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ABSTRACT

Incomplete Catching Up: Income among Manchurian, Yi and Han People in Rural China from 2002 to 2018

Household income per capita among the rural Yi, Manchurian ethnic minority groups and the Han majority is studied using data from the China Household Income Project 2002, 2013 and 2018. The disparity in total per capita income between the Yi and Han populations narrowed, while the average income among the Manchurian population remained relatively similar to that among the Han population. Decomposing total income into sources shows that the rapid increase in agricultural income among the Yi was a main reason why the disparity in income compared to the two other ethnic groups narrowed. Nevertheless, it is true that the reliance on agricultural income among the Yi became less extreme as wage employment and migration increased. The Manchurian group and the Han group also experienced rapid increases in wages and self-employment income. The aggregated value of transfers from the public sector was similar for all three ethnic groups.

JEL Classification: H31, J15, P36

Keywords: China, ethnic minorities, Han, income, Manchurian, Yi

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1. Introduction

China is a country with 55 officially recognized ethnic minorities and the Han majority. Taken together, and according to the 2020 Census, ethnic minorities make up 8.9 per cent of the population in China, or 125 million inhabitants. Up until now, little has been written about disparities in income between ethnic groups, and even less about how such disparities have changed. In this paper, we focus on the rural inhabitants of two of the most numerous ethnic minorities in China: the Yi ethnic minority, which comprises approximately nine million inhabitants who mostly live in southwestern China, and the Manchurian ethnic minority, which comprises approximately eleven million inhabitants who mostly live in northeastern China. The two minorities we study both have a very long history, including their own culture, language, and religion. They were both officially recognized as ethnic minorities in the 1950s. Wee also study the Han majority.

In this paper, we address the following research questions: How high is the median household total income among the rural Yi and Manchurian ethnic groups compared to that of the rural Han ethnic group, and how did such disparities develop from 2002 to 2018, which was a period when the average income in rural China increased rather rapidly? How can we understand the disparities in household total income per capita between the two ethnic minorities and the Han majority, and the changes in these disparities?

The current study is based on household data from 14 provinces that were included in the rural surveys of the China Household Income Project (CHIP) for 2002, 2013 and 2018. These data make it possible to work with a comprehensive definition of household income. To study levels and changes, we decompose this total household income per capita

according to six sources; we further decompose the source "net transfers" into subcomponents.

We claim to make two main contributions to the literature on income and ethnicity in China. This study is, to the best of our knowledge, the first investigation that has focused on household income among the ethnic minorities of the Yi and Manchurian groups, each of which has as many members as the total number of inhabitants in several countries.[1] The few existing studies on income and ethnicity in China have typically focused on the observed situation during one single year. We contribute to the very small number of studies that have investigated changes over time in the income disparity between ethnic minorities and the ethnic majority in China. It can also be noted that our last year of investigation, 2018, relates to a year more recent than what has been investigated in previous studies of ethnic income disparities in China.

2. The literature on income and poverty disparities between ethnic minorities and the Han majority in China

[1]Examples of such countries include Azerbaijan, Austria, Belgium, Czech Republic, Greece, Honduras, Hungary, Portugal and Sweden.

Surprisingly, little research has aimed to map and understand ethnic disparities in income and poverty in contemporary China.[2] Examples of books on ethnic minorities in China that cover several aspects are those by Mackerras[3] and Bhalla and Qui[4]. There is also the work by Bhalla and Luo[5], which also compares poverty and exclusion among ethnic minorities in Jammu and Kashmir in India and Xinjiang in China. Those authors concluded that despite differences in the political regimes, the socioeconomic situation of minorities is similar in those two regions.

One reason the amount of literature on ethnic income and poverty disparities in China is small is the lack of rich microdata covering both ethnic minorities and the Han majority. Some authors have used the 2005 Census sample survey to investigate ethnic disparities in earnings. One example is Wu and He[6], who studied 18 minorities and the Han majority. The authors analyzed log monthly earnings among full-time workers in nonagricultural (rural as well as urban) activities and stressed the differences found across the ethnic

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[2] As early as for 1914 Dittmer (1918) had collected household data for 100 Han and 95 Manchurian households living in a suburb of Beijing reporting for example no difference median household income between the two categories.

[3] Mackerras 1998, 2003.

[4] Bhalla and Qui 2006.

[5] Bhalla and Luo 2017.

[6] Wu and He 2016.

minorities. The Korean minority fared better economically than did the Han. A second category including the Mongol, Hui, Manchu, Bai and Dai groups showed no differences from the Han majority once spatial and demographic characteristics were taken into account. Nevertheless, some other minorities were disadvantaged to varying degrees compared to the Han people.[7] Relatedly, Campos, Ren and Petrick[8] used data for the period from 1993 to 2011 from the China Health and Nutrition Survey for workers aged 16 to 65 who were working full time and treated ethnic minorities as one combined category. The result showed that once length of education and some variables entered the earnings function ethnic minority status had a negative and significant coefficient in the urban survey, but not in the rural one. This indicates that urban minority workers, as a category, were worse treated than Han workers with the same characteristics while a similar pattern could not be found among rural workers. Results from other studies indicate that it is particularly Uighur workers who in an urban setting are faring worse compared to majority workers with the same characteristics[9].

[7] Gustafsson and Yang (2017) also using 2005 sample survey, draw similar conclusions. A third example of a study of earnings among ethnic groups that uses the 2005 sample survey is Cherng, Hasmath and Ho 2019.

[8] Campos, Ren and Petrick 2008.

[9] Li 2021.

Other research is based on data from the rural surveys of the China Household Income Project (CHIP). An early investigation is Gustafsson and Li[10], who analyzed the income disparity between rural persons living in minority households as an aggregate and the Han majority in 1988 and 1995.[11] The authors reported a widening ethnic income disparity across the two years. This development could be attributed to the more rapid income growth in the eastern part of China, which in turn could be linked to China's policy of opening up the eastern region of the country first. However, evidence indicates that this income gap had not continued to widen in 2002[12].

In the third round of collecting CHIP data 2002 ethnic minority respondents were asked to indicate which out of a limited number of specific minorities they were belonging to. This information allowed studies of how the larger ethnic minorities in rural China were faring. One such study is Gustafsson and Ding [13], who aggregated the information at the village level and reported a substantial variation in mean income and mean wealth across the investigated ethnic groups. For example, the average household income in Manchurian villages was slightly higher than that in Han villages, which in turn had a considerably higher average income than did the villages inhabited by each of the Yi, Zhuang and Miao

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[10] Gustafsson and Li 2003.

[11] Bhalla and Qui (2006) used the same data for the same years to map ethnic disparities in education and health.

[12] Ding 2007.

[13] Gustafsson and Ding 2009a.

ethnic minorities, all of which are concentrated in southwestern China. Industrialization, agricultural production inputs, the stock of human capital in the labor force, the wage level in the local labor market and indicators of path dependency were all found to be linked to the average income level of a village. An example of the latter is that while by 1980 all Manchurian villages surveyed had access to electricity, the corresponding proportion among Han villages was two thirds, and among Yi villages only one in five. Location was the single most important circumstance working against a favorable economic situation for villages inhabited with several minorities.

Another study that used 2002 CHIP data is Gustafsson and Ding[14], who, based on information on household income for each of the years of 2000, 2001 and 2002, studied poverty in a dynamic setting. The results showed that using the National Bureau of Statistics' low income line, almost one-third of the ethnic minorities experienced poverty at least once during the three years, while the corresponding proportion among the ethnic majority was only approximately half as high. Nevertheless, by far, most of the poor individuals in rural China belong to the ethnic majority. Other studies that have used CHIP data to study differences in poverty between ethnic groups are Hannum and Wang[15] and Gradin[16] , who both showed similar pictures. Data from the 2002 CHIP survey were also

14 Gustafsson and Ding 2009b.

15 Hannum and Wang 2012.

16 Gradin 2015.

used by Liu and Lu[17] as a baseline when analyzing the level of development up to 2013 studying households living in atypical ethnic minority areas and treating ethnic minorities as a single category. Their results indicated a disparity in average income to the disadvantage of the ethnic minorities, which decreased from 2002 to 2013.[18]

There are also studies on income and poverty among Chinese rural ethnic minorities and the Han majority that have used household data collected from one or a few regions in China. One is Gustafsson and Ding[19], who analysed Ningxia Hui Autonomous Region using 2006 data. They showed that the Hui population was disadvantaged compared to the Han majority with regard to length of education and household per capita wealth. However, there was no gap in the average disposable income between the Hui and Han groups, and also the poverty rates were very similar for the two ethnic groups. This paradox was attributed to members of Hui households earning more income outside the farm than their Han counterparts. This illustrated that to some extent, certain ethnic minorities can specialize in different economic activities than the Han majority. Another is Ding and Yan[20], who analysed the effect of skill in Putonghua 普通话 on off-farm employment in

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[17] Liu and Lu 2020.

[18] Different from Liu and Lu (2020) we cover a larger territory of rural China and focus on two specific ethnic minorities. Furthermore, we use CHIP data for 2018, and decompose income according to sources.

[19] Gustafsson and Ding 2014.

[20] Ding and Yan 2021.

rural ethnic areas based on investigation data from 2013 to 2015. They found that 32 per cent of the rural minority labor force in ethnic areas couldn't communicate with Putonghua. The probability of engaging in off-farm activities would increase by 52 per cent if those who can't master Putonghua turn to be able to communicate with Putonghua.

There are studies that have used the China Household Ethnic Survey, which collected data for ethnic minorities and Han households in seven regions in Western China in 2011[21]. This survey did not cover Yunnan, where most of the Yi live, or Liaoning, where most of the Manchu live. The volume summarizes the findings in the following way: ethnic-related gaps in household income differ from small to large in the rural part of the seven regions studied. They are in most cases to the disadvantage of ethnic minorities. There is considerable heterogeneity in regard to behavior and economic situation across China's ethnic minorities. Poverty is a large problem for several of China's rural ethnic minorities. Mandarin-related skills and economic situation are positively related. Recent pro-rural policies have had mixed consequences on ethnic inequalities. Ethnic minorities tend to be less likely than the Han people to migrate from rural to urban areas where ethnic disparities in the labor market exist.

3. The Yi and the Manchu

According to the 2020 Census, there are 9.8 million persons classified as Yi living in P.R. China, an increase of 1.9 million from the 2000 Census. A majority (5.4 million) of these

[21] Gustafsson, Hasmath and Ding 2021.

individuals live in Yunnan Province, where after the Han, they constitute the second largest ethnic group making up 11 per cent of the population in the province. There is also a concentration of Yi people in Guizhou Province, which is home to 1.0 million Yi individuals. 2.9 million Yi people live in the Liangshan Yi Autonomous Prefecture in the southwestern part of the province, which accounts for over 95 per cent of Yi living in Sichuan. There the Yi make up 54 per cent of the population, and in nine of its counties, they represent an absolute majority.[22]

The religion of many Yi is Bimoism (Bimojiao,毕摩教). Bimoism takes its name from the bimo 毕摩, who are shaman-priests who perform rituals, are masters of the Yi language and scriptures, and wear distinctive black robes and large hats. Uptill now, Bimoism still has a powerful influence on the Yi people[23]. The core idea of Bimoism is to respect one's ancestors and nature, which in regard to economic activities, means emphasizing agriculture and restraining business. The Liangshan 凉山 Yi Society is famous in China because Chinese ethnologists have determined that it was one of the few remaining examples on earth of a slave society that came into being between the primitive

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[22] Sources: Bureau of Statistics of Liangshan Yi Autonomous prefecture, 2021. "Liangshanzhou 2020nian guominjingji he shehuifazhan tongji gongbao"(Statistical Bulletin of Liangshan Prefecture's National Economic and Social Development in 2020), 6 May, http://tjj.lsz.gov.cn/sjfb/lstjgb/202105/t20210506_1899812.html. Accessed 2 June.

[23] Wang 2018.

and feudal society stages according to Morgan, Engels, and Marx[24]. Relatively much has been written on this particular, concrete manifestation of a historical phase[25]. Ma[26] studied the Yi migrant workers from Liangshan who work in the co-ethnic brokerage system in the manufacturing sector of the Pearl River Delta area 珠江三角洲地区 of China.

Although the Chinese state has recognized the Yi as an ethnic group since the early 1950s, the group still presents as a heterogeneous category in terms of language and culture[27]. Many people classified as Yi speak one of six mutually unintelligible variants of the Yi language, which is a sub-branch of the Tibeto-Burman branch of the Sino-Tibetan family 汉藏语系藏缅语族彝语支. The ancient Yi script can be traced back to at least the Eastern Han Dynasty 东汉时期 (25-220 AD)[28]. The modern Yi script (ꆈꌠꁱꂷ *nuosu bburma* 诺苏补玛) is a standardized syllabary derived by the local government from the classical script, which in 1980 was made the official script of the Liangshan dialect[29].

We now turn to the Manchurian ethnic minority. In 2020, China's Manchurian population numbered, according to the census, 10.4 million people, making it the fifth

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[24] Harrell 2001b, 93

[25] For example, Harrell 2001a, 2001b; Herberer 2014.

[26] Ma 2018.

[27] Harrell 1995.

28 Ma 1989.

29 The ancient Yi script and the modern Yi script are both used by Yi people living in different areas (Pu 2013).

largest ethnic minority in P.R. China. Of the group,[30] 5.3 million live in Liaoning, where they make up 12 per cent of the province's population. There are also 2.3 million Manchurian people living in Hebei. The Manchurian minority is the single largest ethnic minority in those two provinces, as in Heilongjiang and Beijing. Manchu living in these four province level units make up 91 per cent of the total Manchurian population.

The Later Jin dynasty 后金时期 (1616–1636) and the Qing dynasty 清朝 (1636–1912) were established and ruled by the Manchurians. The Manchurians ruled the Han majority for over 270 years, were inevitably influenced by the Han[31]. However, the burdensome history of the late episodes of the Qing dynasty somehow made the legitimacy of the Manchurian group questionable. For years, many Manchurians chose to conceal their Manchu status and reported themselves as being Han. However, starting in the 1980s, the reversal of this concealment (and not high birth rates) was the main reason why the number of persons reported as being of Manchurian ethnicity increased from 4 million in the 1982 Census to 9 million in the 1990 Census[32]. However, in the new millennium, there are signs of Manchurian workers in Beijing although they are longer educated than Han workers, are disfavored in regard to occupation and wages[33].

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30 Source: Computation based on the 2015 Sample Census. At the time of writing had information on number of minorities by province from the 2020 been not published.

31 Zhang 2005.

32 Bai 2005, 2008.

33 Hasmath 2008

Historically, Manchurians who were part of the ruling class were similar to Han Buddhists (Zangchuan fojiao, 藏传佛教), while ordinary Manchurians, believed in Shamanism (Saman jiao，萨满教). However, in contrast to the important influence of Bimoism on the Yi people, Shamanism gradually lost its influence on the Manchu people after 1949. The Manchurian language was one of the official languages of the Qing dynasty, which is a sub-branch of the Manchu-Tungus family of Altaic languages 阿尔泰语系满-通古斯语族满语支[34]. In written form, it uses its own alphabet written vertically from top to bottom, with the columns proceeding from left to right. However, today the Manchu language is not commonly used, and the vast majority of Manchus speak only Mandarin. Often, the Manchu people are described as a much Sinicized ethnic group (similar to the Han), and many Manchurians marry out of their ethnic group. This latter fact is consistent with the slight reduction (0.26 million) in the number of people who in the Censuses were recorded as Manchurian between 2000 and 2020.

4. Data and assumptions

This study is based on data from rural samples from the 2002, 2013 and 2018 China Household Income Project (CHIP). The three study samples were drawn as subsamples from the larger samples administered by the National Bureau of Statistics (NBS) used to derive official household statistics on rural China. The information was collected by enumerators who visited the sampled households several times during a year and recorded

[34] Zhang 2005

various sources of income. The data also include answers to questions designed by the research group and posed to household members shortly after the end of the measurement year.

The rural provinces sampled in CHIP have to some extent varied across its different waves. To reach a high level of comparability across the years, we use data from the 14 provinces that were sampled in 2002, 2013 as well as 2018. Our data thus refer to rural households in the following province-level units: Beijing, Liaoning, Jiangsu, Shandong and Guangdong (all in the east of China), Shanxi, Anhui, Henan, Hubei and Henan (all in the center of China), Chongqing, Sichuan, Yunnan, and Gansu (all in the west of China).

Ethnic status is recorded in CHIP for each household member sampled. Only a few studies of Chinese households with members of mixed ethnicity have been made. One example is Hannum, Cherng and Wang[35], who used the 2000 Census to investigate junior high school attainment among children with ethnically mixed parents. In our analyses, we require that all members of a particular household belong to the same ethnic group out of the following three groups: Yi, Manchu and Han. Based on this information, we exclude persons with ethnic minority ethnicity statuses other than Yi and Manchu, as well as households with ethnic mixed members, from the following analyses. Table 1 reports the size of the nine samples. As is well known, most of the Yi households and persons sampled live in the Yunnan Province, and a majority of the Manchurian live in the Liaoning Province.

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[35] Hannum, Cherng and Wang 2015.

/Table 1 about here/

In the on-line supplementary material we describe the characteristics of the samples of the three ethnic categories and the total samples. Some striking differences between the ethnic groups are visible. In each year, the Yi are the youngest and the Manchurian the oldest, with the Han being in the middle position. Due to falling birthrates, increasing lengths of lifespans, and outmigration from rural areas of mainly young adults, did the mean age of all three categories increases from 2002 to 2018 by six years. The Yi group has, on average, a lower level of education, although the difference to Han and Manchu narrowed somewhat during the period. Almost all Yi are living at a high altitude far away from a city, while this is not the case among the two other ethnic groups.

There are also several differences in employment between the three ethnic groups for adults which are further documented in the on line supplementary material. In 2002, the proportion involved in wage employment as in self-employment was highest among the Han group. Those proportions increased from 2002 to 2013 and further to 2018. The Yi and Manchurian groups have higher proportions of individual employed in farming. Finally, a large proportion of the rural population, particularly the Han, has experienced migration.

5. Describing income by ethnicity and year

We now describe how total household income per capita is distributed and has varied between members in Yi, Manchurian and Han households in 2002, 2013 and 2018. "Household income" can be received in the form of money, in kind or is the estimated value of production consumed by the household. We define total household income per capita as the sum of the income from the six components: 1) agricultural income (all

income from farming, forestry, animal husbandry and fishery. The value of self-consumption was calculated by market price), 2) earnings from wage employment, (formally or informally hired workers), 3) business income originating from family nonagricultural activities (for example from a household member running a restaurant, or a shop, or by providing transportation service by his own vehicle), 4) income from migration (a sum of wages earned by family members who have migrated from their origin for a period of shorter than six months and remittances brought or sent back by family members who have worked away from township longer than six months), 5) net transfers (a balance between transfers received and such paid), and 6) other incomes (including income from properties and imputed rent of owner-occupied housing[36]. In the analyses, we follow what is now the common practice in studies of the distribution of household income by attributing this household income to each member of a household and thereafter use individuals as the unit of analysis.

Given our data and the abovementioned definitions, we find the growth in median total income per capita was most rapid between 2002 and 2013, when the growth rate (seen over the three ethnic groups combined) was 9 per cent per annum. Between 2013 and 2018, growth slowed down to 5 per cent per annum; as a consequence, the growth rate computed for the entire period from 2002 to 2018 was 8 per cent per annum.

Figure 1 shows Cumulative Density Functions (CDFs) for total household income among individuals for each of the three ethnic groups. The figure has three parts, one for

[36] We use this definition in most of the tables. The exception is when reporting poverty we follow the practice of NBS of not including the value of imputed rent of owner-occupied housing.

each of the years investigated and each contains one horizontal line that indicated the median income.[37] There is also a vertical line that indicated the present official poverty line for rural China, which was set to 2 300 yuan per person/per year at the 2010 constant price (1 522 yuan in 2002, 2 736 yuan in 2013, 2 995 yuan in 2018 at the current price). We will now comment on which conclusions can be drawn from the figures and the corresponding statistics derived from the income variables and reported in Table 2 and in the supplementary material available on line. Table 2 also reports one measure of income inequality within each of the ethnic groups; i.e., the ratio between incomes received by the 90th per cent of individuals who have the highest income and the 10th per cent who have the lowest income.

/Figure 1 about here/

/Table 2 about here/

A first comment is that in 2002, a very clear ranking between the three ethnic groups can be seen. The Manchurian had the highest income, the Yi the lowest, with the Han being in the middle position. During that year, as many as 51 per cent of the Yi individuals were living in a household with an income lower than the official poverty line. This number can be compared with 21 per cent of the Han and 11 per cent of the

[37] Stiglitz,Sen and Fitoussi (2009), in an influential report commissioned by the French government, stressed that the median is to prefer to the mean value in social reporting. This as it better expresses the situation experienced by a typical individual while the value of the mean can be very much influenced by for example individuals with a rather high value.

Manchurian. The median income of the Yi people was in 2002 only 59 per cent of the median income of the Han people.

Looking at the figure for 2013 and comparing it with the one for 2002, the most striking change is the rapid increase in the overall income level between those two years. This increase is the strongest among the Yi and weakest among the Manchurians. The proportion of individuals with income under the official poverty line decreased very rapidly among the Yi, decreased among the Han but remained similar to the previous level among the Manchurian ethnic group. Another noticeable change is that income inequality among the Han and Manchurian groups increased, while this was not the case among the Yi ethnic group. Thus, in two of the three ethnic groups, rapid income growth was not equally shared among its members during the period 2002 to 2013. Our results are consistent with that Hoken and Sato[38] reported that income inequality in rural China increased from 2002 to 2013.

Finally, when looking at the figure for 2018, it can be seen that the curves for the three ethnic groups are closer to each other than previously. Although the median income of the Yi minority increased more rapidly than the median income of the Han population, in 2018, it was 17 per cent lower than the corresponding of the majority group.

6. Decomposing income by ethnicity and year

[38] Hoken and Sato 2020.

We now examine the importance of the various income sources for each of the three ethnic groups and for their changes. We do this by studying the mean values of various income sources.[39] In rural China, households typically receive income from several sources. From Table 3, we can see that in 2002, agricultural income was the single largest source for all of the three groups. Particularly large was the reliance on agricultural income among the Yi, among whom as much as four-fifths of the mean total household per capita income originated from agriculture. Somewhat less extreme, at 56 per cent, was the reliance on agriculture income among the Manchurian households. In contrast, among the Han, income from agriculture in 2002 made up no more than 35 per cent of the average household income per capita.

/Table 3 about here/

During the period we here study China's agriculture policy underwent several large changes that contributed to growth to income of China's farmers. Rural taxes and fees were reformed as were system of agriculture prices[40]. Agricultural income also changed due to changed volume and composition of output. As also documented in the supplementary material available on line, did agriculture income among Manchu grow by only one per cent per annum during the period 2002 to 2018 and the corresponding for Han was two per cent per year. As other income sources increased more rapidly, the relative share of

[39] The means for total household income are reported in Table 2. We do not decompose the median as some income components are received by relatively few households.

[40] For details see Tao and Qin (2007) ; Yu and Jensen (2010).

agricultural income in the total mean income had decreased to 24 per cent in 2018 among the Manchurian and to as little as 14 per cent among the Han majority. In contrast, agricultural income among the Yi grew by eight per cent per annum during the same period. Still agriculture income stood for as much as 50 per cent of the group's total income in 2018. From this information, we can conclude that if the rapid growth in agricultural income among the Yi had not taken place, their average total income would not have narrowed towards the Han. Nevertheless, it is true that slightly more than half (55 per cent) of the income growth among the Yi from 2002 to 2018 originated from income sources other than farming.

The main story of rapid income growth in rural China during the period studied herein is that income sources other than farm income have grown rapidly. More than one income source grew fast, as economic life in rural China changed very rapidly. For example it is true that e-commerce has been introduced and grown fast. From 2007 to 2021, the Internet penetration rate in rural China increased from 6 per cent to 59 per cent.[41] The Online retail sales in rural China increased from 0.9 trillion *yuan* in 2016 to 1.7 trillion

41Source: CNNIC. The series of The Statistical Report on China's Internet development, http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/index_5.htm. Accessed 2 February 2022.

yuan in 2021.[42] However, this development might not necessarily have benefited ethnic minorities more than the Han majority. The online retail sales in eastern region accounted for 80 per cent of total sales in 2020.This as Liu[43]in a study of data of Taobao villages existing in 2017 concluded that rural e-commerce had been strongest in the less-developed areas of China's most developed regions. A Taobao village 淘宝村, branded by Taobao 淘宝, the largest e-commerce platform of China, is an aggregation in a rural area of e-commerce vendors larger than a minimum level.

It is definitively the case that many more rural household members took up wage employment than previously. As consequence our data shows that among Manchurian, the average wage income grew by ten per cent per annum between 2002 and 2018 and wage income became the single most important income source for this ethnic group. The same year was the importance of wages even higher among the Han majority as they made up 36 per cent of the average total income. Despite a very rapid rate of increase, but due to starting from a very low base, the corresponding proportion among the Yi was in 2018 only 18 per cent.

A second important change in rural China has been the growth of non-agriculture business income. Among the Manchurians, as much as 24 per cent of the mean total income

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42 Source: Mistry of Commerce of the People's Republic of China, 2021, E-commerce in China, 2020, 15 September, http://dzsws.mofcom.gov.cn/article/ztxx/ndbg/?. Accessed 4 February 2022.

43 Liu et al 2020.

in 2018 originated from this source. In contrast, the corresponding proportion among the Yi was as low as 3 per cent (of a lower) total income.[44] The Han households held a position in the middle, with 9 per cent of mean total income stemming from non-agriculture business income.

A third important change in rural China has been the increased level of migration, as young adults in particular have left their home villages to work elsewhere, typically in an urban location. Many have been successful in sending or bringing home money to their household of origin. Measured over the entire period from 2002 to 2018, average migration income among Han households grew by seven per cent per annum, so at the end of the period Han households received 13 per cent of their average total income from migration. This can be compared to nine per cent among the Yi and no more than five per cent among the Manchurians. This is consistent with that previous research has shown that the two minorities here studied have been less prone to migrate than the Han[45]. Furthermore, Howell[46] show that taking into account the negative effect of migration on agricultural production, remittances from migrants have widened the income gap between Han households and ethnic minority households.

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[44] For earlier periods have Ma (1989) and Long (1993) pointed out the low reliance on off-farm self-employment among the Yi.

[45] See Ding (2006); Gustafsson and Yang (2015).

[46] Howell 2017.

We have thus found that, increased wage employment, increased non-agriculture business and migration, together with increased income from farming, are all important reasons why in 2018, the rural households of all the three ethnic groups received a much higher average total income than they did in 2002. Although these factors explain a large part of the picture additional factors deserves to be mentioned. The decomposition scheme we apply (see the preceding section) includes the component of "net transfers" which records income flows, positive as well as negative, that are not compensations for specific work or goods. Counterparts of those flows are the public sector, as well as (to a lesser extent) other households. Table 3 shows that in 2018, all three ethnic groups were recorded to have on average received larger sums in transfers than what they spent. From the perspective of observers who are familiar with high-income countries, it is remarkable that since early 2006, almost *no* rural households in China have paid agricultural taxes. In Table 3, we can also see that the component of "net transfers" has increased relatively rapidly. As one can claim that this source is easier to influence by public policies than other sources, it is motivated to examine this source in more detail.

Some differences across the three ethnic groups reported in Table 4 for 2018 deserve to be comment on. Han households, followed by Manchurian households were receiving larger amounts of pensions than Yi households. This pattern is understandable, as the Yi are on average younger than the Han. In contrast, Yi households received larger amounts of cash subsidies for agricultural support than the other two groups. This is consistent with the fact that agriculture activities are more important among the Yi than among Man and Han. The larger amount received as social assistance (including *Dibao*,

低保) among the Yi is consistent with their lower average household income. Our data shows that in 2018, the Yi received on average 0.9 per cent of their total income from *Dibao*, compared to 0.3 per cent among the Han and 0.2 per cent among the Manchurian households.

/Table 4 about here/

Taken together, the information in Table 4 shows that the net transfers were roughly of the same magnitude for all three ethnic groups. This picture agrees with what Sato and Wang[47] report based on 2011 data from seven rural regions with large population shares of ethnic minority households and Han households. A final comment on Table 4 is that it shows that the value of the resources that flow between households due to physical needs or as ceremonial gifts due to, for example, marriages and funerals, still plays a role in rural China as they make up five per cent of the total income.

Why has the income of the Yi increased so rapidly although remained lower compared to Han and Manchu? Looking at the results of the decomposition of the income by sources, we find clues. First, the Yi people have benefited much from China's poverty alleviation and development policies. Yunnan, where 80 per cent of the Yi people in our data live, has received over ten per cent of the central government's financial funding for

[47] Sato and Wang 2021.

poverty alleviation.[48] One of the key steps in these policies is to develop local agriculture by government providing subsidized loans and firm subsidies and also advices on crop cultivation[49]. As a consequence, the ways in which the Yi people cultivate have changed, and their income from agriculture has as we have seen increased rapidly. In addition the rise of the tourism industry has contributed to the income growth among the Yi. It can be noted that over 70 per cent of the Yi in our sample live in minority autonomous prefectures (Shaoshu minzu zizhi zhou/qu/xian, 少数民族自治州/区/县). For example in the Chuxiong Yi Autonomous Prefecture 楚雄彝族自治州, sampled in our data, tourism revenue contributed 115 per cent of the regional GDP growth from 2014 to 2018.[50]

7. Summary and discussion

In this paper, we have studied household income per capita among the rural Yi and Manchurian ethnic minority groups, as well as the rural Han majority, using data from the China Household Income project for the years of 2002, 2013 and 2018. To our understanding, this is the first study that has focused on the income situation of these two

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[48] See: Central Government Special Poverty Alleviation Fund Allocation (*Zhongyang caizheng fuping zhuanxiang zijin fenpeibiao*,2020 年中央财政专项扶贫资金分配表), http://www.cpad.gov.cn/art/2020/6/16/art_2360_182214.html. Accessed 2 February 2022

[49] Zuo 2016

[50] Authors' computation based on the Yunnan Statistical Yearbook, 2015, 2019.

ethnic minority groups, both of which have a population that is similar in size to the total population of for example several middle-to-large EU countries.

The figures and tables we have reported illustrate what is widely known, i.e., that the total income per capita has increased rapidly in rural China. Income growth was particularly rapid between 2002 and 2013 and less rapid from 2013 to 2018. During the entire period, the gap in the median income between rural Yi and rural Han narrowed. However, in 2018, the Yi were still disadvantaged compared to the Han in regard to median total household income per capita. In contrast, we reported that the median income among the Manchurian was and has remained more similar to that among the Han majority. We have also shown that the dispersion of income with the Han and the Manchurian ethnic groups, but not within the Yi groups, increased between 2002 and 2013. This means that within the Han majority and the Manchurian minority, the gains from the rapidly increasing incomes were not equally shared during those years.

This process of the incomplete catching up of income among the Yi ethnic groups compared to the Han majority during the period from 2002 to 2018 contrasts with Gustafsson and Li[51]. Those authors showed that between 1988 and 1995, the average income of rural ethnic minorities grew less rapid than the income among rural Han ethnic minorities. It is not unlikely that a deep-seated reason for the different development of ethnic income disparities is that the spatial income differences in rural China have begun to narrow. Our data show that in 2002 the average income per capita was 2 226 yuan in the

[51] Gustafsson and Li 2001.

western region, or 49 per cent of that of the eastern region. At the same time was the per capita was 2 598 yuan in the central region or 58 per cent of that of the eastern region. Over a period of 16 years, China has experienced rather high economic growth. Along with the opening-up policies and the relaxation of rural to urban migration, the regional income disparity in rural China actually became smaller. Our data show than in 2018, was the average income per capita in the western region 12 715 yuan, an increase to 60 per cent of the average income of the eastern region. In 2018 was income the per capita 15 053 yuan in the central region, which was 71 per cent of that of the eastern region. Thus, a prioritized topic for future research, in our view, should be to further investigate how spatial income differences in rural China have narrowed during the preceding decades and what this means in regard to consequences for inequality in rural China.

To understand the development of how household income has changed among the three ethnic groups, we have decomposed total income into six different sources; for the source net transfers, we further decomposed it into subcomponents. We found several large differences between the three ethnic groups regarding the importance of those income sources. This illustrated that in rural China, Yi, Manchurian and Han households specialize in different economic activities to some extent. Agricultural income plays a larger role in Manchurian and particularly Yi households than it does in Han households. We also reported that the rapid increase in agricultural income among the Yi was a main reason why the gap in the median income between the Yi and the two other ethnic groups narrowed. Nevertheless, the reliance on agricultural income among the Yi has become less extreme as incomes from other sources have increased more rapidly, which is a development that has also been experienced by the Han and Manchurian groups. Here, we refer to rapidly

increased income from wage employment and migration. For particularly the Manchu and to some extent the Han the rapid growth in median total household income was also the result of increased income from self-employment.

We also showed that the value of transfers from the public sector to all three ethnic groups was relatively similar at the aggregate level in 2018. On the one hand, Han households receive larger amounts of pensions than the two minority groups. However, in contrast, the Yi households receive larger amounts of cash subsidies for agricultural support and larger amounts of social assistance (including *Dibao*) than do the other two ethnic groups.

We end this study by expressing the hope that it will stimulate future research on ethnicity and income in China. Rather importantly, there is a need for better data. While the statistical yearbooks of China contain tables on the income of people living in ethnic minority areas, the relationship between those areas and the ethnic minority population is far from perfect. First, at the aggregate level, approximately the same number of Han people as ethnic minority people is living in areas that are officially classified as ethnic minority areas. Second, there are many ethnic minority persons living outside of these minority areas. While the data we have worked within the current paper do not have such a limitation, in the surveys we analyzed, the numbers of Yi and Manchurian households were rather limited. This limitation thus makes the related estimates less precise and limits which kinds of analyses that are meaningful.

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Conflicts of interest: None

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摘要：本文基于 2002、2013 和 2018 年中国家庭收入调查（CHIP）农村问卷的数据，描绘了中国农村的彝族、满族和汉族的家庭人均可支配收入的长期变动趋势。研究结果表明，彝族和汉族之间的收入差距明显缩小，而满族与汉族无论是收入中位数还是变动趋势都比较相似。为了分析不同民族之间的收入增长的来源，我们进一步按照收入来源进行了分解，结果表明农业经营收入的快速增长，是彝族缩小与汉族和满族之间收入差距的主要原因。当然，工资性收入和外出务工人员的收入在彝族家庭收入中在此期间所占比有所提升，正在降低其对农业生产经营的依赖程度。而对于满族和汉族家庭来说，来自非农生产经营的收入和工资性收入则是二者在此期间收入增长的主要来源。我们还进一步分析了于公共政策直接相关的转移性净收入，发现该部分收入虽然在三个民族家庭收入中总额接近，但进一步分解后发现彝族的转移性收入的来源主要与消除贫困、惠农相关，而满族和汉族则主要与养老金相关。

关键词：中国农村；少数民族；彝族；满族；汉族；收入差距

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Tables

Table 1. Sample sizes by year, ethnicity and province

	Han	% of all observations	Yi	% of all observations	Manchu	% of all observations	Total	% of all observations
2002	21 249	96	231	1.24	528	2.76	22 008	100
2013	27 394	97.41	397	1.33	206	1.26	27 997	100
2018	29 197	97.74	296	0.84	239	1.42	29 732	100

Sources: Authors' computations from data presented in Section 4 of the paper.

Table 2. Income by ethnicity 2002, 2013 and 2018. Some key statistics

	Amount yuan per year			
	Han	Yi	Manchu	Total
2002				
Poverty rate, per cent	21.5	50.8	11.4	21.6
Mean	4 984	2 885	6 121	4 990
Median	3 944	2 338	5 531	3 961
P90/p10	4.88	3.84	4.21	4.88
Number of observations	21 249	231	528	22008
2013				
Poverty rate, per cent	8.2	10.5	10.7	8329
Mean	13 476	9 961	12 075	13 412
Median	10 311	7 221	9 171	10 211
P90/p10	6.44	4.16	5.98	6.45
Annual growth rate of median from 2002 to 2013, per cent	9.1	10.8	4.7	9.08.99
Number of observations	27 394	397	206	27 997
2018				
Poverty rate, per cent	5.7	4.1	9.3	5.7
Mean	16 829	14 186	17 621	16 818
Median	13 104	10 890	12 387	13 071
P90/p10	6.23	3.58	5.83	6.18
Annual growth rate of median from 2013 to 2018, per cent	4.91	8.56	6.20	5.06
Annual growth rate of median from 2002 to 2018	7.8	10.1	5.2	7.8
Number of observations	29 197	296	239	29 732

Sources: Authors' computations from data presented in Section 4 of the paper.

Table 3 Income by components and ethnicity, 2002 and 2018 (weighted, in 2018 price), individuals are the units of units

Mean value	Amount, *yuan* per year				Per cent			
	Han	Yi	Manchu	Total	Han	Yi	Manchu	Total
2002								
Income per capita	4 984	2 885	6 121	4 990	100	100	100	100
Wage/salary	1 238	319	1 081	1 222	24.8	11.1	17.7	24.5
Income from agricultural activities	1 749	2 048	3 451	1 800	35.1	71.09	56.4	36.1
Non-agricultural business income	612	60	5286	603	12.3	2.1	8.6	12.1
Income from migrants	713	172	400	697	14.3	6.0	6.5	14.00
Net transfer	345	1918	366	343	6.9	6.6	6.0	6.9
Other	328	954	296	325	6.6	3.3	4.8	6.5
Number of observations	21 249	231	528	22 008	21 249	231	528	22 008
2018								
Income per capita	16 829	14 186	17 621	16 818	100	100	100	100
Wage/salary	5 977	2 492	5 173	5 936	35.5	17.6	29.4	35.3
Income from agricultural activities	2 410	7 106	4 164	2 474	14.3	50.1	23.6	14.7
Non-agricultural business income	1 579	375	4 159	1 605	9.4	2.6	23.6	9.5
Income from migrants	2 105	1 253	924	2 081	12.5	8.8	5.2	12.4
Net transfer	2 057	1 771	1 488	2 047	12.2	12.5	8.4	12.2
Other	2 702	1 190	1 712	2 675	16.1	8.4	9.7	15.9
Number of observations	29 197	296	239	29732	29 197	296	239	29 732

Sources: Authors' computations from data presented in Section 4 of the paper.

Table 4. Components of net transfer per capita 2018, Yuan in 2018 price
4a. Mean values by components. Individuals are units of analysis

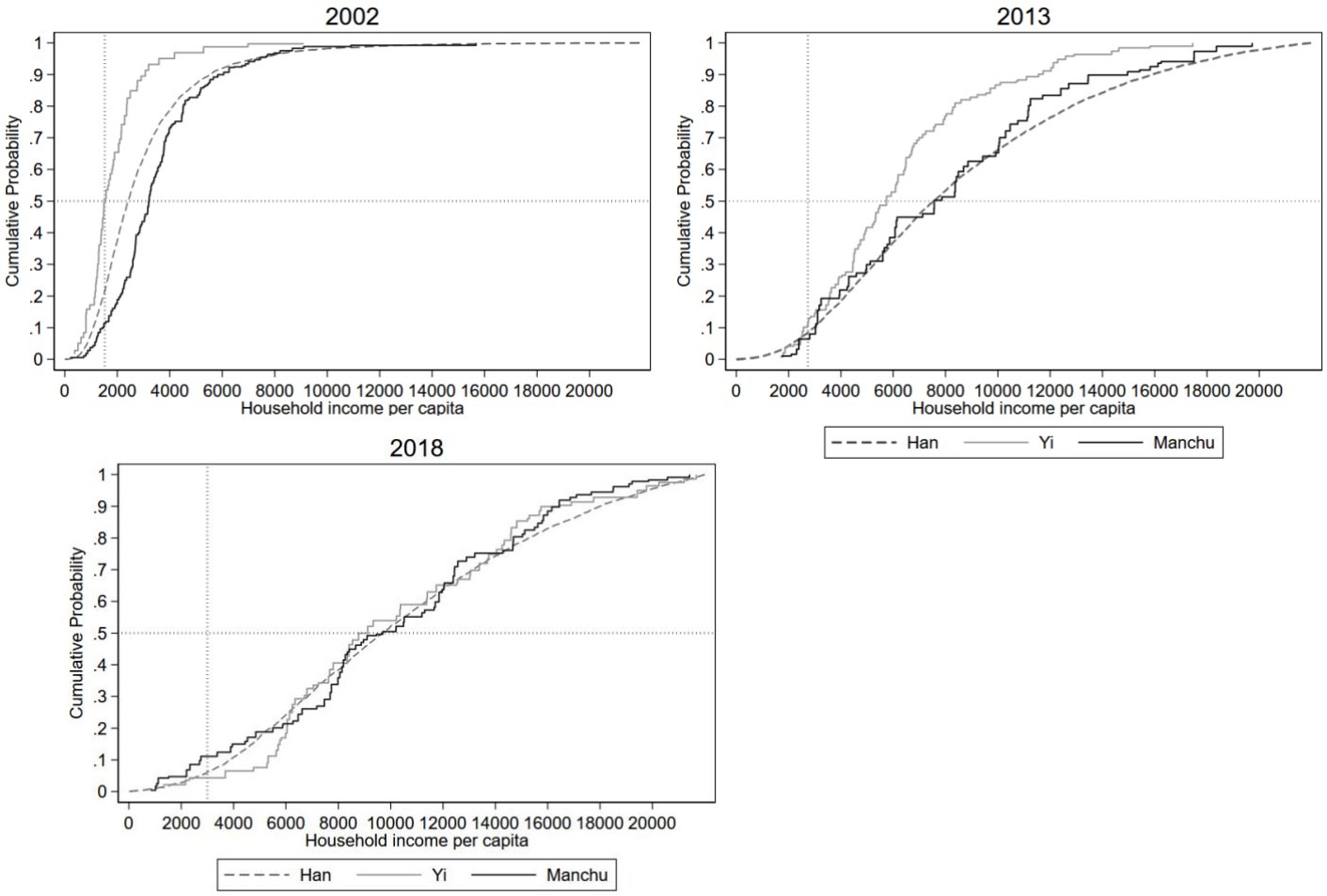
No.	Components	Amount Yuan				Per cent of mean income per capita			
		Han	Yi	Manchu	Total	Han	Yi	Manchu	Total
	Income per capita	16 829	14 186	17 621	16 818	100	100	100	100
	Net transfer per capita	2 057	1 771	1 488	2 047	12.2	12.5	8.4	12.27
1	Transfer income	2 673	2 132	2015	2 659	15.9	15.0	11.4	15.8
1)	Pension	1 044	85	718	1 032	6.2	0.6	4.1	6.1
2)	Reimbursements from the public sector (for production health care expenditures)	374	627	299	375	2.2	4.4	1.7	2.2
3)	*Dibao* and other income texted transfers	256	499	78	255	1.5	3.5	0.4	1.5
4)	Transfers from other households.	826	778	807	825	4.9	5.5	4.6	4.9
5)	Other	173	142	113	172	1.0	1.0	0.6	1.0
2	Transfer expenditures	-616	-360	-527	-612	-3.7	-2.5	-3.0	-3.6
	Number of observations	29 197	296	239	29 732	29 197	296	239	29 732

4b. Proportion households receiving a particular transfer, 2018, per cent. Households are the unit of analysis

	Han	Yi	Manchu	Total
Transfer income	86.4	97.0	83.1	86.5
Pension	32.0	20.8	31.5	31.9
Reimbursements from the public sector (for production, health care expenditures)	51.4	78.9	73.7	52.0
Dibao and other income tested transfers	29.2	47.0	20.3	29.2
Of which: *Dibao*	6.2	18.1	7.3	6.3
Transfers from other households.	30.1	26.5	38.7	30.2
Other	40.6	50.8	18.2	40.4
Number of observations	7 762	69	82	7 913

Sources: Authors' computations from data presented in Section 4 of the paper.
Note: 1) Net transfer = Transfer income (1) - Transfer expenditures (2). Transfer income is equal to the sum of the five components listed in the table. The slight gap is due to rounding. 2) Two-level (rural/urban × region) weights are used. 3) Computation is based on 14 provinces sampled in 2018.

Figure 1. Cumulative density functions showing total household income per capita 2002, 2013 and 2018 for Yi, Manchurian and Han persons



Notes: 1) Individual samples used. 2) The dotted vertical line at 2300 (in 2010 constant price) yuan per year and person indicates the official poverty line for rural China, which was 1 522 Yuan per year in 2002, 2 736 in 2013, and 2 995 in 2018. 3) The dotted horizontal line indicates the median. 4) Current prices. 5) For consistency with income defined by the NBS, imputed rent of own house in rural China was not contained.6) Two level (rural/urban × region) weights were used.

Online supplementary: Tables
Incomplete Catching Up: Income among Manchurian, Yi and Han People in Rural China from 2002 to 2018

Table S2. Sample sizes by year, ethnicity and province

	Han	% of all observations	Yi	% of all observations	Manchu	% of all observations	Total	% of all observations
2002								
Total	21,249	96	231	1.24	528	2.76	22,008	100
Liaoning	795	4.33	0	0	528	100	1,323	6.92
Sichuan	1,788	6.98	44	13.34	0	0	1,832	6.87
Yunnan	360	2.15	187	86.66	0	0	547	3.13
2013								
Total	27,394	97.41	397	1.33	206	1.26	27,997	100
Liaoning	951	5.97	0	0	206	100	1,157	7.08
Sichuan	2,285	7.32	0	0	0	0	2,285	7.13
Yunnan	1,027	3.52	397	100	0	0	1,424	4.76
2018								
Total	29,197	97.74	296	0.84	239	1.42	29,732	100
Liaoning	900	5.5	0	0	234	98.42	1,134	6.78
Sichuan	2,541	7.08	57	18.58	0	0	2,598	7.08
Yunnan	1,263	3.65	237	79.98	4	0.79	1,504	4.24

Sources: Authors' computations from data presented in Section 4 of the paper.

Note: 1) We focused on Yi, Manchu, and Han, i.e., we excluded other ethnic minorities.
2) We also excluded households with ethnically mixed members. In addition, we also exclude those sample with missing value of the components of income and wealth, which means we exclude 3 328 Han individuals, 9 Manchu individuals, and 1 Yi individuals in 2013, 261 Han individuals and 40 Manchu Individuals in 2018.3) Computation based on 14 province samples in 2002, 2013, and 2018.

Table S3. Selected characteristics by ethnicity 2002, 2013 and 2018. Individuals are the unit of analysis

	Han	Yi	Manchu	Total
2002				
Age	34.06	30.32	37.55	34.11
Family size	4.27	4.46	3.76	4.26
Unhealthy, adults (16-60), Percent	4.01	7.54	5.58	4.09
Members moving out of town for work more than 6 months, adults(16-60), Percent	14	4.47	5.05	13.6
Years of education, adults (16-60)	7.97	6.13	8.41	7.96
Self-employed, adults (16-60), Percent	4.05	0	1.97	3.93
Wage earner, adults (16-60), Percent	25	15.8	14	24.5
Farmer, adults (16-60), Percent	40	57.1	63.5	41
Location, Percent				
Plain	45.7	0	41.9	45.1
Hill	35.6	1.39	3.6	34.3
Mountain	18.6	98.61	54.5	20.6
Distance to the nearest county seat (km)	22.55	48.31	34.38	23.2
Mean per capita income of the county (*yuan*, in 2018 price)	4988	2844	5766	4983
Number of observations	21249	231	528	22008
2018				
Age	39.89	36.34	44.01	39.92
Family size	4.27	4.77	3.37	4.26
From *Dibao* households	5.45	16.5	8.01	5.58
Unhealthy, adults (aged 16-60), Percent	5.42	8.82	7.37	5.49
Migrated before 2018, but not migrated in 2018, Percent	10.1	6.87	3.75	10
Members moving out of town for work more than 6 months, adults (16-60), Percent	23.1	21.6	9.67	22.8
Years of education, adults (aged 16-60)	9.01	8.04	8.5	8.99
Self-employed, adults (aged 16-60), Percent	9.22	4.43	8.66	9.17
Wage earner, adults (aged 16-60), Percent	50.1	37.7	30.3	49.6
Farmer, adults (aged 16-60), Percent	14.7	35.8	30	15.2
Location, Percent				
Plain	45.4	0	6.9	44.4
Hill	30.1	14.3	46.2	30.2
Mountain	24.5	85.7	46.9	25.4
Distance to the nearest county seat (km)	24.03	54.18	26.02	24.31
Mean per capita income of the county (*yuan*, in 2018 price)	16668	13231	17873	16659
Number of observations	29197	296	239	29372

Sources: Authors' computations from data presented in Section 4 of the paper.
Note: 1) Computation based on 14 provinces sampled in 2002, 2013, and 2018.
2) Rural/urban×region weights used.
3) Based on the information of highest-paid off-farm jobs, we can define an individual (aged 16-60) who claimed he/she worked in the measurement year as self-employed, a wage earner, or other. If the individual did not engage in any off-farm jobs, he/she was defined as a farmer.

Table S4 Income by ethnicity 2002, 2013 and 2018

	Amount yuan per year			
	Han	Yi	Manchu	Total
2002				
Poverty rate, percent	21.5	50.75	11.36	21.58
Mean	4984	2885	6121	4990
P10	1833	1281	2489	1835
Median	3944	2338	5531	3961
P90	8937	4925	10479	8950
P90/p10	4.88	3.84	4.21	4.88
Number of observations	21249	231	528	22008
2013				
Poverty rate, percent	8.23	10.58	10.68	8.29
Mean	13476	9961	12075	13412
P10	4025	3425	3379	4005
Median	10311	7221	9171	10211
P90	25918	14239	20217	25820
P90/p10	6.44	4.16	5.98	6.45
Changes in median from 2002 to 2013, percent	161.44	208.85	65.81	157.79
Annual growth rate of median from 2002 to 2013, percent	9.13	10.80	4.70	8.99
Number of observations	27394	397	206	27997
2018				
Poverty rate, percent	5.7	4.05	9.25	5.74
Mean	16829	14186	17621	16818
P10	5271	6075	4806	5273
Median	13104	10890	12387	13071
P90	32852	21766	27997	32606
P90/p10	6.23	3.58	5.83	6.18
Changes in median from 2013 to 2018, percent	27.09	50.81	35.07	28.01
Annual growth rate of median from 2013 to 2018, percent	4.91	8.56	6.20	5.06
Annual growth rate of median from 2002 to 2018	7.79	10.09	5.17	7.75
Number of observations	29197	296	239	29732

Sources: Authors' computations from data presented in Section 4 of the paper.
Note: 1) Mean, p10, median, p90 were adjusted by the Rural Consumer Price Index, in 2018 price
2) We used the official poverty line, which is 2 300 yuan person/per year (in 2010, 1522 in 2002, 2736 in 2013, and 2995 in 2018). When calculating the poverty rate, we excluded the imputed rent

of own households and used current prices, following the definition of income by National Bureau of Statistic, China. 3) Computation based on 14 provinces sampled in 2002, 2013, and 2018. 4) Two-level (urban/rural ×region) sample weights used.

Table S5 Annual growth rates and Contribution of income components to income changes, 2002 to 2018. Percent

	Annual growth rate				Contribution of income components to income changes			
	Han	Yi	Manchu	Total	Han	Yi	Manchu	Total
Income per capita	7.9	10.5	6.8	7.9	100	100	100	100
Wage/salary	10.3	13.7	10.3	10.4	40.0	19.2	35.6	39.9
Income from agricultural activities	2.0	8.1	1.2	2.0	5.6	44.8	6.2	5.7
Non-agriculture business income	6.1	12.2	13.8	6.3	8.2	2.8	31.6	8.5
Income from migrants	7.0	13.2	5.4	7.1	11.8	9.6	4.6	11.7
Net transfer	11.8	14.9	9.2	11.8	14.5	14-0	9.8	14.4
Other	14.1	17.1	11.6	14.1	20.0	9.7	12.3	19.9

Sources: Authors' computations from data presented in Section 4 of the paper.
Note: 1) Computation based on the same 14 provinces sampled in 2002, 2013, and 2018;
2) Two-level (urban/rural × region) sample weights used.
3) The sum of the proportion of income components is not equal to 100 due to rounding.
4) Income from migrants contain wage/salaries earned by family members moving out of town for less than 6 months and remittance income brought or sent back by family members working away from home for more than 6 months.