Björn Gustafsson
Department of Social Work
Göteborg University
P.O. Box 720
SE 405 30 Göteborg
Sweden
Phone (+46) 31 773 18 90
Fax (+46) 31 773 18 88
E.mail: Bjorn.Gustafsson@socwork.gu.se
and
Institute for the Study of Labor (IZA) Bonn, Germany

Li Shi
School of Economics and Business
Beijing Normal University
19 Xin Jie KouWai Da Jie, Beijing
P.R. China
E-mail: lishi89@263.net
and
Institute for the Study of Labor (IZA) Bonn, Germany

Ludmila Nivorozhkina
Rostov State Economic University
B. Sadovaya str. 69
344007, Rostov-on-Don
Phone (+07) 863 2 61 38 65
Fax (+07) 863 2 34 19 82
E-mail lin@rnd.runnet.ru

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Understanding Why Household Incomes Are More Unequally Distributed in China than in Russia

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Abstract

Harmonised microdata show a Gini coefficient for per capita total income of 45.3 percent in China 2002 and 33.6 percent in Russia 2003. A much larger urban to rural income gap in combination with a much smaller proportion of people living in urban areas in China are important reasons for this cross-country difference in inequality. The distributional profiles of wages and public transfers as well as subsidised housing and imputed rents are much more pro high-income earners in China than in Russia. These differences can be traced to the Soviet system having been introduced in urban China only, while rural inhabitants still are not covered by public welfare programs.

Cross-country differences in the process of transition are also found to be significant. A relatively large non-agriculture self-employment sector is non-equalising in rural China, but is also narrowing the urban to rural income gap. In contrast to the many cross-country differences revealed, we report income inequality among urban residents in China and in urban Russia to be very similar. The positive effect of education of household head and the negative effect of household size on income are similar in the two countries. In both countries children are on average less privileged than adults.

1. Introduction

Among the countries in the world having had a socialist planning system, China and Russia are the most populous. In this paper we use two new large household surveys covering most parts of each country to compare the distribution of income, and find much more inequality in China. Our main research question is: Why at the beginning of the millennium, after a period of transition towards a market economy, is income inequality much larger in China than in Russia?

The first steps in transition towards a market economy were taken in the late 1970s in the rural areas of China and were followed in the urban areas in the mid 1980s. China's transition has taken place during an episode of rapid economic growth as well as rapid urbanisation. Life expectancy has increased to become longer than in Russia. One key element triggering the process of economic growth has been policy changes opening up the economy for foreign trade and investments. Such measures were first implemented in the eastern region of the country, deliberately creating spatial income differences which public policy later has aimed to narrow.

The Russian transition started later, in the early 90s, and has taken place in a rather different environment. Russia, as opposed to China, combined movements towards a market economy with steps towards political democracy of western style. In contrast to China, the first steps towards a market economy in Russia took place when institutions eroded. For many years after the Soviet Union had dissolved, Russia experienced rapid negative economic growth and large falls in real wages. The macroeconomic collapse was accompanied by a reduction in life expectancy. In the mid 1990s and parallel to the development in urban China, unemployment in Russia surfaced and many older workers left the labour force, two outcomes of economic restructuring. However, since the beginning of the new millennium, the Russian economy has experienced positive growth, a change connected to the rising prices of oil and other natural resources that Russia is endowed with.

Although there are large differences between China and Russia in the process of transition from a planned economy towards a market economy, the dissimilarities in initial conditions can be judged to be just as powerful for causing income inequality to differ across the two countries. China was at a rather low stage of economic development when it adopted the

"Soviet" planning model in the 50s. This model meant that workers were employed almost exclusively in state- and collectively-owned enterprises. Of particular significance is that the Soviet model was introduced only in urban China. As a consequence, the system came to cover only a small minority of the population, a situation having lasting consequences for income inequality in the country as a whole.

The urban minority in China was, and still to some extent is, separated from the large majority by forceful restrictions on geographic mobility. Patterned after the Soviet system of *Propiska,* China introduced its *Hukou* system that has acted as a strong barrier for rural people to migrate to the cities since the 1960s, thereby keeping the urban to rural income gap artificially high. The analyses presented in this paper indicate that the existence of a much larger income gap between urban and rural areas in China than in Russia, in combination with the Chinese population being much less urbanised, provide important reasons for why incomes are more unequally distributed in China than in Russia.

The larger urban to rural income gap, in combination with a wage share larger in China's urban areas than in its rural areas, means that wages are more disequalising in China than in Russia. In addition, due to the larger urban to rural income gap, other lasting characteristics of the now abolished Soviet model contribute to inequality being larger in China through other channels. In the Soviet model, workers had life-long employment with their work units. They enjoyed social insurance benefits as well as social services and lived in heavily subsidised housing. Only rarely did workers pay income taxes and the public budget could rely instead on surpluses from the state-owned units. The provision of subsidised housing, and the subsequent housing reform where tenants often have been able to buy housing at subsidised prices, has been rather disequalising in China as the rural inhabitants who are worse-off have not been able to benefit.

The Soviet model of compensation of subsidised housing and transfers to workers only covered wage earners. A lasting consequence is that in present-day China, rural inhabitants still are not entitled to old age pensions. Instead they live with the younger generations, which is also true for a substantial proportion of their urban counterparts. A rather different situation is true for democratic Russia. with its many elderly voters; pension benefits cover all the elderly, not only the urban elderly as in China. We show that within the urban areas of the two countries where the systems are similar, transfers are equalising. This is also the case in

Russia as a whole. In contrast, public transfers are strongly disequalising in China as a whole where public transfers benefit mainly the privileged urban population.

The large urban to rural income gap in China also has consequences for how self-employment income affects the distribution of income in the two countries. With the longest history of transition, rural China has a comparatively large sector of non-agriculture self-employed persons. Typically earning more than the average rural inhabitant, the sector has had disequalising effects on the rural income distribution. However, rural self-employed typically earn less than urban residents and therefore non-agriculture self-employment income is actually equalising income in China as a whole.

In recent empirical research there are many studies analysing how income inequality has changed in each of the two countries. For China, the literature shows that income inequality has been on the rise during much of the transition period. This process, however, seems not to be smooth. A common theme in the literature is the importance of spatial differences, primarily the urban to rural dimension.[1] Much has also been written on income inequality in Russia during its transition. However, for Russia the facts have been considerably more difficult to establish due to data issues. The limitations of official data are large and research initialised data collections, although useful in shedding light on many questions, have not become a full substitute. [2]

To our knowledge, this paper is the first to compare income inequality at the household level in China and Russia using microdata.[3] For both countries we use the data from large surveys

[1] Recent writings on the development of income inequality in China include UNDP (2005), Chen and Ravalion (2007) and Gustafsson et al (2007). See also the special issue (no 4) of Journal of Comparative Economics, 2006 and Review of Income and Wealth (no 1) 2007. On the urban to rural income gap in China see, for example, Knight and Song (1999) and Sicular et al (2007).

[2] Atkinson and Micklewright (1992) discuss limitations of the official statistics during the Soviet era and Yemetsov (2005) reports the changes during transition. Milanovic (1988) reports results for the period from 1989 to 1994 using official data and the Russian Longitudinal Monitoring Survey (RLMS). Commander et al. (1999) study the period 1992 to 1996 using RLMS. Kislitsina (2003) reports Gini-coefficients from RLMS 1992, 1994, 1996, 1998 and 2000.

[3] Galbraith et al (2004) use official measures of income by region and sector in Russia 1990-2001 and China 19871999/2000 and report increasing inequality in both countries. However, the authors do not compare levels of inequality across countries. Mitra and Yemtsov (2006) survey the recent literature on income inequality in countries in transition and note, for example, that the urban to rural income gap in China is much higher than in Russia. In the meta study of countries in transition, Fleisher et al (2005) investigates rates of return to education in the labour market. Rates of return to education are reported to have increased in China as well as in Russia, and to be higher in the second country. The latter is also shown in Gustafsson et al (2001) based on analysing harmonised mocrodata for cities from the end of the 80s. Starting with Nee (1989), in the sociological literature there are several studies of income accrued to elites in China as well as in Russia. A meta study on this literature (but not including rural China) is Verhoven (2005). However, we have not found any attempts in this literature to compare income of elites in China and Russia using harmonised microdata.

covering most of the countries; the Chinese data refers to 2002, the Russian data to 2003. We harmonise definitions and portray income inequality in each country. We report a Gini-coefficient of per capita total income for China amounting to 45.3 percent while for Russia it is as low as 33.6 percent. We break down both samples in rural and urban regions and compare across countries. Such a breakdown also makes it possible to study the role for total inequality shown by differences in average income and population proportions between the two countries. In order to shed further light on reasons for the difference in income inequality across the two countries, we decompose the Gini coefficient by income sources using harmonised definitions. To understand how location, personal, and household characteristics affect income in each country, we estimate income functions. This exercise makes it possible to study the magnitude of the urban to rural income gap after controlling for education and demographic factors, and we find that the income return of living in an urban area is much higher in China.

While we report many differences between China and Russia there are also similarities. Income inequality among urban residents in China and in urban Russia is very similar. The positive effect of education of household head and the negative effect of household size on income are not very different in either China or Russia. Children are on average less privileged compared to persons of other ages in both China and Russia.

The rest of the paper is laid out as follows: In the next section we present the two datasets and introduce assumptions used when analysing them. The theme for Section 3 is to depict overall income inequality and to decompose it between urban and rural regions. Section 4 defines components of income and uses them to decompose inequality. The regression analysis is reported in Section 5. The paper ends with a section summarising and discussing the findings.

2. Data and assumptions

The Chinese data for this study comes from two coordinated household surveys conducted for the research project “Income Distribution, Growth and Public Policy in China”, which involved a group of researchers at the Institute of Economics, Chinese Academy of Social Sciences, Beijing and scholars from other countries. It was economically supported by the Ford Foundation in Beijing and SIDA (Swedish International Development Agency). The project was assisted by the General Team of Rural Surveys and General Team of Urban

Surveys at the National Bureau of Statistics (NBS) that conducted the fieldwork in the beginning of 2003, and income refers to 2002.[4] NBS uses different samples and survey instruments for rural and urban China, which is also the case for our data. The questionnaires were designed by the project team to meet the needs of research. The surveys of urban residents include Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Henan, Hubei, Guangdong, Chongqing, Sichuan, Yunnan, and Gansu. 6 835 households living in 77 cities were sampled from larger samples regularly used by NBS to produce official statistics for China. The rural sample includes Beijing, Hebei, Shanxi, Liaoning, Jilin, Jiangsu, Zhejiang, Anhui, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shaanxi, Gansu and Xinjiang. From these provinces and province level units, 122 counties or country-level cities were selected and from them 9 200 households. The rural and urban samples were selected with different sampling probabilities. To correct for this we used sample weights for urban and rural samples according to the proportion of actual population in urban and rural areas.

Probably the largest limitation with the Chinese survey is that it does not cover rural households which reside in urban areas without an urban register, *a hukou*. This is a property shared by most other studies of income inequality in urban China. It means that we most likely underestimate income inequality in urban China, as temporary migrants typically earn less than the registered population. However, available evidence indicates that in the distribution of income in China as a whole, the temporary rural to urban migrants can be found in the middle of the distribution. This means that our estimates of income inequality in China as a whole are probably not seriously biased by the limitation in the sampling process (see Khan and Riskin, 2007).

The Russian data comes from the National Survey of Household Welfare and Participation in Social Programs, also known as NOBUS (after its Russian acronym). It was developed with the technical assistance of the World Bank and administered by the Federal Service of State Statistics (Rosstat) in the 2nd quarter of 2003.[5] The survey uses a random sample of 44 529 households and 107 695 individuals that was created using a multi-stage stratification, i.e. sequential random selection with a two-phase selection. First, seven types of urban

[4] For more information on the Chinese surveys see Li et al. (2007).
[5] Information on the sampling, questioner as well as the microdata is available on its home page: http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/RUSSIANFEDERATIONEXTN/0,,contentMDK:20919706~pagePK:141137~piPK:141127~theSitePK:305600,00.html

settlements (strata) were defined by population size, as well as one strata of rural settlements, and then sampled.[6] In a later stage households were selected from addresses. In order to arrive at estimates for the population we apply the sample weights that were developed by the data producers. As opposed to the Chinese data, the same survey instrument was used for urban and rural households alike.

Some comparisons of population characteristics according to NOBUS and the All-Russian population census autumn 2002 show no larger differences (see the NOBUS home page). However, measures of income inequality such as the Gini coefficient derived from NOBUS, are remarkably low compared to what has been reported earlier in several cases for Russia based on official statistics or the Russian Longitudinal Monitoring Survey.[7] When the World Bank in World Development Report 2006 reports a Gini coefficient of 32.0 percent (for consumption expenditures) in 2002, it is dramatically lower than the Gini of 48.7 for Russia 1998 reported in World Development Report 2000/2001. This difference must be chiefly attributed to differences in the data for the assessment, as a drop in the Gini of 16.7 percent in only four years would most likely not have occurred unnoticed.[8]

The two surveys were conducted independently of each other. We have followed the approach of the Luxemburg Income Study (LIS, http://www.lisproject.org/) by ex-post harmonising definitions for the two surveys. The basis for this work was provided by documents and questionnaires of the two surveys, as well as knowledge accumulated by the authors when actively involved in the data collection processes. However, comparability across the surveys is far from perfect. For example, it can be noted that the Russian sample comprises many more households, meaning that estimates are potentially more precise. On balance we cannot conclude if the differences in inequality across China and Russia reported here are underestimates or overestimates.[9] However, the differences in income inequality across the

[6] The following urban strata were defined: cities with population of: 1 million people and more; 500-999,9 thousand people; 250-499,9 thousand people; 100-249,9 thousand people; 50-99,9 thousand people; 20-49,9 thousand people; up to 20 thousand people

[7] World Bank (2005 Chapter 1) discusses limitations with the official data, one of which is to adopt weights to correct for non-response and ensure conformity with macroeconomic data in a not transparent manner.

[8] World Bank (2005B) reports Ginis for Russia 1997 to 2002 for three alternative definitions and the drop in Gini between 1998 and 2002 is not more than two to three percent.

[9] Often household income surveys underestimate true income inequality due no non-reporting of income; this is particularly true for households with the lowest and the highest incomes. Based on differences in non-response rates across the two surveys as well as comparing our calculations with previous reports on income inequality in Russia during transition, one could hypothesise that underestimation of inequality is larger in the Russian data. However, the Russian data is collected for monthly income while for China, the income data is for a full year; monthly income is typically more unequally distributed than annual income.

two countries reported here are so large that it would be very difficult to argue that they are caused by differences in the data generating process only.

We define total income for each household as the sum of income components such as wages, farming income, non-agriculture self-employment income, public transfers, privately provided transfers, imputed rent of owner-occupied housing, and housing subsidies. Income can be received as money in kind, constitute the net output of self-subsistence agricultural production or be the value of residing in a private home.[10] For each household we divide total income by the number of household members. Following the prevailing praxis when analysing the distribution of income in rich countries, we assign the resulting per capita total income to each household member and study the resulting variable per capita total income. This means that while the household is the income-receiving unit, the individual is the analytical unit.

3. Overall inequality and decomposition by urban and rural regions.

/Figure 1 and Figure 2 about here/

We use graphs to provide a first impression of the distributions of income in the two countries. Figure 1 shows histograms and clearly the Chinese distribution is shown to be much more unequal than the Russian. In China the largest concentration of individuals is in the interval 20 percent to 60 percent of mean income, while in Russia the largest concentration of individuals is in the interval 40 percent to 90 percent of mean income. In Figure 2 (for China) and Figure 3 (for Russia) we have broken down the two samples into rural and urban regions and find large differences across countries. The largest proportion of urban Chinese households has incomes that are at least 150 percent or more of the country mean; few are below 70 percent of the country mean. The situation in rural China is rather different as the majority have incomes below 70 percent of the country mean and only a very few reach up to 150 percent or more of the country mean. There is clearly much more overlap between the urban and rural income distributions in Russia, although having an income above the mean is much more common for urban inhabitants.[11]

[10] Brandt and Holz (2006) have developed a spatial price index for China and it is used by Sicular et al (2007) for studying the urban – rural income gap using the same data as this study. However, we are not aware of any similar index for Russia. We chose to treat the two samples identically in this respect and therefore do not adjust income for regional price differences in any of the samples.

[11] In Table 7 we report that 91 percent of persons in the top quintile in China are urban while only 1 percent in the bottom quintile are urban. The corresponding percentages for Russia reported in Table 8 are 93 percent and 49 percent.

/Table 1 about here/

In Table 1 we tabulate Lorenz-curves and report selected inequality indices for total per capita income in China and Russia, as well as for each country's rural and urban regions. Clearly the Lorenz-curve for China as a whole indicates a more unequal distribution than for Russia as a whole and the Gini-coefficients amount to 45.3 percent and 33.6 percent. Other large differences across the two countries according to our data as shown in Table 1 are that while as many as 75 percent of the population in Russia is urbanized, the corresponding proportion in China is only 39 percent. Further, while the income gap between urban and rural areas is as high as 3.05 in China it is not more than 1.67 in Russia.[12]

How do those inequality estimates relate to others reported for the two countries for approximately the same years? Starting with China, OECD (2004) cites a National Bureau of Statistics estimate of 41.7 percent for 2000. For 2001 Wu and Perloff (2005) report a Gini of 41.5 percent while for the same year Ravallion and Chen (2007) report a Gini of 44.7 percent. Based on varying the definition of income in our data, we find that one important reason for our estimate being higher is that our definition of income is broader and includes imputed rents from owner-occupied housing.

Turning to the Gini for Russia it can be noted that the World Income Data Base (version 2.0 June 2005) at the World Institute for Development Economic Research (WIDER) has compiled as many as 47 Gini coefficients obtained from different surveys referring to the period 1981 to 2002.[13] The Gini of 33.6 percent we report for 2003 is higher than those referring to the Soviet epoch (that is, up to 1991). In contrast many later estimates of the Gini coefficient for Russia are higher than ours. However, some close to ours have also been reported.[14]

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[12] Please note that we are comparing the distribution of income in the two countries, not the distribution of wealth. Although one can suppose a positive relation between income and wealth to exist within a population, savings from high earnings are most likely not the most important channel to have generated very high wealth holdings in the two countries under study. Forbes (http://www.forbes.com/billionaires/) lists 793 billionaires in the World 2006. In the list there are a larger number of Russians (33 citizens) than Chinese (8 citizens), and the highest-ranked Russian person is at a higher position (number 11) then the highest-ranked Chinese (number 451).

[13] See http://www.wider.unu.edu/wiid/wiid.htm

[14] The lowest estimate is 34.6 percent for 1997 and 1998 based on household budget surveys and refers to expenditures. These estimates are based on data from Goskomstat, but no details are available on the surveys. The latest estimate of the Gini coefficient in the WIDER database, 42.2, percent, refers to 2001 and comes from the TransMONEE 2004 Data Base at United Nations Children's Fund, IRC Florence (the 2006 version of the TransMONEE, see http://www.unicef-icdc.org/resources/transmonee.html) does not contain newer estimates for Russia). The website of Luxembourg Income Study reports a Gini for Russia 2000 of 43.4 based on Russian

While overall income inequality is much larger in China than in Russia, when moving to the two sub-national levels there are also similarities. In both countries urban inequality is lower than rural inequality. The inequality indices take higher values for rural areas in China than in the rural areas of Russia, and with the exception of the first decile, the Lorenz-curve is higher for rural Russia. A striking similarity across countries appears in the regions where the Soviet system was introduced. The Lorenz-curves for urban China and urban Russia are virtually identical. The Gini of 31.7 percent for urban China and 31.4 percent for urban Russia are comparable to what is reported for many rich countries during approximately the same time period, according to the Luxembourg Income Study (LIS). It also means that the Ginis for urban China and urban Russia are lower than reported for the United States as a whole, but higher than reported for some low inequality countries in Europe.[15]

In order to shed more light on differences between China as a whole and Russia as a whole, we decompose total income inequality in each country using additively decomposable inequality indices. An additively decomposable inequality index has the property that when breaking down the population under study into mutually exclusive subgroups, total inequality is equal to the weighted sum of inequality in each subgroup and a term representing "between group inequality". "Between group inequality" indicates how large an amount of inequality would remain if mean income of the subgroups were the same, but inequality within each subgroup was kept unchanged. The magnitude of the "between group inequality" component is in turn dependent on the size of the difference in mean income across groups as well as the population's distribution across subgroups.

/Table 2 about here/

We have computed the Mean Logarithmic Deviation as well as the Theil index where the former uses population shares to weight within group inequality and the latter uses income shares. The results are shown in Table 2. As much as 43 percent of total income inequality in China as a whole can be attributed to between urban and rural inequality, while only 11 or 10 percent (depending of index) of the smaller total income inequality in Russia can be attributed

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Longitudinal Monitoring Survey (RLMS, see http://www.cpc.unc.edu/rlms/). Gustafsson and Nivorozhkina (2005) report a Gini of 35.6 for the city of Taganrog in 2000. World Bank (2005B) reports Ginis 1997 to 2002 for three alternative definitions of consumption. In 2002 the lowest Gini is 33.0 obtained for consumption divided by a poverty line, and is thus rather close to our estimate 33. 6 based on income.

[15] For example: Austria, Czech Republic, Netherlands, Norway, Slovak Republic and Sweden. The Ginis reported on the Website of LIS are computed using another equivalence scale than that used in this study.

to between urban and rural inequality. The "between urban and rural inequality" component is as much as seven times larger in China than in Russia.

4. **Decomposing income inequality by income sources**

In this section we analyse why income inequality is larger in China by decomposing the Gini coefficient for total per capita income by income sources. The Gini coefficient can be written as the weighted sum of the concentration coefficients for the various income sources. The weights are the relative shares of the income source in total per capita income so we have:

$$G = \sum_k \frac{m_k}{m} C_k \qquad (1)$$

where m_k and m are the means of income source k and total per capita income, and C_k is the concentration coefficient of income source k. The concentration coefficient measures the association between income source k and total per capita income with values ranging from -1 to +1. If the income source has a concentration coefficient that is equal to the value of the Gini coefficient of total per capita income, the distribution of the income source is as equal as the total per capita income. However, if the concentration coefficient of an income source is greater (smaller) than the Gini coefficient of total per capita income, this income source is considered to be disequalizing (equalizing).

The relative contribution of income source k to income inequality is expressed as:

$$E = u_k C_k \Big/ G \qquad (2)$$

where u_k is share of income source k in total per capita income, C_k is the concentration coefficient of income source k, and G is the Gini coefficient of total per capita income.

In addition, the difference between two Gini coefficients for different countries can be written as:

$$G_1 - G_0 = \sum (u_{1k} C_{1k} - u_{0k} C_{0k}) \qquad (3)$$

where u_{ik} is the share of income source k in total per capita income in country i (China and Russia), C_{ik} is the concentration coefficient of the income source k in country i, and G_i is the Gini coefficient of equivalent disposable income in country i (China and Russia).

/Table 3 about here/

For both countries we define as similar as our data allows six income components (and in the Chinese data a small residual component). Table 3 reports the results for China as a whole and Russia as a whole and we comment first component by component before turning to how the decomposition can throw light on the cross-country difference in income inequality (Table 4). In both countries, wages make up half of total per capita income. They are disequalising in both countries, though more so in China. The latter can be understood from the fact that wages are concentrated to the urban areas as can been seen in Tables 5 and 6 where we decompose income inequality in urban and rural regions by source. Non-agriculture self-employment income is one of the smaller income sources in China as a whole and very small in Russia, according to our data. The component is equalising in China as a whole due to a considerably larger share in the rural regions (compare Table 6 and Table 5). Farm income makes up 13 percent of total per capita income in China, and not surprisingly, the relative share is less than half as large in Russia. Farm income is more equalising in China.

Public transfers make up as much as 18 percent of total per capita income in Russia as a whole, but only half as much in China as a whole. In Western countries public transfers are typically equalising which is also the case in Russia where the concentration coefficient is found to be as low as 0.18, indicating only a weak positive relation between public transfers and total income. Unlike in Russia, public transfers in China have a concentration coefficient as high as 0.67 and are thus strongly disequalising. This shows that it is the more affluent urban residents, not the disadvantaged rural inhabitants, who are benefiting from public transfers. In contrast, private transfers in China make up a larger proportion of total income than in Russia and with a concentration coefficient of 0.21, are equalising. Tables 5 and 6 show private transfers are much more important for the worse-off rural households in China than for the urban households. Finally, in our data and with our definitions, we report that the income source imputed rents and housing subsidies comprises far from a trivial proportion of total income in both countries and it is non-equalising.

/Table 4 about here/

We now turn to how the decomposition from Table 4 throws light on the difference in Gini for total per capita income between China and Russia. We find that differences in concentration coefficients dominate differences in relative shares. If wages in China had had

the same distributional profile as in Russia, the gap in Gini between the two countries under study would have been halved (from 12 to 6 percent units). If public transfers in China had had the same distributional profile as in Russia, the gap in Gini would have been reduced by 4 percentage points if evaluated by the income share in China, but by as much as 9 percentage points if evaluated by the higher Russian income share. If imputed rents and housing subsidies had the same distributional profile in China as in Russia, the gap in Gini would narrow by 3 alternatively 4 percentage points. One example of an income source working in the opposite direction is farm income being more concentrated to low-income persons in China than in Russia, the other example is non-agriculture self-employment income. However, each of these is separately of minor importance, as replacing the Chinese coefficient with the Russian would narrow the gap in Gini by at most 2 percentage points.

/ Table 5 and Table 6 about here/

The decomposition of the equally large Ginis for urban regions in China and Russia reported in Table 5 shows some interesting differences. Wages make up a somewhat larger share of total per capita income in urban China than in urban Russia. Wages are slightly equalising in urban China but disequalising in urban Russia. Public transfers are equalising in both countries, and more so in urban Russia. Private transfers are fairly small in the urban regions of both countries. Imputed rents and housing subsidies are disequalising in urban China, but not in urban Russia. Possible reasons for this difference could be that China is a much more densely populated leading to high market prices on housing, in combination with differences in how the privatisation process has taken place.

Finally the decompositions for rural regions in Table 6 provide some additional insights. There are many differences to comment on which reflect the different situations in the two countries. The difference in economic development is apparent in wages having the largest income share in rural Russia, while this role is assumed by farm income in rural China. Farm income is remarkably equally distributed in rural China, not so in rural Russia. On the other hand, the long period of transition in rural China is visible in a much larger share of income from non-agriculture self-employment than in Russia, and is also large compared to what was found in urban China. Rather strikingly, the income share of public transfers in rural Russia is as high as 24 percent and the component is equalising within rural Russia. In contrast, the

income share of private transfers in rural China is as high as 14 percent.[16] Private transfers in rural China have a profile that is inequality generating in rural China. In contrast the income share of private transfers in rural Russia is only 5 percent. .

5. Characteristics and income

In this section we compare the income situation for people living in China and Russia by estimating income functions. Explanatory variables measure age and gender of the person, education of household head, number of household members, and an urban dummy as well as regional dummies (three for China and six for Russia). Descriptive statistics for China are presented in Table 7 and for Russia in Table 8. The tables also report variable by variable on the composition of the sample at the bottom 20 percent and top 20 percent, thus making it possible to see what characterises persons at the two tails of the income distribution.

/Tables 7 and Table 8 about here/

Starting with age of individual we note a somewhat larger proportion of children in the Chinese sample. In both countries children are overrepresented in the lowest quintile, underrepresented in the highest. While many Western countries have relatively ambitious systems of family allowances, such programs are not found in China or Russia. In contrast, we do not find signs indicating that the elderly in China and Russia are on average less privileged than persons of other ages. As could be expected, the Russian household heads are on average longer educated than the Chinese, and we report positive relations between education and the proportion belonging to the highest quintile for both countries. Consistent with what population statistics show, we report a considerably higher proportion of females than males in the Russian sample, while in the Chinese sample gender composition is more balanced. Household size is typically larger in the Chinese data. Finally, turning to region we report that two-thirds of persons in the top quintile in the Chinese distribution live in the eastern region and that two-fifths of persons in the top quintile for Russia live in the central region (which includes Moscow). At the other end of the distribution, a slight majority of the Chinese sample live in the Western region and the same applies to the southern region or the Volga region in the Russian sample

[16] Secondi (1997) analysing CHIP data for rural China 1988 reports receipt of private transfers as well as sums received to be positively related to county income. He also concludes that most money flows appear to be transfers from adult children to elderly parents and remittances from migrants.

/Table 9 about here/

In Table 9 we report OLS estimates of log-income functions using the same specification for the two countries. Several comments are motivated. First, not surprisingly, location is of consequence in both countries even after controlling for the various household and individual level variables.[17] The coefficient for the urban dummy is estimated with high t- statistics in both countries and the coefficient for China is more than two times as high as the coefficient for Russia. This illustrates what is commonly known, that in China there are large potential benefits for rural persons to migrate to a city. Not surprisingly in two of the largest countries in the world, we find that region influences income. Starting with Russia, we report small positive coefficients for living in the North-Western region and the Far East compared to the base category, the Central region. This is consistent with occupational wages often being higher in these regions. The largest negative coefficients for Russia are reported for the Southern region and the Volga region. However, the magnitude of the coefficients for the Central and Western regions of China are still larger. We have thus found that as measured here, location can have a larger influence on a person's income in China than in Russia.

Second, education of household head is significant in both countries. While previously reported results from analyses of wages would have led one to expect higher coefficients for Russia,[18] most coefficients reported here are actually higher for China. Common to the two countries are private benefits for investing in schooling. Third, we find income to increase in both countries up until age 46-55 after which it decreases. The first part of the profile is steeper in Russia, while this is not the case at higher ages. When running separate equations for rural and urban sub-samples of the two countries, we can attribute much of the later difference to the rural regions. In rural Russia, where our data shows that most elderly people receive pensions, age does not negatively affect income after age 55 as it does in rural China. Fourth, we find household size to negatively affect per capita total income in both countries and the coefficients are somewhat higher in China. Finally, the negative coefficient of female gender is estimated with a high t-statistic but is small in both countries.

Based on the estimates we predict log income for selected typical persons, transform the predictions into Yuan and Roubles respectively, and finally express these values as percent of

[17] However, note that we have not adjusted for possible spatial differences in consumer prices. To the extent that consumer prices and income are positively correlated, we are more likely overestimating spatial income differences than underestimating them.
[18] See Fleixher et al (2005).

the mean value as it is observed in the data. We do this for four combinations of rural-urban and rich-poor regions for each country and report the numbers in Table 10. Our base individual is aged 36 to 45, lives in a household of three and the male head has a middle-long education. Such an individual living in China has an above-average income with the exception of living in a poor rural region. In contrast, the individual reaches above-average in Russia only if urbanised and living in a rich region. This cross-country comparison illustrates that individuals in Russia are on average better endowed with income generating characteristics than their Chinese counterparts.

The predictions also illustrate the rather substantial income differences due to location only. If the typical person lives in a rich urban are, not in a poor rural area, income more than triples in China and more than doubles in Russia. Compared to the spatial differences, differences due to varying household characteristics are substantially smaller. This is illustrated when changing household size (case individual b) and education of household head (case individual c). The age-related variation is also small (case individuals d and e).

6. Conclusions

In this paper, using harmonised microdata we have studied income inequality in China and Russia at the beginning of the new millennium. We find income to be much more unequally distributed in China, and report for the entire country a Gini coefficient of 45.3 percent for total per capita income 2002, while according to our data, the Gini for Russia is as low as 33.6 percent in 2003. The latter is considerably lower than several previous estimates reported for Russia in transition, but not uniquely low. To understand this difference was the major task of our paper. Therefore we described the distributions of total per capita income, decomposed inequality in each country into urban and rural inequality, decomposed the Gini coefficient of total per capita income by income source and also as estimated regression models with income as the dependent variable using the same specification for both countries investigated.

According to the analyses presented here, China's much larger urban to rural divide is a major reason why income inequality is much higher in China. This can be traced back to differences in economic development and the fact that the Soviet system was introduced in urban China only. In China, since the beginning of the 1960s the *hukou* system has been a strong barrier,

preventing rural inhabitants from moving to the cities and preventing the urban to rural income gap from narrowing. While 75 percent of the Russian inhabitants were living in cities, the corresponding proportion in China was only 39 percent when our data were collected. We report that while urban average income was as large as 3.1 times rural income in China, the corresponding number in Russia was only 1.7. Our regression analyses show that although differences in individual and household characteristics can account for some part of these differences, a pure effect of residing in an urban area remains and has a larger magnitude in China. The great importance of the rural to urban divide in China is illustrated by results from computing an additively decomposable inequality index. As much as 43 percent of inequality in the distribution of income in China as a whole would vanish, if mean income of rural China and urban China were the same, while keeping inequality within rural and urban China constant. For Russia, the corresponding proportion of the smaller inequality is much smaller.

The larger urban to rural income gap and the smaller proportion of people living in urban areas in China means that wages are a more non-equalising income source than in Russia. The larger urban to rural income gap and other lasting characteristics of the now abolished Soviet model contribute to inequality being larger in China through other channels. The provision of subsidised housing, and subsequent housing reform where tenants often have been able to buy housing at subsidised prices, is concentrated to urban China, and is rather non-equalising in the country as a whole. A large part of the gap in the Gini coefficient between China as a whole and Russia as a whole can be attributed to differences in public transfers. Most fundamentally, the less privileged rural population in China is not covered by pensions. While public transfers were found to be income equalising in Russia as a whole, they were found to be non-equalising in China as a whole.

While differences in initial conditions go a long way to explain why income inequality is larger in China than in Russia, we have also found differences in the process of transition. During the more than two decades of transition in rural China, a sector of non-agriculture self-employed households has grown. This has, on one hand, contributed to making the distribution of income in rural China more unequal than in rural Russia. On the other hand, according to our accounting exercise, the expansion of the sector has also narrowed the urban to rural income gap and thereby reduced income inequality in China as a whole.

Despite the many differences in the income and inequality generating process between China and Russia, there are also similarities. Inequality in income among urban residents in China

and urban inhabitants in Russia were found to be surprisingly similar. In both countries household income is positively affected by education of household head and negatively by household size; and the relations are similar in magnitude in the two countries. In both countries, children make up the age group that is worse-off compared to other age groups. Yet, at the end of the life cycle the elderly are on average not worse-off than others. For Russia and urban China this is most likely the outcome of the pension system. Still, in rural China living with the younger generation and in a household receiving private transfers seems to be the main reason why elderly are on average not doing worse than people of other ages.

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Table 1
Lorenz-curves and inequality indices for the distribution of income in China 2002 and Russia 2003

Decile	**Total**		**Urban**		**Rural**	
	China 2002	**Russia 2003**	**China 2002**	**Russia 2003**	**China 2002**	**Russia 2003**
1	0.017	0.027	0.032	0.031	0.026	0.026
2	0.045	0.071	0.079	0.079	0.067	0.070
3	0.082	0.127	0.137	0.138	0.118	0.126
4	0.129	0.193	0.205	0.207	0.180	0.194
5	0.189	0.272	0.285	0.286	0.252	0.275
6	0.266	0.363	0.376	0.377	0.336	0.369
7	0.367	0.466	0.481	0.482	0.435	0.475
8	0.500	0.591	0.604	0.602	0.554	0.599
9	0.679	0.746	0.756	0.758	0.708	0.751
10	1.000	1.000	1.000	1.000	1.000	1.000
Inequality indices						
Gini	0.453	0.336	0.317	0.314	0.373	0.331
MLD	0.350	0.198	0.168	0.167	0.235	0.200
Theil	0.362	0.198	0.172	0.172	0.255	0.205
Mean value (in local currency)	5 912	3 363	10 023	3 735	3 283	2 234
Proportion of total population in the country	100	100	39.1	75.2	60.9	24.8
Number of observations in sample	62 244	107 695	24 275	74 700	37 969	32 995

Sources: Authors' calculations from CHIP 2002 and NOBUS 2003.

Table 2
Decomposing income inequality in China 2002 and Russia 2003 as a whole by urban and rural

	MLD		Theil	
	China	Russia	China	Russia
Total inequality (index values)	0.362	0.198	0.350	0.198
within urban inequality (index-value)	0.168	0.167	0.172	0.172
Sub group population as share of total population	0.391	0.752		
Subgroup income share of total income			0.660	0.770
Within rural inequality (index-value)	0.235	0.200	0.255	0.205
Population share	0.601	0.248		
Income share			0.340	0.230
Between group inequality (index value)	0.155	0.023	0.150	0.020
As percent of total inequality	100	100	100	100
Within urban inequality	18.2	63.6	32.7	72.6
Within rural inequality	39.0	25.1	24.5	17.1
Between urban and rural inequality	42.8	11.4	42.8	10.3
Urban to rural income gap	3.05	1.67	3.05	1.67

Sources: Authors' calculations from CHIP 2002 and NOBUS 2003.

Table 3

Decomposition of the Gini-coefficient by income source in China 2002 as a whole and Russia 2003

Income component	Share of total income (percent)	Concentration coefficient	Absolute contribution	Relative contribution (percent)
	China			
Wages	48.5	0.542	0.263	58.1
Net income from private business	5.7	0.287	0.016	3.6
Farming income	13.0	-0.138	-0.018	-4.0
Public transfers	8.9	0.668	0.061	13.6
Private transfers	6.1	0.205	0.012	2.8
Imputed rents and housing subsidies	17.6	0.550	0.097	21.4
Other	0.1	1.65	0.02	4.6
Total	*100.0*		*0.453*	*100.0*
	Russia			
Wages	49.5	0.419	0.207	61.7
Net income from private business	0.1	0.637	0.001	0.3
Farming income	6.0	0.043	0.003	0.8
Public transfers	17.5	0.180	0.032	9.4
Private transfers	3.6	0.261	0.009	2.8
Imputed rents and housing subsidies	23.3	0.361	0.084	25.08
Other	-	-	-	-
Total	*100.0*		*0.336*	*100.0*

Sources: Authors calculations from CHIP 2002 and NOBUS 2003.

Table 4
Decomposition of differences in Gini coefficient for China and Russia by income sources

Income source	$s * C_C$	$s * C_R$	Difference	$C_C (s_C - s_R)$	$C_R (s_C - s_R)$	$s_C (C_C - C_R)$	$s_R (C_C - C_R)$
Wages	0.263	0.207	0.056	- 0.005	-0.004	0.060	0.061
Net income from private business	0.016	0.001	0.015	0.016	0.036	-0.020	0.000
Farming income	-0.018	0.003	-0.021	-0.010	0.003	-0.024	-0.011
Public transfers	0.059	0.032	0.028	-0.057	-0.015	0.043	0.085
Private transfers	0.012	0.009	0.003	0.005	0.007	-0.003	-0.002
Imputed rents and housing subsidies	0.097	0.084	0.013	- 0.031	- 0.021	0.033	0.044
Other	0.002	-	0.002				
Total	0.453	0.336	0.117				

Sources: Table 3.

Table 5 Decomposition of the Gini-coefficient by income source in urban China and urban Russia

Income component	Share of total income	Concentration coefficient	Absolute contribution	Relative contribution
	China 2002			
Wages	58.1	0.300	0.175	55.5
Net income from private business	2.7	0.145	0.004	1.3
Farming income	-	-	-	-
Public transfers	14.5	0.254	0.037	11.7
Private transfers	1.8	0.406	0.007	2.4
Imputed rents and housing subsidies	19.7	0.371	0.073	23.2
Other	3.1	0.614	0.019	6.0
Total	*100.0*		*0.317*	*100*
	Russia 2003			
Wages	52.4	0.383	0.201	64.0
Net income from private business	0.2	0.631	0.001	0.3
Farming income	1.9	0.009	0.0002	0.1
Public transfers	16.3	0.167	0.027	8.6
Private transfers	3.3	0.260	0.009	2.8
Imputed rents and housing subsidies	26.0	0.293	0.076	24.2
Other	-	-	-	-
Total	*100.0*		*0.314*	*100.0*

Sources: Authors' calculations from CHIP 2002 and NOBUS 2003.

Table 6 Decomposition of the Gini-coefficient by income source in rural China 2002 and rural Russia 2003

Income component	Share of total income	Concentration coefficient	Absolute contribution	Relative contribution
	China			
Wages	29.6	0.464	0.137	37.0
Net income from private business	11.7	0.723	0.085	22.8
Farming income	38.4	0.136	0.052	14.1
Public transfers	-2.07	-0.044	0.001	0.2
Private transfers	14.36	0.49	0.070	19.0
Imputed rents and housing subsidies	13.6	0.348	0.047	12.8
Other	-5.6	0.386	-0.022	-5.8
Total	*100.0*		*0.371*	*100.0*
	Russia			
Wages	34.5	0.368	0.127	38.5
Net income from private business	0.1	0.275	0.0002	0.1
Farming income	26.4	0.337	0.099	30.1
Public transfers	24.0	0.236	0.057	17.2
Private transfers	5.1	0.312	0.016	4.9
Imputed rents and housing subsidies	9.8	0.316	0.031	9.4
Other	-	-	-	-
Total	*100.0*		*0.331*	*100.0*

Sources: Authors' calculations from CHIP 2002 and NOBUS 2003.

Table 7
Personal and household characteristics in the total sample and in the bottom 20 and top 20 percent of the sample for entire China 2002

	Total sample	Bottom 20 percent	Top 20 percent
Age of the individual			
0 – 18	24.49	34.20	13.25
19 – 25	11.21	11.53	9.04
26 – 35	13.90	15.72	10.74
36 – 45	18.45	14.55	18.33
46 – 55	18.57	11.90	28.33
56 – 64	8.02	6.73	12.75
66 – 74	3.79	3.68	5.96
75 -	1.57	1.69	1.60
Education of the household head			
Primary	23.73	45.15	5.17
Incomplete secondary	40.12	43.08	21.05
General secondary	19.00	10.34	22.64
Vocational	6.09	1.01	12.57
Higher	11.06	0.42	38.57
Gender of household head			
Male	84.18	84.96	93.00
Female	15.82	15.04	7.00
Gender of the individual			
Male	51.10	50.60	50.10
Female	48.90	49.40	49.90
Number of household members			
1	0.14	0.02	0.71
2	5.38	1.48	14.98
3	23.55	6.89	37.09
4	32.65	25.12	30.68
5	22.06	32.20	10.85
6 +	16.42	34.29	5.69
Urban / Rural			
Urban	39.0	0.65	91.30
Rural	61.0	99.35	8.70
Region			
East	31.08	8.83	66.03
Central	41.32	39.09	18.57
West	27.60	52.07	15.40
Sample size /	62 235		

Sources: Authors' calculations from CHIP 2002 .

Table 8
Personal and household characteristics in the total sample and in the bottom 20 and top 20 percent of the sample for the whole of Russia 2003

	Total sample	Bottom 20 percent	Top 20 percent
Age of the individual			
0 – 18	20.96	34.03	10.51
19 – 25	9.88	7.88	9.46
26 – 35	12.32	13.85	13.18
36 – 45	14.60	17.26	12.88
46 – 55	16.20	11.74	23.08
56 – 64	10.64	5.23	13.76
66 – 74	10.21	5.74	10.12
75 -	5.17	2.51	5.74
Education of the household head			
Primary	8.64	12.43	3.89
Incomplete secondary	10.57	14.40	6.34
General secondary	46.39	51.18	41.49
Vocational	11.47	12.71	9.85
Higher	22.38	9.28	38.43
Gender of household head			
Male	59.63	53.07	62.91
Female	40.37	46.93	37.09
Gender of the individual			
Male	43.69	45.41	42.88
Female	56.31	54.59	57.12
Number of household members			
1	9.15	3.36	18.26
2	24.35	12.28	31.30
3	27.82	22.79	31.04
4	25.43	32.74	15.47
5	10.07	20.39	3.50
6 +	3.19	8.44	0.42
Urban / Rural			
Urban	75.18	49.40	92.99
Rural	24.82	50.60	7.01
Region			
Central	26.12	15.12	39.01
North-East	10.34	4.77	18.53
South	13.61	22.65	3.99
Volga	22.10	32.00	9.86
Ural	8.84	6.80	10.77
Siberia	14.24	15.82	11.10
Far East	4.75	2.83	6.73

Sources: Authors' calculations from NOBUS 2003.

Table 9
Estimates of semilog income functions for China 2002 and Russia 2003 (dependent variable: log total income)

	China	Std Error	Russia	Std. Error
Age of the individual				
0 – 18	-		-	
19 – 25	0.1081***	0.0079	0.16991***	0.00606
26 – 35	0.0303***	0.0074	0.11658***	0.00565
36 – 45	0.0479***	0.0068	0.10180***	0.00563
46 – 55	0.1442***	0.0069	0.23749***	0.00533
56 – 64	0.1205***	0.0092	0.22084***	0.00638
66 – 74	0.0916***	0.0123	0.15806***	0.00685
75 -	0.0497***	0.0172	0.20032***	0.00844
Education of the household head				
Primary	-		-	
Incomplete secondary	0.0858***	0.0058	0.04373***	0.00720
General secondary	0.2019***	0.0072	0.19703***	0.00621
Vocational	0.3323***	0.0105	0.18557***	0.00743
Higher	0.5113***	0.0092	0.44335***	0.00673
Gender of individual				
Male	-		-	
Female	-0.0084***	0.0044	-0.03201***	0.00319
Number of household members	-			
1	-		-	
2	-0.3477***	0.0584	-0.23575***	0.00623
3	-0.5282***	0.0579	-0.36224***	0.00662
4	-0.6472***	0.0579	-0.51000***	0.00683
5	-0.7896***	0.0580	-0.64669***	0.00779
6 +	-0.8797***	0.0580	-0.75598***	0.01070
Urban / Rural				
Urban	0.8962***	0.0054	0.37928***	0.00381
Rural	-		-	
Region				
Russia				
Central			-	
North-West			0.06624***	0.00574
South			-0.35510***	0.00528
Volga			-0.32740***	0.00454
Ural			-0.00170***	0.00609
Siberia			-0.17378***	0.00517
Far East			0.04387***	0.00780
China				
East	-			
Central	-0.4495***	0.0052		
West	-0.5556***	0.0058		
Intercept	8.7727***	0.0583	8.16777	0.01078
R^2	0.597		0.3632	
n	62235		107680	

Sources: Authors' estimates from CHIP 2002 and NOBUS 2003.
*** Indicates statistical significance at at least 1 percent level.

Table 10

Predicted income (as percent of mean income) for selected individuals living in different rural regions and urban regions in China and Russia

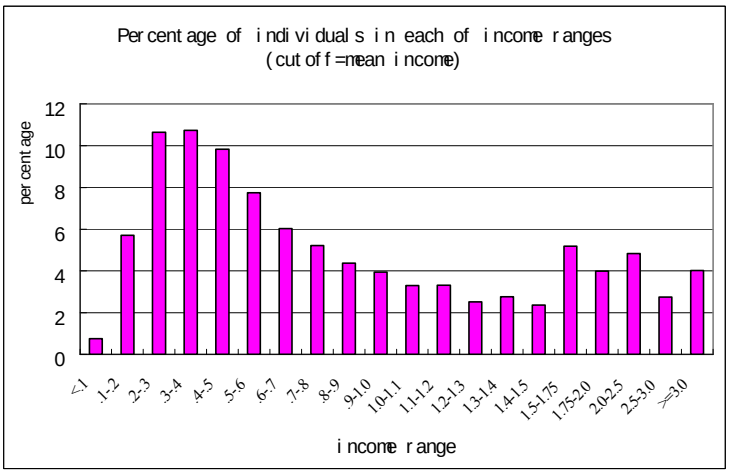
	China		Russia	
	Rural	Urban	Rural	Urban
a) A typical individual, e.g., living in a household with size 3, the head has a middle level education, age of the individual is 36-45, and it is a male				
Rich region	117	196	77	112
Poor region	61	140	50	74
b) Same as a) but household size equal to 6				
Rich region	75	154	52	76
Poor region	18	97	34	50
c) same as a) but education of household head equal to high				
Rich region	174	253	98	144
Poor region	117	196	64	94
d) same as a) but age 66– 75				
Rich region	126	205	87	119
Poor region	69	148	53	78
e) same as a) but age – 19				
Rich region	115	194	82	120
Poor region	59	138	54	79

Source: Calculations based on estimates presented in Table 9

Figure 1

The distribution of individuals by household income range in

a) China 2002 as a whole



b) Russia as a whole

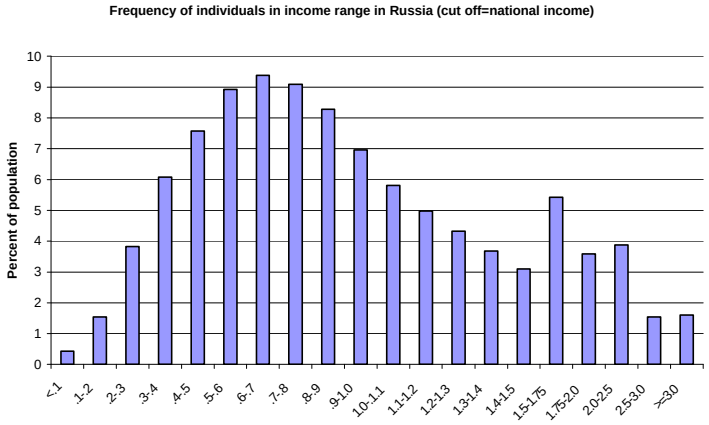
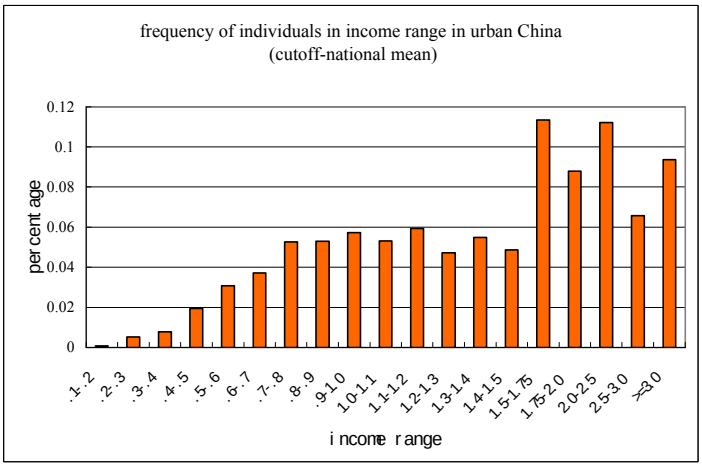


Figure 2
The distribution of individuals by household income range in urban and rural China

a) urban China



b) rural China

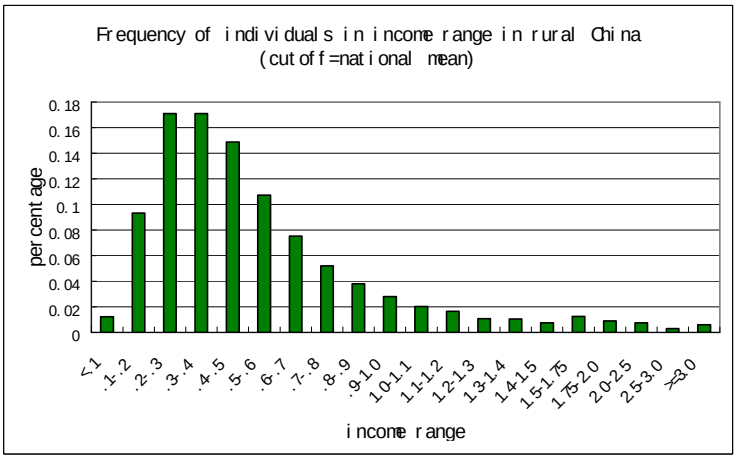


Figure 3

The distribution of individuals by household income range in a) urban Russia and b) rural Russia.