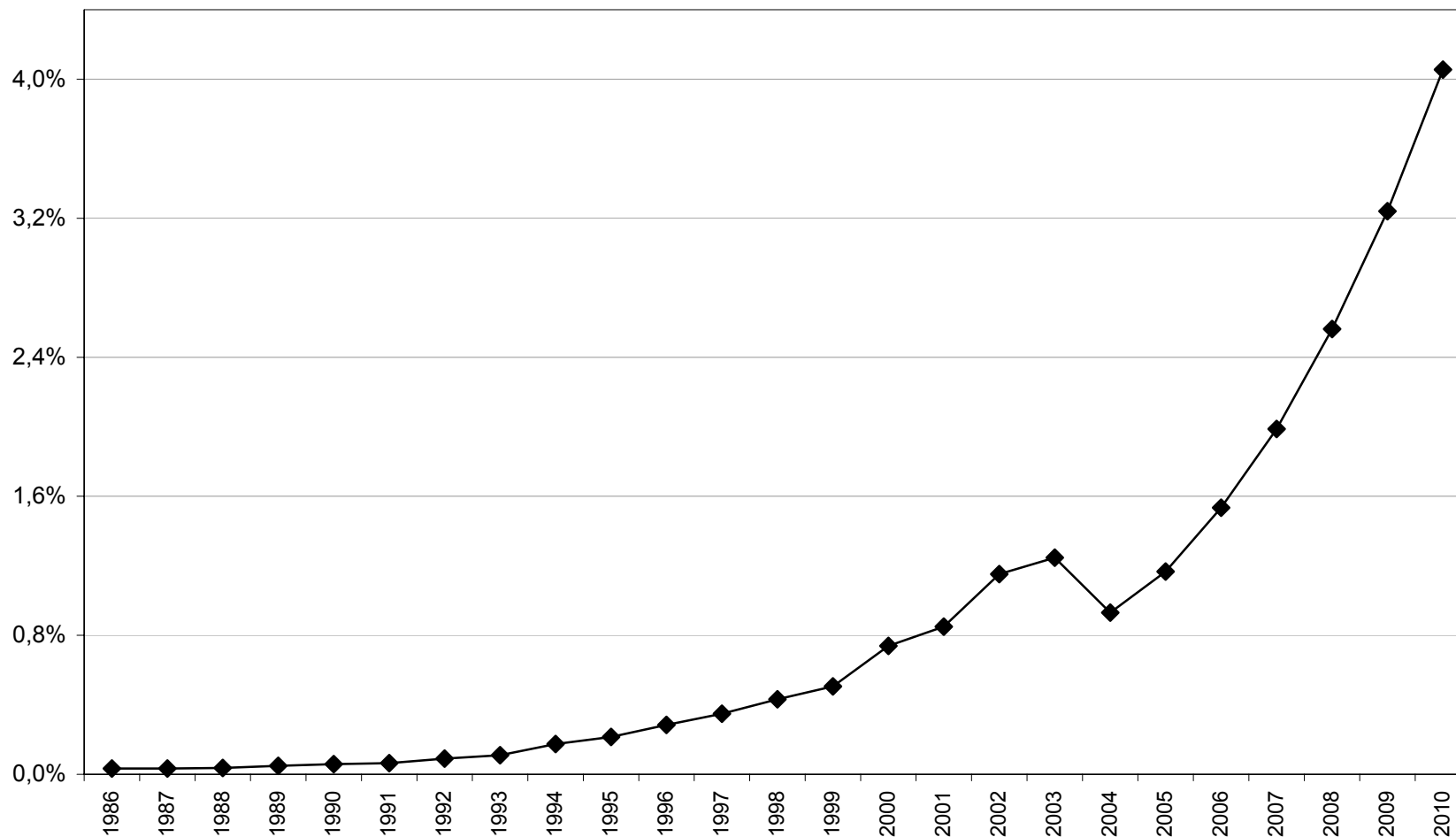
Source: Actual tax receipts from China Tax Yearbook; Simulated tax receipts were computed by applying income tax schedules to household survey income data (see Table 3)

**Figure 10: Income tax revenues as a fraction of GDP in China and India, 1986-2001**



Source: China: 1996-2001: actual tax receipts from China Tax Yearbook (see Table 3); 1986-1995: adjusted simulated tax receipts (see Table A6, col.(15)) ; India: actual tax receipts from All-India Income Tax Statistics (see Banerjee and Piketty (2003))

**Figure 11: Projected income tax revenues (as a fraction of GDP) in China, 1986-2010**  
(assumptions: tax law unchanged after 2004; post-2003 income trends similar to 1996-2003)



Source: 1996-2003: actual tax receipts from China Tax Yearbook (see Table 3);  
1986-1995 and 2004-2010: adjusted simulated tax receipts (see Table A6, col.(15))



**Table 1: Progressive Income Tax Schedules in China, 1980-2004**

1980-1998		Wage income				Business income (1980-)	
		1999-2003		2004-			
Brackets of annual income (yuans)	Marginal tax rate	Brackets of annual income (yuans)	Marginal tax rate	Brackets of annual income (yuans)	Marginal tax rate	Brackets of annual income (yuans)	Marginal tax rate
0-9600	0%	0-12000	0%	0-14400	0%	0-5000	5%
9600-15600	5%	12000-18000	5%	14400-20400	5%	5000-10000	10%
15600-33600	10%	18000-36000	10%	20400-38400	10%	10000-30000	15%
33600-69600	15%	36000-72000	15%	38400-74400	15%	30000-50000	20%
69600-249600	20%	72000-252000	20%	74400-254400	20%	50000-	35%
249600-489600	25%	252000-492000	25%	254400-494400	25%		
489600-729600	30%	492000-732000	30%	494400-734400	30%		
729600-969600	35%	732000-972000	35%	734400-974400	35%		
969600-1209600	40%	972000-1212000	40%	974400-1214400	40%		
over 1209600	45%	over 1212000	45%	over 1214400	45%		

Note : China's income tax applies to individual income (not to household income). The business income schedule applies to "income from production and business operations derived by individual industrialists and merchants" and "income from contracted or leased operation of enterprises and institutions". Most forms of transfer income are exempt from the income tax. Capital income (interest, dividends, royalties, rent, etc.) has always been taxed at a flat 20% rate (with no allowance), although there are some exemptions (interest income on saving deposits and national debt is exempt from income tax). Agricultural income is excluded from the income tax (peasants are subject to a separate, indirect income tax based on average yields). The exemption thresholds for wage earners reported on this table (9600 yuans in 1980-1998, 12000 yuans in 1999-2003, and 14400 yuans since 2004) are those applied in Beijing. The thresholds applied in other regions can be slightly different (e.g. in Shanghai the threshold was 9600 yuans until 1993, 12000 yuans in 1994-1998, and 14400 yuans since 1999).

**Table 2: Progressive Income Tax Schedules in India, 1986-2004**

1986-1988		1989-1990		1991		1992-1993	
Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate
0-15000	0%	0-18000	0%	0-18000	0%	0-22000	0%
15000-20000	20%	18000-25000	25%	18000-25000	20%	22000-30000	20%
20000-25000	25%	25000-50000	30%	25000-50000	30%	30000-60000	30%
25000-30000	30%	50000-100000	40%	50000-100000	40%	60000-100000	40%
30000-40000	35%	over 100000	50%	over 100000	50%	over 100000	50%
40000-50000	40%						
50000-70000	45%						
70000-100000	50%						
over 100000	55%						
1994		1995		1996-1997		1998	
Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate
0-28000	0%	0-30000	0%	0-40000	0%	0-40000	0%
50000-100000	20%	50000-100000	20%	40000-60000	20%	40000-60000	15%
50000-100000	30%	50000-100000	30%	60000-120000	30%	60000-120000	30%
over 100000	40%	over 100000	40%	over 120000	40%	over 120000	40%
1999		2000-					
Brackets of annual income (Rs)	Marginal tax rate	Brackets of annual income (Rs)	Marginal tax rate				
0-40000	0%	0-50000	0%				
40000-60000	10%	50000-60000	10%				
60000-150000	20%	60000-150000	20%				
over 150000	30%	over 150000	30%				

Note : India's income tax applies to individual income, not to household income (except for Hindu Undivided Families). The general principle is that all income sources are subject to the same tax rates (the progressive tax schedule applies to the sum of all individual incomes, whatever the source). There are however special exemptions for particular forms of interest income, transfer income, etc. The tax schedules reported on this table do not include "temporary" tax surcharges (for instance, a 10% tax surcharge has been applied to all incomes above 60000 Rs since 2000, so that the effective top rate is 33% rather than 30%).

**Table 3: Simulated vs Actual Income Tax Revenues in China, 1996-2003**

Actual Income Tax Revenues						
	Total Receipts	Wage income Receipts	Busines income receipts	Capital income receipts	Other receipts	Total Receipts
	(billions current yuans)					(% GDP)
1996	19,3					0,28%
1997	26,0					0,35%
1998	33,9					0,43%
1999	41,4					0,51%
2000	66,0	28,3	13,3	19,0	5,5	0,74%
2001	99,6	41,1	16,0	34,8	7,7	1,02%
2002	121,1	56,1	18,5	38,4	8,0	1,15%
2003	141,7	74,1	20,0	38,2	9,3	1,21%

Simulated Income Tax Revenues						
	Total Receipts	Wage income Receipts	Busines income receipts	Capital income receipts	Other receipts	Total Receipts
	(billions current yuans)					(% GDP)
1996	22,2	12,0	2,2	8,0		0,33%
1997	32,0	18,6	3,3	10,0		0,43%
1998	37,6	22,1	4,0	11,4		0,48%
1999	36,5	19,7	4,9	11,9		0,45%
2000	48,5	28,0	8,3	12,2		0,54%
2001	63,7	39,6	10,3	13,8		0,66%
2002	88,8	62,0	16,8	10,0		0,84%
2003	132,4	93,2	24,3	14,9		1,13%
2003b	213,3	131,4	34,3	38,2	9,3	1,82%

Ratio Simulated/Actual Income Tax Revenues					
	Total Receipts	Wage income Receipts	Busines income receipts	Capital income receipts	
1996	115%				*
1997	123%				
1998	111%				
1999	88%				
2000	73%	99%	63%	64%	
2001	64%	96%	64%	40%	
2002	73%	110%	91%	26%	
2003	93%	126%	122%	39%	
2003b	151%	177%	172%	100%	100%

Source: Actual receipts: China Tax Yearbook, various issues (1997-2004); Simulated receipts: authors' computations using urban household surveys tabulations (see Table A6)

Note: Simulated receipts for 1996-2003 have been computed by applying the relevant tax schedule to the individual distribution of wage income, business income and capital income estimated from urban household survey tabulations and reported on Tables A2, A3 and A4. The 2003b estimates have been computed by inflating capital and other income so as to match actual tax receipts, and by inflating survey-based top decile wages and business incomes by 20%, so as to obtain a realistic Pareto coefficient for the wage distribution.

**Table 4: Income Tax Revenue in Historical Perspective**

	GDP/capita (PPP 2001 \$)	Total Tax Revenues (% GDP)	Income Tax Revenue (% GDP)	Income Tax Revenue (% Total Tax Revenue)	% Population Subject to the Income Tax
United States 1914	6 700	8,2%	0,1%	1,2%	0,9%
United States 1950	13 300	20,7%	5,8%	28,0%	85,0%
United States 2000	36 100	31,8%	10,3%	32,4%	95,3%
France 1914	4 500	12,6%	0,1%	0,8%	1,7%
France 1950	7 400	25,5%	1,9%	7,5%	32,1%
France 2000	27 200	46,2%	7,3%	15,8%	90,0%
China 1990	1 800	15,2%	0,1%	0,4%	0,2%
China 1995	3 000	10,3%	0,2%	2,1%	14,5%
China 2003	4 900	15,1%	1,2%	8,3%	44,1%
China 2010	7 700	17,9%	4,1%	22,6%	68,4%
China 2015	10 600	25,4%	11,6%	45,5%	86,4%
India 1990	1 600	10,1%	0,5%	5,0%	0,9%
India 2000	2 200	9,1%	0,5%	5,5%	2,9%
India 2010	3 000				

Source : National accounts and tax statistics. U.S.: see Piketty and Saez (2003). France: see Piketty (2003). China: see this paper (total tax revenues come from China Statistical Yearbook and China Tax Yearbook). India: see Banerjee and Piketty (2003) (total tax revenues come from WDI data base).

**Table A0 : Reference totals for population, GDP and survey income in China and India, 1986-2003**

	China												India						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Population (millions)	GDP (billions cur. yuans)	CPI (1986 = 100)	(cur. yuans)	GDP/capita (2001 yuans)	(2001 PPP \$)	Urban population (%)	Urban (cur. yuans)	Rural (cur. yuans)	Income/capita (NSB household survey) Rural (2001 yuans)	Urban (2001 yuans)	Total (2001 yuans)	Population (millions)	CPI (1986 = 100)	(current Rs)	GDP/capita (2001 Rs)	(2001 PPP \$)	Consumption/capita (NSS household survey) (current Rs)	(2001 Rs)
1986	1 075	1 020	100	949	3001	1654	24,5%	927	424	2 932	1 340	1 730	739	100	3 318	11934	1380	1655	5954
1987	1 093	1 196	107	1 094	3228	1780	25,3%	1 016	463	2 996	1 364	1 778	755	106	3 681	12544	1450		
1988	1 110	1 493	127	1 345	3340	1841	25,8%	1 212	545	3 010	1 354	1 781	771	115	4 027	12620	1459	1978	6200
1989	1 127	1 691	151	1 500	3149	1736	26,2%	1 369	602	2 873	1 263	1 685	788	125	4 481	12909	1492	2156	6210
1990	1 143	1 855	155	1 622	3304	1822	26,4%	1 549	686	3 156	1 398	1 862	805	137	5 210	13722	1586	2379	6265
1991	1 158	2 162	161	1 866	3672	2024	26,9%	1 738	709	3 420	1 394	1 940	822	145	5 890	14611	1689	2605	6463
1992	1 172	2 664	171	2 273	4206	2318	27,5%	2 129	784	3 938	1 450	2 134	839	158	6 765	15400	1780	2810	6396
1993	1 185	3 463	196	2 922	4718	2601	28,0%	2 673	922	4 316	1 488	2 279	856	180	7 636	15267	1765	3348	6692
1994	1 199	4 676	243	3 901	5070	2795	28,5%	3 706	1 221	4 816	1 587	2 507	872	201	8 579	15343	1774	3441	6154
1995	1 211	5 848	284	4 828	5367	2959	29,0%	4 459	1 578	4 957	1 754	2 684	891	214	9 643	16215	1875	3936	6618
1996	1 224	6 788	308	5 547	5692	3138	30,5%	4 991	1 926	5 122	1 977	2 935	908	236	11 122	16969	1962	4312	6579
1997	1 236	7 446	317	6 023	6013	3315	31,9%	5 379	2 090	5 369	2 086	3 134	927	260	12 750	17648	2040	4915	6802
1998	1 248	7 835	314	6 280	6322	3485	33,4%	5 754	2 162	5 792	2 177	3 382	943	283	14 443	18344	2121		
1999	1 258	8 191	310	6 512	6649	3666	34,8%	6 183	2 210	6 313	2 257	3 668	959	304	15 804	18731	2165	5518	6540
2000	1 267	8 934	312	7 049	7133	3932	36,2%	6 557	2 253	6 636	2 280	3 858	975	344	18 078	18922	2188		
2001	1 276	9 723	316	7 618	7618	4200	37,7%	7 113	2 366	7 113	2 366	4 154	991	360	19 562	19562	2261	7362	7362
2002	1 285	10 513	315	8 180	8205	4523	39,2%	8 054	2 740	8 078	2 748	4 835							
2003	1 294	11 721	322	9 056	8905	4909	40,7%	8 913	2 991	8 765	2 941	5 309							
2001/1986	1,19	9,53	3,16	8,03	2,54	2,54	1,54	7,67	5,58	2,43	1,77	2,40	1,34	3,60	5,90	1,64	1,64	4,45	1,24
	1,2%	16,2%	8,0%	14,9%	6,4%	6,4%	2,9%	14,6%	12,1%	6,1%	3,9%	6,0%	2,0%	8,9%	12,6%	3,3%	3,3%	10,5%	1,4%
2003/1996	1,06	1,73	1,04	1,63	1,56	1,56	1,33	1,79	1,55	1,71	1,49	1,81	1,09	1,53	1,76	1,15	1,15	1,71	1,12
	0,8%	8,1%	0,6%	7,3%	6,6%	6,6%	4,2%	8,6%	6,5%	8,0%	5,8%	8,8%	1,8%	8,8%	12,0%	2,9%	2,9%	11,3%	2,3%

Sources: China: Population and NSB household survey income: China Statistical Yearbook 2002 (SSB) ; GDP and CPI: World Development Indicators 2005 data base (World Bank); India: see Banerjee and Piketty (2003, Table A0). Incomes expressed in 2001 yuans have been converted into 2001 \$ by applying the 2001 average PPP conversion factor (1\$ = 1,814 yuans) (average 2001 exchange rate: 1\$ = 8,270 yuans). Incomes expressed in 2001 Rs have been converted into 2001 \$ by applying the 2001 average PPP conversion factor (1\$ = 8,65 Rs) (average 2001 exchange rate: 1\$ = 43,16 Rs) (source: WDI).

Note: Chinese data refers to calendar years, whereas Indian data refers to fiscal years (i.e. 1986 refers to 1985-6,...., and 2001 refers to 2000-1). The rows 2001/1986 and 2001/1996 provide interyear ratios and corresponding annual growth rates.

**Table A1 : China's Urban Household Income Surveys (NSB), 1986-2003 - Summary Statistics**

	Household tabulations (all households)									Individual tabulations (all individuals with positive income)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Sampling rate (1/..)	Number of observations (households)	Average household income (current yuans)	Average household size	Average individual income [= (3)/(4)]	Income composition by source (% of total income)				Number of observations (individuals)	Average individual income (current yuans)	Income composition by source (% of total income)			
					Wage income	Property income	Transfer income	Business income			Wage income	Property income	Transfer income	Business income	
1986	5 579	12 437	3 523	3,8	927	83,2%	0,6%	15,4%	0,9%	23 584	1 394	100,0%	0,0%	0,0%	0,0%
1987	5 522	13 189	3 860	3,8	1 016	83,3%	0,6%	15,1%	1,0%	24 643	1 464	100,0%	0,0%	0,0%	0,0%
1988	5 785	13 761	4 363	3,6	1 212	78,8%	0,6%	19,3%	1,2%	24 054	1 963	88,9%	0,4%	9,6%	1,1%
1989	6 217	13 199	4 927	3,6	1 369	77,0%	0,9%	21,0%	1,2%	22 829	2 231	88,3%	0,4%	10,0%	1,3%
1990	6 306	13 681	5 422	3,5	1 549	77,6%	1,1%	20,4%	0,9%	23 691	2 438	89,5%	0,6%	8,9%	1,0%
1991	6 627	13 849	5 910	3,4	1 738	77,6%	1,1%	20,2%	1,0%	23 838	2 688	89,5%	0,6%	8,8%	1,1%
1992	5 773	16 890	7 025	3,3	2 129	74,2%	1,5%	16,5%	1,1%	29 607	3 152	85,8%	0,8%	4,6%	1,0%
1993	6 010	16 725	8 822	3,3	2 673	73,0%	1,6%	17,0%	1,2%	28 634	4 006	85,0%	0,9%	4,4%	1,2%
1994	6 322	16 889	11 859	3,2	3 706	72,0%	1,9%	18,4%	1,4%	27 728	5 462	85,7%	0,9%	4,2%	1,4%
1995	6 508	16 891	14 270	3,2	4 459	73,3%	2,0%	18,0%	1,4%	27 504	6 614	87,2%	0,9%	3,9%	1,5%
1996	6 898	16 900	15 971	3,2	4 991	72,7%	2,1%	18,1%	1,6%	27 508	7 407	86,7%	1,0%	3,9%	1,8%
1997	7 316	16 850	17 213	3,2	5 379	76,3%	2,4%	19,3%	2,1%	26 698	8 020	92,3%	1,1%	4,3%	2,3%
1998	7 895	17 000	17 837	3,1	5 754	74,9%	2,4%	20,5%	2,2%	26 326	8 274	92,2%	1,0%	4,3%	2,5%
1999	8 350	16 900	19 167	3,1	6 183	73,9%	2,2%	21,6%	2,3%	25 743	8 955	91,9%	1,0%	4,5%	2,7%
2000	8 762	16 900	20 327	3,1	6 557	70,7%	2,0%	23,9%	3,3%	23 761	9 825	90,4%	0,9%	4,7%	4,0%
2001	9 120	17 000	22 051	3,1	7 113	70,0%	2,0%	24,5%	3,4%	23 532	10 787	90,2%	0,9%	4,7%	4,3%
2002	3 645	46 028	24 162	3,0	8 054	73,5%	1,2%	26,8%	4,5%	69 222	11 958	89,6%	0,7%	4,2%	5,5%
2003	3 553	49 372	26 740	3,0	8 913	73,8%	1,6%	26,1%	5,2%	73 122	13 383	88,7%	0,8%	4,2%	6,3%

Source: Authors' computations using annual tabulations extracted from China's Urban Household Income Surveys (NSB), 1986-2003

Note: The samples used by NSB urban household surveys are designed so as to be representative of urban China (with approximately uniform sampling rates). The implicit sampling rate was computed by using the demographic data reported on Table A0. E.g.  $3,8 \times 12437 = 47261$  individuals (with or without positive income, including children) are covered by the 1986 survey, and total urban population of China was equal to  $24,5\% \times 1075$  millions = 264 millions in 1986, hence a sampling rate equal to  $(1/..) 264 \text{ millions} / 47261 = 5579$ . Note that total income reported in household-level distributions is always 30-40% larger than total income reported in individual-level distributions (e.g., in 1986,  $5579 \times 12437 \times 3523 = 244$  billions yuans, while  $5579 \times 23584 \times 1394 = 183$  billions yuans; see Table A2). This is due to the fact that some forms of income cannot be attributed to a specific individual within the household (this is particularly true for transfer and property income; in 1986-1987, only wage income was individualized). The urban per capita income series reported on Table A0 was computed using household-level data (e.g., in 1986,  $3523/3,8 = 927$ ) and coincide with the urban per capita income series published in China Statistical Yearbook.

**Table A2 : China's Urban Household Income Surveys (NSB), 1986-2003 - Total Income Aggregates**

billions current yuans	Household tabulations					Individual tabulations					N. wage earners (millions workers)	N. bus. inc. earners
	(1) Total income	(2) Wage income	(3) Property income	(4) Transfer income	(5) Business income	(6) Total income	(7) Wage income	(8) Property income	(9) Transfer income	(10) Business income		
1986	244,4	203,3	1,5	37,7	2,1	183,4	183,4	0,0	0,0	0,0	145,8	1,5
1987	281,1	234,2	1,6	42,5	2,9	199,2	199,2	0,0	0,0	0,0	160,0	2,0
1988	347,3	273,8	2,0	67,2	4,1	273,1	242,7	1,0	26,2	3,1	139,5	2,1
1989	404,3	311,3	3,5	84,9	4,8	316,6	279,5	1,3	31,7	4,0	139,6	2,1
1990	467,8	363,0	5,0	95,5	4,3	364,3	326,2	2,0	32,5	3,6	148,9	1,8
1991	542,4	421,1	6,2	109,5	5,6	424,7	380,2	2,5	37,3	4,7	156,6	2,1
1992	685,0	508,1	10,4	113,1	7,3	538,8	462,0	4,1	24,6	5,3	161,2	2,3
1993	886,8	647,4	14,6	151,0	10,9	689,4	586,2	6,4	30,3	8,3	161,6	2,7
1994	1266,3	912,1	24,1	232,7	17,2	957,5	821,0	8,7	40,0	13,8	167,0	3,2
1995	1568,6	1149,1	31,1	282,9	21,4	1183,8	1031,7	10,8	45,9	17,9	173,7	3,2
1996	1861,9	1354,1	40,0	336,5	30,5	1405,5	1218,4	13,9	54,5	25,4	182,8	4,1
1997	2121,9	1619,0	50,0	409,0	43,9	1566,6	1445,2	17,7	67,7	35,9	201,9	5,5
1998	2394,0	1794,2	57,1	490,5	52,1	1719,7	1586,1	17,9	73,1	42,7	216,9	6,3
1999	2704,9	1999,0	59,5	585,2	61,2	1924,9	1768,4	18,8	86,5	51,2	223,2	6,8
2000	3010,1	2129,2	60,8	720,8	99,3	2045,5	1848,7	18,9	95,5	82,5	216,7	10,1
2001	3418,9	2393,7	69,0	838,4	117,9	2315,1	2087,9	20,5	107,7	99,1	221,9	10,9
2002	4053,5	2977,4	50,1	1085,2	182,6	3017,0	2702,4	20,0	127,4	167,2	249,0	15,3
2003	4690,3	3463,2	74,3	1225,5	242,4	3476,6	3084,2	27,4	145,1	219,9	258,8	18,1

Source: Authors' computations using annual tabulations extracted from China's Urban Household Income Surveys (NSB), 1986-2003

Note: The total income aggregates reported on this table were computed using the series on sampling rates, number of observations, average income and income composition by source reported on Table A1 (see example in the note to Table A1). The numbers of wage earners and business income earners reported on this table were computed by dividing the relevant total income aggregate (household tabulation) by average individual income (average wage by wage earner and average business income by business income earner are approximately equal to average individual income by positive income earner, due to the fact that income composition shares do not vary very much by income bracket: business income is somewhat more prevalent both in low income brackets and high income brackets, and both effects approximately cancel out; for simplicity we assume strict equality). E.g., for 1986, 203,3 billions/1394 = 145,8 millions wage earners.

Table A3 : Top fractiles incomes levels in China, 1986-2003 (household distribution)

current yuans	P0-100 (1)	P90-100 (2)	P95-100 (3)	P99-100 (4)	P99,5-100 (5)	P99,9-100 (6)	P0-90 (7)	P90-95 (8)	P95-99 (9)	P99-99,5 (10)	P99,5-99,9 (11)	P99,9-100 (12)	P90 (13)	P95 (14)	P99 (15)	P99,5 (16)	P99,9 (17)
1986	3 523	6 577	7 463	9 869	11 214	16 794	3 183	5 691	6 861	8 525	9 820	16 794	5 377	6 102	8 163	8 870	12 019
1987	3 860	7 126	8 117	10 603	12 051	18 206	3 497	6 135	7 496	9 154	10 512	18 206	5 787	6 592	8 644	9 825	13 095
1988	4 363	8 240	9 445	12 925	14 743	19 554	3 932	7 035	8 575	11 106	13 541	19 554	6 493	7 599	10 520	12 006	16 544
1989	4 927	9 719	11 390	16 235	18 691	24 422	4 395	8 048	10 178	13 780	17 258	24 422	7 518	8 701	12 936	14 955	20 697
1990	5 422	10 697	12 546	18 106	20 730	28 026	4 836	8 849	11 156	15 482	18 907	28 026	8 238	9 661	14 459	16 830	22 601
1991	5 910	11 719	13 840	20 393	24 425	38 296	5 265	9 598	12 202	16 360	20 957	38 296	8 893	10 549	15 228	17 766	27 608
1992	7 025	14 793	17 877	27 774	33 538	52 433	6 162	11 709	15 402	22 010	28 814	52 433	10 745	12 989	20 285	24 348	37 415
1993	8 822	19 916	24 219	37 083	44 514	67 361	7 589	15 612	21 003	29 653	38 802	67 361	14 150	17 664	27 353	32 541	51 522
1994	11 859	27 716	33 812	51 671	60 127	84 362	10 097	21 621	29 347	43 215	54 068	84 362	19 517	24 281	39 493	48 388	66 094
1995	14 270	32 819	39 874	59 652	69 683	96 637	12 209	25 765	34 930	49 621	62 944	96 637	23 360	29 195	46 478	54 078	78 096
1996	15 971	37 171	45 226	68 658	80 714	110 747	13 616	29 115	39 368	56 602	73 206	110 747	26 314	32 618	52 220	62 084	90 099
1997	17 213	40 959	49 981	78 278	93 016	128 273	14 574	31 936	42 907	63 540	84 202	128 273	28 705	35 873	57 865	70 352	100 194
1998	17 837	42 435	52 154	82 151	98 688	138 349	15 103	32 717	44 654	65 613	88 773	138 349	29 766	36 618	60 371	72 000	113 345
1999	19 167	46 368	57 067	89 719	107 562	156 381	16 145	35 669	48 904	71 876	95 357	156 381	32 350	40 070	64 924	80 357	120 896
2000	20 327	49 701	60 733	93 669	110 864	158 301	17 063	38 669	52 499	76 475	99 004	158 301	35 118	43 537	69 680	85 650	123 450
2001	22 051	54 826	67 416	105 871	126 760	193 819	18 410	42 236	57 802	84 983	109 995	193 819	37 847	47 802	77 630	94 825	142 272
2002	24 162	62 262	77 707	126 797	155 209	255 955	19 929	46 817	65 435	98 385	130 022	255 955	41 565	53 570	89 225	110 686	176 029
2003	26 740	72 733	92 883	160 402	202 621	362 638	21 629	52 583	76 003	118 182	162 617	362 638	46 502	61 252	105 698	135 858	232 725
2001 yuans																	
1986	11 140	20 798	23 600	31 212	35 465	53 110	10 067	17 996	21 698	26 958	31 054	53 110	17 006	19 297	25 815	28 050	38 008
1987	11 385	21 017	23 941	31 272	35 544	53 698	10 315	18 094	22 108	27 000	31 006	53 698	17 068	19 443	25 495	28 978	38 623
1988	10 837	20 468	23 462	32 106	36 623	48 574	9 767	17 475	21 301	27 588	33 636	48 574	16 129	18 877	26 132	29 824	41 096
1989	10 344	20 402	23 910	34 082	39 236	51 268	9 226	16 895	21 367	28 928	36 228	51 268	15 782	18 266	27 156	31 393	43 448
1990	11 045	21 790	25 555	36 880	42 226	57 086	9 851	18 025	22 724	31 535	38 511	57 086	16 779	19 679	29 452	34 282	46 036
1991	11 627	23 054	27 226	40 117	48 049	75 336	10 357	18 881	24 004	32 184	41 227	75 336	17 495	20 751	29 957	34 949	54 311
1992	12 996	27 365	33 070	51 380	62 042	96 997	11 400	21 660	28 493	40 717	53 304	96 997	19 878	24 029	37 526	45 041	69 215
1993	14 242	32 153	39 101	59 870	71 866	108 752	12 252	25 205	33 909	47 874	62 645	108 752	22 844	28 518	44 161	52 536	83 181
1994	15 411	36 018	43 939	67 147	78 135	109 629	13 121	28 096	38 137	56 159	70 262	109 629	25 363	31 553	51 322	62 881	85 890
1995	15 864	36 484	44 327	66 313	77 464	107 429	13 573	28 642	38 830	55 162	69 973	107 429	25 969	32 455	51 668	60 117	86 818
1996	16 391	38 146	46 413	70 460	82 832	113 653	13 973	29 879	40 402	58 088	75 127	113 653	27 005	33 474	53 590	63 714	92 464
1997	17 182	40 886	49 893	78 139	92 852	128 045	14 548	31 880	42 831	63 427	84 053	128 045	28 654	35 809	57 762	70 227	100 017
1998	17 957	42 721	52 505	82 704	99 352	139 280	15 205	32 937	44 955	66 055	89 371	139 280	29 966	36 865	60 777	72 485	114 108
1999	19 572	47 347	58 271	91 613	109 832	159 682	16 486	36 422	49 936	73 394	97 370	159 682	33 033	40 916	66 295	82 053	123 448
2000	20 571	50 297	61 462	94 793	112 194	160 201	17 268	39 133	53 129	77 393	100 192	160 201	35 539	44 059	70 516	86 678	124 931
2001	22 051	54 826	67 416	105 871	126 760	193 819	18 410	42 236	57 802	84 983	109 995	193 819	37 847	47 802	77 630	94 825	142 272
2002	24 235	62 450	77 941	127 178	155 676	256 725	19 989	46 958	65 632	98 681	130 413	256 725	41 690	53 732	89 494	111 019	176 559
2003	26 294	71 521	91 336	157 730	199 246	356 598	21 269	51 707	74 737	116 214	159 908	356 598	45 727	60 232	103 938	133 595	228 848
2001/1986	1,98 4,7%	2,64 6,7%	2,86 7,2%	3,39 8,5%	3,57 8,9%	3,65 9,0%	1,83 4,1%	2,35 5,9%	2,66 6,8%	3,15 8,0%	3,54 8,8%	3,65 9,0%	2,23 5,5%	2,48 6,2%	3,01 7,6%	3,38 8,5%	3,74 9,2%
2003/1996	1,60 7,0%	1,87 9,4%	1,97 10,2%	2,24 12,2%	2,41 13,4%	3,14 17,7%	1,52 6,2%	1,73 8,1%	1,85 9,2%	2,00 10,4%	2,13 11,4%	3,14 17,7%	1,69 7,8%	1,80 8,8%	1,94 9,9%	2,10 11,2%	2,47 13,8%

Source: Authors' computations using annual tabulations extracted from China's Urban Household Income Surveys (NSB), 1986-2003

Note: Due to a discontinuity in NSB methodology and sampling technique between 2001 and 2002 (large increase in sample size), we adjusted 2002/2001 income growth rates on the basis of average 2001/2000 and 2003/2002 observed rates.



Table A4 : Top fractiles incomes levels in China, 1986-2003 (individual distribution)

current yuans	P0-100 (1)	P90-100 (2)	P95-100 (3)	P99-100 (4)	P99,5-100 (5)	P99,9-100 (6)	P0-90 (7)	P90-95 (8)	P95-99 (9)	P99-99,5 (10)	P99,5-99,9 (11)	P99,9-100 (12)	P90 (13)	P95 (14)	P99 (15)	P99,5 (16)	P99,9 (17)
1986	1 394	2 421	2 732	3 691	4 201	6 539	1 280	2 110	2 492	3 182	3 616	6 539	1 999	2 256	3 003	3 417	4 487
1987	1 464	2 607	2 920	3 905	4 350	6 802	1 337	2 293	2 673	3 461	3 737	6 802	2 150	2 392	3 200	3 112	3 942
1988	1 963	3 767	4 354	6 564	7 927	12 254	1 762	3 180	3 802	5 201	6 845	12 254	2 946	3 253	4 837	5 715	9 090
1989	2 231	4 404	5 226	7 694	9 059	12 521	1 989	3 582	4 609	6 329	8 193	12 521	3 361	3 931	5 862	6 924	10 411
1990	2 438	4 715	5 537	8 118	9 505	13 822	2 185	3 894	4 892	6 731	8 425	13 822	3 623	4 254	6 218	7 398	10 144
1991	2 688	5 243	6 215	9 095	10 627	16 355	2 404	4 272	5 495	7 562	9 195	16 355	3 978	4 667	7 086	8 163	11 534
1992	3 152	6 502	7 891	12 492	15 057	23 741	2 780	5 114	6 741	9 927	12 886	23 741	4 771	5 636	8 893	10 993	16 345
1993	4 006	9 073	11 083	17 378	20 684	29 869	3 443	7 062	9 510	14 073	18 388	29 869	6 410	7 890	12 653	15 539	23 606
1994	5 462	12 876	15 725	24 122	28 495	41 831	4 638	10 027	13 626	19 749	25 161	41 831	9 107	11 301	18 244	21 840	31 543
1995	6 614	15 412	18 860	28 959	33 903	46 050	5 636	11 964	16 336	24 015	30 866	46 050	10 842	13 440	22 012	27 019	37 361
1996	7 407	17 760	21 902	34 773	41 745	63 790	6 257	13 618	18 684	27 800	36 234	63 790	12 309	15 386	25 397	30 747	46 984
1997	8 020	19 875	24 566	39 209	47 105	72 176	6 703	15 184	20 905	31 312	40 837	72 176	13 603	17 208	28 860	34 615	53 039
1998	8 274	20 450	25 226	40 076	47 784	71 891	6 921	15 674	21 513	32 368	41 757	71 891	14 082	17 650	29 905	35 657	53 646
1999	8 955	22 333	27 492	42 703	50 839	76 218	7 468	17 174	23 689	34 567	44 494	76 218	15 510	19 441	31 959	38 048	57 042
2000	9 825	25 082	31 136	49 525	60 098	94 189	8 129	19 028	26 539	38 951	51 576	94 189	17 154	21 569	35 698	43 320	67 893
2001	10 787	27 950	34 689	54 509	65 948	102 635	8 880	21 210	29 734	43 070	56 776	102 635	18 878	24 216	39 529	47 824	74 428
2002	11 958	31 934	39 953	63 654	77 601	122 979	9 739	23 914	34 028	49 706	66 257	122 979	21 073	27 561	45 447	55 394	87 743
2003	13 383	37 386	47 522	78 604	97 474	160 702	10 716	27 250	39 752	59 735	81 667	160 702	23 858	31 793	54 179	67 171	110 690

2001 yuans	P0-100 (1)	P90-100 (2)	P95-100 (3)	P99-100 (4)	P99,5-100 (5)	P99,9-100 (6)	P0-90 (7)	P90-95 (8)	P95-99 (9)	P99-99,5 (10)	P99,5-99,9 (11)	P99,9-100 (12)	P90 (13)	P95 (14)	P99 (15)	P99,5 (16)	P99,9 (17)
1986	4 407	7 656	8 640	11 673	13 284	20 678	4 047	6 673	7 882	10 062	11 436	20 678	6 321	7 134	9 496	10 807	14 189
1987	4 318	7 688	8 612	11 519	12 829	20 062	3 944	6 765	7 885	10 209	11 021	20 062	6 341	7 056	9 437	9 180	11 627
1988	4 875	9 358	10 816	16 306	19 691	30 439	4 377	7 899	9 443	12 921	17 005	30 439	7 318	8 080	12 014	14 195	22 580
1989	4 683	9 245	10 971	16 151	19 016	26 283	4 176	7 519	9 676	13 286	17 200	26 283	7 056	8 252	12 305	14 536	21 856
1990	4 967	9 605	11 278	16 535	19 360	28 154	4 452	7 931	9 964	13 710	17 162	28 154	7 379	8 665	12 666	15 069	20 663
1991	5 288	10 315	12 226	17 891	20 906	32 174	4 730	8 404	10 810	14 876	18 089	32 174	7 826	9 182	13 940	16 058	22 691
1992	5 832	12 029	14 598	23 109	27 854	43 919	5 143	9 460	12 470	18 364	23 838	43 919	8 827	10 426	16 451	20 337	30 236
1993	6 468	14 648	17 894	28 057	33 394	48 223	5 559	11 402	15 353	22 720	29 687	48 223	10 348	12 738	20 429	25 087	38 112
1994	7 098	16 733	20 435	31 347	37 029	54 359	6 028	13 031	17 707	25 664	32 697	54 359	11 835	14 685	23 708	28 382	40 990
1995	7 352	17 134	20 967	32 193	37 689	51 193	6 266	13 300	18 160	26 697	34 313	51 193	12 052	14 941	24 470	30 036	41 534
1996	7 602	18 226	22 477	35 685	42 841	65 465	6 421	13 975	19 175	28 530	37 185	65 465	12 632	15 790	26 064	31 554	48 217
1997	8 006	19 840	24 522	39 139	47 021	72 049	6 691	15 157	20 868	31 257	40 765	72 049	13 579	17 178	28 809	34 554	52 945
1998	8 329	20 588	25 396	40 346	48 106	72 375	6 967	15 779	21 658	32 586	42 038	72 375	14 177	17 769	30 107	35 897	54 007
1999	9 144	22 804	28 072	43 604	51 912	77 827	7 626	17 537	24 189	35 296	45 433	77 827	15 837	19 852	32 633	38 851	58 246
2000	9 942	25 383	31 510	50 119	60 819	95 319	8 227	19 256	26 858	39 418	52 195	95 319	17 360	21 828	36 127	43 840	68 708
2001	10 787	27 950	34 689	54 509	65 948	102 635	8 880	21 210	29 734	43 070	56 776	102 635	18 878	24 216	39 529	47 824	74 428
2002	11 994	32 030	40 074	63 845	77 835	123 349	9 768	23 986	34 131	49 856	66 456	123 349	21 137	27 644	45 583	55 560	88 007
2003	13 160	36 763	46 731	77 295	95 850	158 025	10 537	26 796	39 089	58 740	80 306	158 025	23 461	31 263	53 276	66 052	108 846

2001/1986	2,45 6,1%	3,65 9,0%	4,01 9,7%	4,67 10,8%	4,96 11,3%	4,96 11,3%	2,19 5,4%	3,18 8,0%	3,77 9,3%	4,28 10,2%	4,96 11,3%	4,96 11,3%	2,99 7,6%	3,39 8,5%	4,16 10,0%	4,43 10,4%	5,25 11,7%
2003/1996	1,73 8,2%	2,02 10,5%	2,08 11,0%	2,17 11,7%	2,24 12,2%	2,41 13,4%	1,64 7,3%	1,92 9,7%	2,04 10,7%	2,06 10,9%	2,16 11,6%	2,41 13,4%	1,86 9,2%	1,98 10,3%	2,04 10,8%	2,09 11,1%	2,26 12,3%

Source: Authors' computations using annual tabulations extracted from China's Urban Household Income Surveys (NSB), 1986-2003

Note: Due to a discontinuity in NSB methodology and sampling technique between 2001 and 2002 (large increase in sample size), we adjusted 2002/2001 income growth rates on the basis of average 2001/2000 and 2003/2002 observed rates.

**Table A5 : Top fractiles incomes shares in total income in urban China, 1986-2003**

household distribution	P90-100 (1)	P95-100 (2)	P99-100 (3)	P99,5-100 (4)	P99,9-100 (5)	P90-95 (6)	P95-99 (7)	P99-99,5 (8)	P99,5-99,9 (9)	P99,9-100 (10)
1986	18,7%	10,6%	2,8%	1,6%	0,5%	8,1%	7,8%	1,2%	1,1%	0,5%
1987	18,5%	10,5%	2,7%	1,6%	0,5%	7,9%	7,8%	1,2%	1,1%	0,5%
1988	18,9%	10,8%	3,0%	1,7%	0,4%	8,1%	7,9%	1,3%	1,2%	0,4%
1989	19,7%	11,6%	3,3%	1,9%	0,5%	8,2%	8,3%	1,4%	1,4%	0,5%
1990	19,7%	11,6%	3,3%	1,9%	0,5%	8,2%	8,2%	1,4%	1,4%	0,5%
1991	19,8%	11,7%	3,5%	2,1%	0,6%	8,1%	8,3%	1,4%	1,4%	0,6%
1992	21,1%	12,7%	4,0%	2,4%	0,7%	8,3%	8,8%	1,6%	1,6%	0,7%
1993	22,6%	13,7%	4,2%	2,5%	0,8%	8,8%	9,5%	1,7%	1,8%	0,8%
1994	23,4%	14,3%	4,4%	2,5%	0,7%	9,1%	9,9%	1,8%	1,8%	0,7%
1995	23,0%	14,0%	4,2%	2,4%	0,7%	9,0%	9,8%	1,7%	1,8%	0,7%
1996	23,3%	14,2%	4,3%	2,5%	0,7%	9,1%	9,9%	1,8%	1,8%	0,7%
1997	23,8%	14,5%	4,5%	2,7%	0,7%	9,3%	10,0%	1,8%	2,0%	0,7%
1998	23,8%	14,6%	4,6%	2,8%	0,8%	9,2%	10,0%	1,8%	2,0%	0,8%
1999	24,2%	14,9%	4,7%	2,8%	0,8%	9,3%	10,2%	1,9%	2,0%	0,8%
2000	24,5%	14,9%	4,6%	2,7%	0,8%	9,5%	10,3%	1,9%	1,9%	0,8%
2001	24,9%	15,3%	4,8%	2,9%	0,9%	9,6%	10,5%	1,9%	2,0%	0,9%
2002	25,8%	16,1%	5,2%	3,2%	1,1%	9,7%	10,8%	2,0%	2,2%	1,1%
2003	27,2%	17,4%	6,0%	3,8%	1,4%	9,8%	11,4%	2,2%	2,4%	1,4%

individual distribution	P90-100 (2)	P95-100 (3)	P99-100 (4)	P99,5-100 (5)	P99,9-100 (6)	P90-95 (8)	P95-99 (9)	P99-99,5 (10)	P99,5-99,9 (11)	P99,9-100 (12)
1986	17,4%	9,8%	2,6%	1,5%	0,5%	7,6%	7,2%	1,1%	1,0%	0,5%
1987	17,8%	10,0%	2,7%	1,5%	0,5%	7,8%	7,3%	1,2%	1,0%	0,5%
1988	19,2%	11,1%	3,3%	2,0%	0,6%	8,1%	7,7%	1,3%	1,4%	0,6%
1989	19,7%	11,7%	3,4%	2,0%	0,6%	8,0%	8,3%	1,4%	1,5%	0,6%
1990	19,3%	11,4%	3,3%	1,9%	0,6%	8,0%	8,0%	1,4%	1,4%	0,6%
1991	19,5%	11,6%	3,4%	2,0%	0,6%	7,9%	8,2%	1,4%	1,4%	0,6%
1992	20,6%	12,5%	4,0%	2,4%	0,8%	8,1%	8,6%	1,6%	1,6%	0,8%
1993	22,6%	13,8%	4,3%	2,6%	0,7%	8,8%	9,5%	1,8%	1,8%	0,7%
1994	23,6%	14,4%	4,4%	2,6%	0,8%	9,2%	10,0%	1,8%	1,8%	0,8%
1995	23,3%	14,3%	4,4%	2,6%	0,7%	9,0%	9,9%	1,8%	1,9%	0,7%
1996	24,0%	14,8%	4,7%	2,8%	0,9%	9,2%	10,1%	1,9%	2,0%	0,9%
1997	24,8%	15,3%	4,9%	2,9%	0,9%	9,5%	10,4%	2,0%	2,0%	0,9%
1998	24,7%	15,2%	4,8%	2,9%	0,9%	9,5%	10,4%	2,0%	2,0%	0,9%
1999	24,9%	15,4%	4,8%	2,8%	0,9%	9,6%	10,6%	1,9%	2,0%	0,9%
2000	25,5%	15,8%	5,0%	3,1%	1,0%	9,7%	10,8%	2,0%	2,1%	1,0%
2001	25,9%	16,1%	5,1%	3,1%	1,0%	9,8%	11,0%	2,0%	2,1%	1,0%
2002	26,7%	16,7%	5,3%	3,2%	1,0%	10,0%	11,4%	2,1%	2,2%	1,0%
2003	27,9%	17,8%	5,9%	3,6%	1,2%	10,2%	11,9%	2,2%	2,4%	1,2%

Source: Authors' computations based on top fractiles incomes levels reported on Tables A3 and A4

**Table A6 : Simulating Income Tax Receipts in China, 1986-2015**

	(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10) (11) (12)			(13)	(14)	(15)
	% urban wage earners subject to income tax	Total receipts	Wage income receipts	Business income receipts	Capital income receipts	Total receipts	Wage earners			Business income earners			Adjusted simulations: Total receipts	
			(billions current yuans)			(% GDP)	P0-100	P90-100	P99-100	P0-100	P90-100	P99-100	(billions cur.yuans)	% GDP
1986	0,0%	0,4	0,0	0,1	0,3	0,0%	0,0%	0,0%	0,0%	5,0%	5,0%	5,2%	0,3	0,0%
1987	0,0%	0,5	0,0	0,1	0,3	0,0%	0,0%	0,0%	0,0%	5,0%	5,0%	5,2%	0,4	0,0%
1988	0,1%	0,6	0,0	0,2	0,4	0,0%	0,0%	0,0%	0,2%	5,0%	5,2%	6,4%	0,5	0,0%
1989	0,1%	1,0	0,0	0,2	0,7	0,1%	0,0%	0,0%	0,2%	5,1%	5,3%	6,9%	0,8	0,0%
1990	0,2%	1,2	0,0	0,2	1,0	0,1%	0,0%	0,0%	0,3%	5,1%	5,4%	7,2%	1,1	0,1%
1991	0,2%	1,6	0,1	0,3	1,2	0,1%	0,0%	0,1%	0,4%	5,2%	5,6%	7,6%	1,4	0,1%
1992	0,8%	2,8	0,3	0,4	2,1	0,1%	0,1%	0,3%	1,5%	5,3%	6,3%	9,0%	2,4	0,1%
1993	2,6%	4,4	0,8	0,6	2,9	0,1%	0,1%	0,6%	3,0%	5,6%	7,7%	10,7%	3,8	0,1%
1994	8,4%	9,4	3,5	1,0	4,8	0,2%	0,4%	1,6%	4,9%	6,0%	9,2%	12,1%	8,2	0,2%
1995	14,5%	14,5	6,8	1,4	6,2	0,2%	0,6%	2,5%	5,9%	6,6%	10,2%	12,7%	12,6	0,2%
1996	20,3%	22,2	12,0	2,2	8,0	0,3%	0,9%	3,3%	7,0%	7,2%	11,1%	14,3%	19,3	0,3%
1997	25,0%	32,0	18,6	3,3	10,0	0,4%	1,2%	3,9%	7,7%	7,6%	11,6%	15,1%	26,0	0,3%
1998	27,8%	37,6	22,1	4,0	11,4	0,5%	1,2%	4,0%	7,8%	7,7%	11,7%	15,2%	33,9	0,4%
1999	20,3%	36,5	19,7	4,9	11,9	0,4%	1,0%	3,6%	7,4%	8,0%	12,1%	15,7%	41,4	0,5%
2000	25,9%	48,5	28,0	8,3	12,2	0,5%	1,3%	4,3%	8,6%	8,4%	12,7%	17,0%	66,0	0,7%
2001	32,2%	63,7	39,6	10,3	13,8	0,7%	1,7%	5,0%	9,2%	8,7%	13,2%	18,1%	99,6	0,8%
2002	37,9%	88,8	62,0	16,8	10,0	0,8%	2,1%	5,8%	10,2%	9,2%	14,1%	19,7%	121,1	1,2%
2003	44,1%	132,4	93,2	24,3	14,9	1,1%	2,7%	6,9%	11,6%	10,0%	15,3%	22,6%	141,7	1,2%
2004	37,1%	110,2	59,2	34,7	16,2	0,9%	1,5%	3,7%	9,0%	10,7%	16,0%	24,0%	117,9	0,9%
2005	42,3%	149,4	82,3	49,4	17,8	1,1%	1,8%	4,1%	9,7%	11,3%	16,7%	25,2%	159,9	1,2%
2006	48,8%	212,4	122,1	70,9	19,4	1,4%	2,4%	4,5%	10,6%	12,0%	18,0%	26,3%	227,2	1,5%
2007	54,0%	297,5	175,2	101,1	21,2	1,9%	3,0%	5,1%	11,4%	12,8%	19,2%	27,3%	318,3	2,0%
2008	59,3%	414,7	248,2	143,3	23,2	2,4%	3,7%	5,8%	12,2%	13,4%	20,4%	28,1%	443,7	2,6%
2009	64,1%	566,9	339,6	202,0	25,3	3,0%	4,4%	6,4%	12,8%	14,1%	21,4%	28,9%	606,5	3,2%
2010	68,4%	767,0	453,1	286,2	27,7	3,8%	5,1%	7,0%	13,6%	14,8%	22,7%	29,6%	820,6	4,1%
2011	72,4%	1026,4	592,2	404,0	30,2	4,7%	5,8%	7,6%	14,3%	15,6%	24,0%	30,3%	1098,1	5,0%
2012	76,4%	1366,8	766,3	567,6	33,0	5,8%	6,6%	8,2%	14,9%	16,3%	25,1%	30,8%	1462,4	6,2%
2013	80,0%	1809,1	978,7	794,3	36,1	7,1%	7,4%	8,8%	15,5%	16,9%	26,2%	31,3%	1935,6	7,6%
2014	83,3%	2414,7	1267,2	1108,1	39,4	8,7%	8,4%	9,5%	16,2%	17,6%	27,1%	31,8%	2583,5	9,3%
2015	86,4%	3234,9	1650,2	1541,6	43,1	10,8%	9,5%	10,3%	16,7%	18,2%	28,0%	32,2%	3461,0	11,6%

Source: Authors' computations based on top fractiles incomes levels reported on Tables A2 and A3 and on income tax schedules reported on Table 1. Adjusted simulations results (col. (14) and (15)) were computed in the following way: for 1996-2001, adjusted simulation results are equal to actual receipts reported on Table 3; for 1986-1996, adjusted simulation results were obtained by upscaling each income source rax simulation by the same adjusted/raw ratios as for 1996; for 2002-2010, adjusted simulation results were obtained by upscaling each income source rax simulation by the same adjusted/raw ratios as for 2001.