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Happiness in the Dual Society of Urban China: Hukou Identity, Horizontal Inequality and Heterogeneous Reference

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Happiness in the dual society of urban China:

Hukou identity, horizontal inequality and heterogeneous reference[*]

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Abstract

This paper studies the impact of income inequality on the subjective well-being of different social groups in urban China. We classify urban social groups according to their *hukou* status: rural migrants, "born" urban residents, and "acquired" urban residents who once changed their *hukou* identity from rural to urban. We focus on how the horizontal inequality—income disparity between migrants and urban residents—affects individual happiness. The main results are as follows. First, migrants suffer from unhappiness when the horizontal inequality increases, but urban residents show a much smaller aversion to the horizontal inequality. Second, migrants will not be happier if their relative incomes within their migrant group increase, while urban residents do become happier when their incomes increase within their group's income distribution. Third, "acquired" urban residents have traits of both migrants and "born" urban residents. They have an aversion to the horizontal inequality like migrants, and they also favor higher relative income among urban residents. Fourth, "born" urban residents have lower happiness scores when they are old. People who are Communist Party members strongly dislike the horizontal inequality. Our findings suggest that migrants, "acquired" urban residents, elderly people and Party members from "born" urban residents are the potential proponents of social integration policies in urban China.

Keywords: Horizontal inequality, Happiness, *Hukou* identity, Migration, Social integration
JEL classification: I31, O15, R23

1. Introduction

With a foundation in the vast rural-to-urban labor migration, the urban–rural divides have been revealed in Chinese cities as social segmentation and inequality between the urban residents who have local urban *hukou* status and rural migrants who live and work in urban areas without urban *hukou* status.[1] Although the rural migrants contribute significantly to the city construction and are also acknowledged as the key factor in the booming of manufacturing industries, the *hukou* registration policy discriminates against migrants as a "floating population" and denies them equal access to social welfare programs compared with the local urban residents. The two connected but also segmented groups are forming "a dual society" in Chinese cities: migrants earn higher incomes than their rural counterparts, but under the urban–rural segmentation policy, their incomes are much lower than the local residents'.[2] Such *hukou*-identity-induced between-group income inequality is termed "horizontal inequality", which is generally defined as an income disparity between different social groups in the same geographical area and is considered a more influential element than overall inequality in generating social conflict (Stewart, 2001). Does the horizontal inequality affect the happiness of urban residents and their neighboring migrants simultaneously? Which group of urban residents suffers most from the horizontal inequality with migrants? These are two core questions we try to answer in this paper. To answer such questions is of crucial importance because they guide welfare analysis of who suffers from income inequality, these

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[1] Regarding the fundamental role of the *hukou* system in the socioeconomic segmentations in China, see Liu (2005), Wang (2004), and Wu and Treiman (2007).
[2] According to our sample data, the ratio of yearly household income per capita between the urban residents and rural migrants varies from 1.29 to 3.34 in 27 sample cities. It may be argued whether the observed income gap truly reflects discriminational urban–rural policies or just the ability differences between urban residents and migrants. If migrants are self-selected from the lower tail of the ability distribution, the observed income gap may overestimate the effects of urban–rural segmentation policies. However, Jiang *et al*. (2008) and Chen *et al*. (2008) found that migrants are positively selected along the line of education level in rural China. Therefore it is more plausible that the observed income gap may even underestimate the effects of discriminational policies. We neglect the selection problem and do not discuss this issue in this paper.

people being the potential proponents of institutional change for social integration in urban China.

We identify three specific social groups in urban areas of China according to their *hukou* status. The first group is rural migrants without urban *hukou* status. The second group is the "born" urban residents who were granted urban *hukou* status at birth. The third group is "acquired" urban residents who had a chance to change their *hukou* status from rural to urban at a certain point in their life (*nongzhuanfei*). As Deng and Gustafsson (2006) pointed out, the "acquired" urban residents can be regarded as "permanent migrants" who have distinctive socioeconomic characteristics.

The rest of this paper is organized as follows. Section 2 discusses happiness studies, especially the empirical evidence from China and studies on happiness and inequality. Section 3 describes the data. In Section 4, we investigate how horizontal inequality affects people with different *hukou* identities and characteristics using regression analysis, and also discuss the policy implications of our findings. The final part concludes.

2. Literature review

Subjective well-being, or happiness, once a hot topic for psychologists and sociologists, is gaining more attention from economists. Frey and Stutzer (2002) provided an excellent survey of subjective happiness research. Thanks to data availability, the number of studies examining happiness determination functions in China is growing. Here, we only consider happiness determination in China. Luo (2006) explored the effects of unemployment on happiness and found that families with unemployed members do have lower happiness scores. Knight *et al*. (2007) mainly examined the role of absolute and relative income on the happiness determination of rural China residents, and the results are in accordance with intuition: higher household income per capita results in a higher happiness level; higher

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relative income status within the village also results in higher happiness. They also found that the effects of absolute/relative income vary with family economic conditions. Knight and Gunatilaka (2007, 2008) studied the happiness determination of rural migrants and used Easterling's adaptation theory to explain that the reason for migrants having the lowest happiness scores is because they have changed their income reference group to urban residents, so their higher aspirations make them unhappier.

All these studies increase our understanding of what determines happiness in China, yet none of them has also considered the effects of *hukou* identity and urban–rural segmentation on the happiness of migrants and urban residents. Knight and Gunatilaka (2008) examined the happiness determination of migrants, but they did not control for the *hukou* identity to see its effect on happiness. In fact, rural–urban segmentation in China is a political and economic institutional arrangement. People are labeled as rural or urban *hukou* when they are born, and even when rural migrants work in the cities, their *hukou* identities do not change. The city governments accumulate physical capital and enhance the welfare of only urban residents through rural–urban segmentation and urban-biased economic policy, thus leading to a huge income gap between rural and urban areas (Chen and Lu, 2008). Such identity-induced income inequality was also called "horizontal inequality"[3] by Stewart (2001). When there only exists limited mobility at the group boundaries, horizontal inequality will cause social conflicts and will thwart economic development (Stewart, 2001). We match the urban residents' data and rural migrants' data from the same city, and measure the horizontal inequality as the income ratio between urban residents and migrants to see whether *hukou*-induced horizontal inequality affects equally the happiness of urban residents and migrants;

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[3] In his seminal paper, Stewart (2001) proposed the concept of "horizontal inequality" and defined it as "existence of severe inequalities between culturally defined groups, …, horizontal inequalities are multidimensional—with political, economic and social elements."

thus, we are the first to examine the distributional effect of urban–rural segmentation on the welfare of urban residents and migrants simultaneously.

The effect of inequality on happiness is also a relatively new area. Alesina *et al*. (2004) found that the state-level Gini coefficient in the USA and the country-level Gini in the EU are negatively correlated with individual happiness. However, the effect of the Gini coefficient is unequally distributed among the rich and poor: poor people in the EU suffer from a larger Gini, but this is not the case for the poor in the USA The explanation for different attitudes toward inequality between Europe and the USA is that they have different subjective perceptions on social mobility. However, the negative effect of the Gini on happiness is not supported in China. Astonishingly, Knight *et al*. (2007) found a significant positive effect of the Gini on happiness in rural China. They explain it as a demonstration effect: with rapid income growth, the increasing Gini will make rural residents have greater expectations of being more highly ranked in the income distribution in the future, so they are happier to see a larger Gini coefficient.[4]

In this paper, we also consider the effect of inequality on happiness and set up the following hypothesis: In a dual economy like China people living in a city may not be sensitive to the Gini coefficient at the city level. Rather, segmented social groups in a city are only concerned with the income status within their own group and with the income gap between different social groups.

To examine this hypothesis, we decompose income inequality into two dimensions. The first dimension is the within-group inequality. Specifically, we focus on relative income within the same *hukou* identity group. The second dimension is the horizontal (between-group) inequality. We pay attention to the income ratio between different *hukou* identity groups: the urban residents and the migrants. One advantage of such decomposition is that we

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[4] Interestingly, using the same dataset but only urban household and migrant subsamples, we find the same significant positive Gini effect when the squared term is not included. This will be discussed thoroughly below.

can consider which kind of inequality people may dislike, thus gaining a better understanding

of the channels through which inequality affects happiness.

3. Data description

The data used in our research are from the urban household survey and migrants survey

from the 2002 Chinese Household Income Project Survey (CHIP2002) collected by the

Chinese Academy of Social Science. The urban survey was conducted in 62 cities, but only

27 cities have the parallel migrant household survey. Thus we only use the 27 matched cities

in our subsample. The data include a series of individual and household characteristics and

information on income. More importantly, there are attitude questions on "happiness" for the

heads of households or a main member of the household.[5]

The dependent variable is the subjective happiness score of the household respondent. The

same question was asked of one of the adults in each sampled household: "Generally speaking,

how happy do you feel?" The six possible answers were: very happy, happy, so-so, not happy,

not happy at all, and don't know. This is the key variable in our analysis. We drop the

observations with the answer "don't know" and evaluate the other five answers as 4, 3, 2, 1, 0

respectively. We mainly use ordinary least squared (OLS) regression in our analysis. The

reasons are twofold: first, Ferrer-i-Carbonell and Frijters (2004) found that in a happiness

function, the significance and sign of coefficients are robust to either OLS or ordered

probit/logit. OLS regression is more intuitive and interpretable for the readers. The second

reason is that we control the interaction terms in our regression, and it is hard to interpret the

marginal effects of the interacted variables when using ordered probit/logit. Knight *et al*.

(2007) and Knight and Gunatilaka (2007, 2008) also used OLS to explore happiness

determination in China. We also estimate an ordered probit as a robustness check of the OLS

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[5] For details of the sampling framework and sampling method of the CHIP 2002 survey, see Gustafsson *et al.* (2008).

results, however we stick with OLS because the interaction term in the ordered probit regression is not intuitive.

The independent variables are structured as follows. First, we classify individual's *hukou* identity using a dummy variable that takes on a value of one if she/he has urban *hukou* status and zero if she/he has rural *hukou* status. Second, based on the assumption that urban residents and migrants have different reference groups, we introduce a measure of relative income for the relevant *hukou* identity group calculated as household income per capita divided by mean income of the same group in a city. Third, as the measure of horizontal inequality, we utilize the income gap of urban residents and migrants calculated as the ratio between the mean income of each *hukou* identity group. This variable is regarded as a monetary measure of the socioeconomic gap generated by the *hukou* status combined with other discriminatory urban–rural segmentation policies. We also add an interaction term between horizontal inequality and *hukou* identity to examine the effect of income inequality on each group. Fourth, following the previous studies that found a statistically significant effect of the expectation for future income on current happiness (Luo 2006, Knight and Gunatilaka 2008), we introduce a dummy variable that indicates respondent's expectation for income change over the next five years: "big increase", "small increase", "unchanged", or "decrease" ("unchanged" as the base group). Fifth, we employ the log of annual household income per capita in order to control the influence of the absolute level of household income,

Other controlled variables include sex, age, age squared, years of schooling completed, health condition, marital status, political identity, employment status, household living square meters per capita and city-level Gini coefficient.

Appendix Tables 1 and 2 provide variable definitions and statistical descriptions. Appendix Table 1 presents the descriptions of horizontal inequality and city-level Gini for the 27 cities. Figure 1 shows a significant positive correlation between horizontal inequality and city-level

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Gini. The R-square for a simple regression of horizontal inequality on city-level Gini is 21%. In order to see more closely the role of horizontal inequality on general inequality, we apply the entropy index (with parameters 0, 1, 2) to decompose inequality into between-group (identity-induced inequality) and within-group inequality. From Appendix Table 2, we can see that the *hukou*-identity-induced inequality can explain 12.83–17.84% of total inequality, and the Theil index decomposition shows the amount of between-group inequality is 17.31%. Therefore, the horizontal inequality is an important source of inequality. Appendix Table 3 gives the characteristics descriptions of migrants and urban residents. The last column is the p-value for the ANOVA test of equal means. From the table, we can see that the migrants and urban residents are two distinct groups of people: urban residents have higher happiness scores, and they have higher education levels and household incomes than the migrants; however, migrants are overrepresented by the male gender and are also younger, healthier, and more optimistic about future income change.

4. Regression results

4.1. Hukou, horizontal inequality, relative income and happiness

We first examine how horizontal inequality and relative income impact on the happiness of urban residents and migrants respectively. We establish the following happiness functions:

$$Happiness_{ij} = Hukou_{ij} + HI_j + RI_{ij} + Hukou_{ij} \times HI_j + Hukou_{ij} \times RI_{ij} + X_{ij}\beta + \varepsilon_{ij}.$$

HI_j is horizontal inequality, and RI_{ij} represents relative income in the peer group. Subscripts i and j denote the individual and city respectively. We also add interaction terms between $Hukou_{ij}$ and HI_j, and $Hukou_{ij}$ and RI_{ij} to examine whether urban residents and migrants have different attitudes toward inequality. Regression results are in Table 1.

Table 1 about here

We report four regression results in Table 1. In column 1, we do not control for the interaction terms between horizontal inequality, relative income and *hukou*, whereas column 2 includes the two interaction terms. Columns 3 and 4 are robustness checks of the results in columns 1 and 2 respectively. What we are concerned with the most is the *hukou*, relative income, horizontal inequality and the interaction terms between them. Let us first see the effect of *hukou* identity. When the two interaction terms are not controlled for, the *hukou* identity is negative but insignificant, but it becomes significantly negative when the two interaction terms are included. Although the statistical descriptions of the CHIP2002 survey data suggest that urban residents have higher happiness scores than migrants (Knight and Gunatilaka, 2007), we find that the effect of *hukou* on happiness should also consider horizontal inequality and relative income. For an urban resident whose income equals the city mean, the marginal effect of *hukou* on happiness equals $-0.2694 + 0.0864 + 0.1140 \times$ horizontal inequality. Therefore for a city with a horizontal inequality greater than 1.6052, the marginal effect of *hukou* is positive, and *vice versa*. Because the horizontal inequality in our data ranges from 1.29 to 3.34, it is safe to say urban residents have greater happiness than migrants in most of the cities in our sample. The horizontal inequality created by rural–urban segmentation policy significantly reduces the happiness of migrants. For the urban residents, this effect is still negative, but the marginal effect is much smaller ($-0.1035 + 0.0864 = -0.0171$). It implies that the income inequality affects migrants more than urban residents. It is plausible that when the rural migrants enter the cities, they change their perception of the living quality of urban residents and change their income reference group from that of their remaining rural counterparts to that of urban residents. Therefore, they suffer from unhappiness when the income gap increases.[6] However, urban residents are concerned more

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[6] Another alternative explanation also leads to the above findings. Suppose there are no discrimination policies but only ability differences: migrants are moving into different cities, the migrants with higher education (proxy for higher ability) are more attracted to the wealthier cities to earn higher income; thus, the narrow horizontal income in such cities can be

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about their own income status within the urban residents group but not too much about the income inequality with migrants. The changing reference group hypothesis is also supported by the coefficients on relative income: urban residents are happier if their relative income status improves, but migrants are not happy when they improve their status within the migrants group.

Rather surprisingly, the city-level Gini coefficient shows a significant positive sign. Interestingly, Knight *et al*. (2007) also found a significant positive county-level Gini for happiness when they explored the happiness determination of rural Chinese residents. We have a similar explanation to Knight *et al.*: in an era of rapidly increasing incomes, people may optimistically expect their future opportunities to be at the higher end of the income distribution (demonstration effect). However, we give little attention to the Gini because it has two problems: first, the population ratio between migrants and urban residents in our sample is not the true one in the real world, so the calculated city-level Gini may over- or underestimate the real Gini. Second, in our cross-sectional data, we cannot include the city dummies, so the Gini coefficient may contain the city characteristics.

All the other coefficients in our paper are consistent with the findings in previous studies (Luo, 2006; Knight *et al*., 2007; Knight and Gunatilaka, 2007, 2008). Compared with females, males have lower happiness scores, possibly because they shoulder more responsibility in society and face more stress. Age has a U-shaped nonlinear effect on happiness, with a turning point at age 38.1 or 38.8 in columns 1 and 2 respectively. Marital status influences happiness, in that compared with unmarried people, married people can enjoy a family life and thus they have higher happiness scores, but divorce significantly reduces happiness. Educational attainment has an insignificant effect on happiness; it is possible that people with

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explained by the higher-ability migrants. Higher ability positively correlates with happiness by intuition. In order to reject this explanation, we do the following procedure and find that: (1) migrants' education levels do differ among cities, (2) their education can lead to higher income, (3) the higher the city mean income, the higher migrants' education level, (4) however, in such cities, the horizontal inequality is larger, not smaller as the explanation predicts. Therefore, we reject this explanation.

higher education are more stressed in society and have greater aspirations. The same findings are in Luo (2006), where he used education level dummy variables, and all levels of education had an insignificant effect on happiness. Unemployment significantly reduces happiness. The log yearly household per capita income has a significant positive role on happiness even if the relative income is controlled for. The semielasticity of income is about 0.22 and is close to the estimation of Knight and Gunatilaka (2008). Political identity, measured as whether the individual is a Communist Party member, significantly increases happiness. Previous studies have confirmed that Party identity will bring higher income (Appleton *et al.*, 2005; Li *et al.*, 2008); however, even when we control for the log household income, Party identity still leads to greater happiness because of nonmonetary benefits. The coefficients on self-reported health also accord with intuition: people who report themselves as in good health are happier than those reporting health as just so-so, and self-reported bad health significantly reduces happiness. People who expect they will have a big or small increase in income after five years are much happier, and big expectations lead to higher happiness scores than small expectations. Pessimistic expectations on future income lead to lower happiness.

It is interesting to compare the magnitude of coefficients of horizontal inequality with other variables. Based on column 2 in Table 1, when the income ratio between urban residents and migrants is reduced by 1, its effect on happiness equals increasing household per capita income by 47.5%, or increasing living space by 25.2 square meters.

4.2. How does "acquired" urban hukou *affect income inequality, relative income and happiness?*

Although the *hukou* policy will survive for a long time, it is still possible to change rural *hukou* to urban *hukou* through attending college, becoming an official, joining the army, losing land to the government, buying a house in a city or even buying a *hukou*, etc. How

does a changed *hukou* status affect attitudes toward horizontal inequality? Will the once-rural *hukou* owners assimilate to the "born" urban *hukou* residents if the duration of their urban stay is long enough? These two questions need to be explored. If the once-rural *hukou* residents are averse to horizontal inequality, and at the same time, their attitudes are not assimilated, they will be potential voters for social integration policy in the future. According to the questionnaire, we further differentiate urban *hukou* into two new categories, with "born" urban *hukou* as 1 for those who have never changed their *hukou* status, and "acquired" urban *hukou* as 1 for people who used to be rural residents but acquired urban *hukou* status later in life. The basement group is still the rural migrants. The interaction terms between "born", "acquired" urban *hukou*, horizontal inequality, and relative income (four interaction terms) are used to see whether these two groups of people have similar attitudes to inequality compared with migrants. We also interact the interaction terms of "acquired" urban *hukou* and horizontal inequality with years since getting *hukou* and years since getting *hukou* squared to check whether "acquired" urban *hukou* residents assimilate to the "born" urban residents. The regression results are in Table 2.

Table 2 about here

We discuss the three cases of *hukou* status. First, consider the results in Table 2, column 1. Like the results in Table 1, migrants show aversion to horizontal inequality (with a marginal effect of –0.1022), and they do not care about their income status within the migrants group. The "born" urban residents also feel unhappy about increasing horizontal inequality, but the marginal effect is quite small (only –0.0035 = –0.1022 + 0.0987). This implies that even with a tiny startup cost, the "born" urban residents may give up social integration policy. Again, they feel happier because of the improvement in their relative income status within the urban residents group. The most striking results here are those for the "acquired" urban *hukou*

residents: they have the same attitudes toward horizontal inequality as migrants—that is, they say they suffer from unhappiness when the income gap increases—but they also show greater happiness when their position in the relative income distribution improves.[7] To some extent, they have the traits of both migrants and "born" urban residents. Because the urban public policy in China is only determined by the urban residents (there are no "voting" rights for the people who do not secure a local urban *hukou*), the "acquired" urban *hukou* residents are actually the "spokespersons" for migrants. However, the sample statistics in our data show they are still in the minority among the urban residents (only 25.78%) and not influential enough to abolish rural–urban segmentation policy.

In columns 2 and 3, we put the interaction terms between "years since getting *hukou*", "years since getting *hukou* squared" and "acquired urban *hukou* × horizontal inequality" into regression functions. What we want to check is whether with a longer urban stay, "acquired" urban *hukou* residents assimilate to the "born" urban residents. If so, the two new variables will at least be significant. However, despite including a linear term in column 2 or adding a squared term in column 3, they are both insignificant. Therefore, it is safe to say that past rural life experiences have a persistent effect on perceptions of horizontal inequality.

4.3. Who will be the potential proponents of social integration policy among "born" urban hukou *residents?*

Our paper has already presented interesting findings. However, a more important and realistic issue is how to reduce the income gap between rural and urban China, which reached 3.33 to 1 by the end of year 2007, the highest in the 30 years of reform since the opening up of China. What is worrying, with more and more migrants in Chinese cities, is that the traditional rural–urban divide has gradually become a divide between migrants and urban

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[7] However, the coefficient on "acquired" urban *hukou* × relative income is only significant at the 10% confidence level, and its magnitude is smaller than the coefficient on "born" urban *hukou* × relative income. That is, the "acquired" urban *hukou* residents do not aspire to higher income as much as the "born" urban residents.

residents. Meng and Bai (2007) found that during 2000–2004, wage increases for migrants stagnated in Guangdong Province. Both Yan (2007) and Zhang and Meng (2007) found that the income gap between migrants and urban residents is still widening because of different returns to human capital. Although we have concluded that urban *hukou* residents (particularly the "born" urban residents) are less affected by the horizontal inequality, we still need to further elaborate the attitude of "born" urban residents toward horizontal inequality. This is because they are the most influential group on local policy. Specifically, we use a series of interaction terms between individual characteristics and horizontal inequality. Table 3 reports the results.

Table 3 about here

In column 1 of Table 3, we add an interaction term between age and horizontal inequality. This term has a significant negative sign, and we know that people who are older than 47.9 (0.3305/0.0069 = 47.9) turn from favoring horizontal inequality to disliking it. However, it is unclear whether this age effect truly captures the attitudes of elderly people toward horizontal inequality or whether something else does. The turning point is 48 years, and it is people who were born before 1954 (2002 – 48 = 1954) that are in the age group eligible to be sent to rural China in the intellectual youth movement. We are concerned that if this intellectual youth is not controlled for, the age effect only proxies life experiences in rural China. In column 2, we use a dummy variable for intellectual youth and its interaction with horizontal inequality. From the results, we can see that when intellectual youth experience is controlled for, the age effect remain almost the same, so it is safe to say that when growing older, people tend to dislike inequality. Another interesting finding is that intellectual youth experience brings more happiness if horizontal inequality equals zero, perhaps because bitter past life

experience in rural China creates lower aspirations. At the same time, intellectual youth dislike horizontal inequality compared with other "born" urban residents.

In column 3, we interact Communist Party membership with horizontal inequality. We find that the Party members strongly dislike the horizontal inequality (with a coefficient of –0.1476). It is not a surprising result because Party members are drawn from the elite of Chinese society, and they may have a strong taste for social justice and a much deeper understanding of the harm of horizontal inequality.

In column 4, we add an interaction term between log household income per capita and horizontal inequality. Column 5 introduces an interaction term between years of schooling completed and horizontal inequality. The two interaction terms are both insignificant. Wealthier groups and well-educated groups seem to like the inequality.

The above regression produces the following conclusions: with urbanization in an aging society, social integration between migrants and urban residents will be favored by "acquired" urban *hukou* residents, the elderly and Communist Party members.

5. Conclusion

In this paper, we focused on how income inequality, specifically the horizontal inequality between urban residents and migrants, affects happiness. Our main empirical results are as follows. (1) Overall, the rural migrants will be unhappier when the income gap between them and urban residents increases, whereas urban residents show a much smaller dislike of the horizontal inequality. (2) Migrants will not be happier if their relative incomes within the migrants group increase, while urban residents will become happier when their relative incomes among their peers increase. Our explanation for this finding is that, along with the rise in relative income, migrants tend to change their income reference group from their migrant peers to the urban residents, while urban residents still compare income within their

own group. It is noteworthy that the *hukou* identity determines not only the individual's income position in the urban society but also the pattern of formation of subjective well-being. (3) The "acquired" urban residents have a somewhat dual identity. On the one hand, they dislike horizontal inequality like migrants, but on the other hand, their income reference group is their urban resident peers, and they feel happier when they occupy a higher relative income position within the urban residents group. (4) For the "born" urban residents, they have lower happiness scores when they are aging. People who are Communist Party members strongly dislike horizontal inequality.

Our empirical results contain strong policy implications. Accompanied by rapid urbanization and lagging social integration policy in China, cities in China do not eliminate the *hukou* institution; in fact, they divide urban residents and migrants. The major form of the "rural–urban divide" has been a transformation from a traditional "dual economy" between urban and rural sectors to a "dual society" between urban residents and migrants in urban areas. How to integrate the two groups is of crucial importance for sustainable economic and social development in China. The potential proponents of social integration policy will be those who are the most sensitive to income inequality induced by *hukou* identity: migrants who have no voice in local public policy yet; "acquired" urban residents who somewhat preserve rural characteristics; elderly people and Communist Party members among "born" urban residents. The characteristics of potential proponents imply that the urbanization through gradual easing of *hukou* policy and the aging of society are also beneficial for social integration in urban China.

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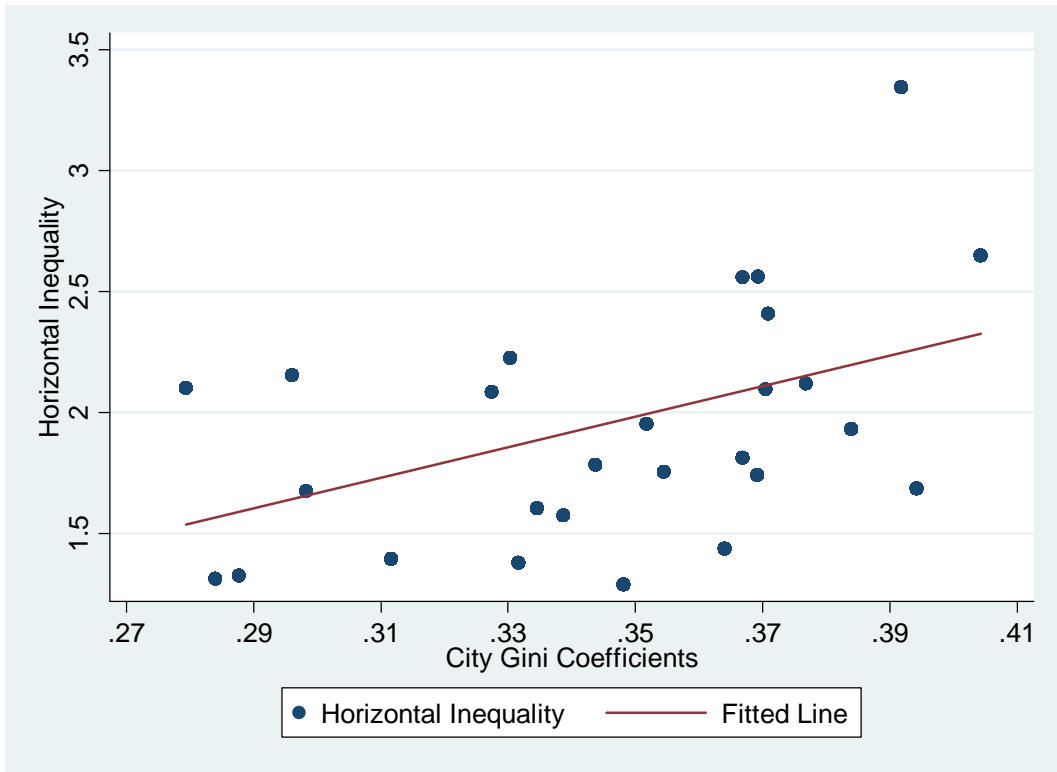
Figure 1 Relationship between horizontal inequality and city Gini coefficients

Table 1

Happiness functions of urban residents and migrants

Dependent variable: columns 1 and 2 are cardinal happiness scores; columns 3 and 4 are ordinal happiness level.

	(1) OLS	(2) OLS	(3) Ordered probit	(4) Ordered probit
Urban *hukou* identity	–0.0223 (0.0392)	–0.2694*** (0.0956)	–0.0040 (0.0505)	–0.3643*** (0.1322)
Horizontal inequality	–0.0482** (0.0240)	–0.1035*** (0.0403)	–0.0677** (0.0333)	–0.1497*** (0.0531)
Urban *hukou* identity × horizontal inequality		0.0864* (0.0485)		0.1289** (0.0640)
Relative income	–0.0063 (0.0292)	–0.0330 (0.0329)	0.0047 (0.0341)	–0.0317 (0.0378)
Urban *hukou* identity × relative income		0.1140*** (0.0324)		0.1609*** (0.0449)
City-level Gini	1.0571*** (0.3349)	0.9402*** (0.3388)	1.4235*** (0.4567)	1.2599*** (0.4598)
Personal Characteristics				
Male	–0.0505** (0.0224)	–0.0494** (0.0224)	–0.0683** (0.0310)	–0.0672** (0.0310)
Age	–0.0213*** (0.0063)	–0.0218*** (0.0063)	–0.0314*** (0.0090)	–0.0322*** (0.0090)
Age squared	0.0003*** (0.0001)	0.0003*** (0.0001)	0.0004*** (0.0001)	0.0004*** (0.0001)
Marital status: Married	0.1034* (0.0572)	0.1000* (0.0569)	0.1642** (0.0821)	0.1581* (0.0825)
Divorced	–0.3355*** (0.1157)	–0.3274*** (0.1165)	–0.4136*** (0.1458)	–0.4049*** (0.1459)
Widowed	–0.1587 (0.1073)	–0.1602 (0.1076)	–0.1781 (0.1343)	–0.1825 (0.1346)
Years of schooling completed	0.0034 (0.0039)	0.0017 (0.0040)	0.0045 (0.0055)	0.0022 (0.0055)
Unemployed	–0.1823** (0.0765)	–0.1713** (0.0766)	–0.2079** (0.0841)	–0.1929** (0.0843)
Log household income per capita	0.2448*** (0.0360)	0.2177*** (0.0372)	0.3200*** (0.0353)	0.2816*** (0.0372)
Communist Party member	0.0756*** (0.0273)	0.0676** (0.0274)	0.1073*** (0.0390)	0.0962** (0.0391)
Square meters of housing per capita	0.0045*** (0.0013)	0.0041*** (0.0013)	0.0065*** (0.0019)	0.0058*** (0.0019)
Expect big income increase	0.3399*** (0.0615)	0.3449*** (0.0615)	0.5142*** (0.0819)	0.5225*** (0.0820)
Expect small income increase	0.1134*** (0.0237)	0.1129*** (0.0236)	0.1575*** (0.0335)	0.1570*** (0.0335)
Expect income decrease	–0.3616*** (0.0345)	–0.3609*** (0.0345)	–0.4701*** (0.0440)	–0.4700*** (0.0440)
Health: Good	0.2202*** (0.0256)	0.2172*** (0.0255)	0.3166*** (0.0361)	0.3132*** (0.0361)
Bad	–0.1462*** (0.0551)	–0.1447*** (0.0551)	–0.1812*** (0.0697)	–0.1792*** (0.0697)

Constant	0.1159 (0.3365)	0.5485 (0.3834)		
Number of observations	5674	5674	5674	5674
F-test (or Log likelihood)	43.63	41.19	−6516.08	−6507.94
R-squared (or Pseudo R-squared)	0.1437	0.1461	0.0615	0.0627

Note: *, **, ***: Coefficient different from zero at 10, 5, 1 percent significance levels respectively.

Robust standard errors are in parentheses.

Table 2

Happiness functions of "born" and "acquired" urban residents and migrants

Dependent variable: cardinal happiness scores; Regression method: OLS

	(1)	(2)	(3)
"Born" urban *hukou* identity	−0.3131***	−0.3082***	−0.3082***
	(0.1011)	(0.1012)	(0.1012)
"Acquired" urban *hukou* identity	−0.1219	−0.1077	−0.1077
	(0.1357)	(0.1364)	(0.1365)
Horizontal inequality	−0.1022**	−0.1029**	−0.1029**
	(0.0404)	(0.0404)	(0.0404)
Relative income	−0.0338	−0.0339	−0.0339
	(0.0332)	(0.0331)	(0.0331)
"Born" urban *hukou* identity × horizontal inequality	0.0987*	0.0983*	0.0983*
	(0.0510)	(0.0510)	(0.0510)
"Born" urban *hukou* identity × relative income	0.1202***	0.1223***	0.1223***
	(0.0351)	(0.0353)	(0.0353)
"Acquired" urban *hukou* identity × horizontal inequality	0.0416	−0.0049	−0.0036
	(0.0636)	(0.0707)	(0.0903)
"Acquired" urban *hukou* identity × relative income	0.0911*	0.0852*	0.0853*
	(0.0484)	(0.0480)	(0.0481)
City-level Gini	0.9315***	0.9362***	0.9365***
	(0.3394)	(0.3392)	(0.3396)
Years since getting urban *hukou* × "acquired" urban *hukou* identity × horizontal inequality		0.0017	0.0016
		(0.0011)	(0.0049)
Years since getting urban *hukou* squared × "acquired" urban *hukou* identity × horizontal inequality			0.0000
			(0.0001)
Personal Characteristics			
Male	−0.0514**	−0.0522**	−0.0521**
	(0.0225)	(0.0225)	(0.0225)
Age	−0.0207***	−0.0198***	−0.0198***
	(0.0064)	(0.0064)	(0.0066)
Age squared	0.0003***	0.0003***	0.0003***
	(0.0001)	(0.0001)	(0.0001)
Marital status: Married	0.0951*	0.0957*	0.0956*
	(0.0569)	(0.0570)	(0.0571)
Divorced	−0.3340***	−0.3386***	−0.3387***
	(0.1165)	(0.1168)	(0.1168)
Widowed	−0.1580	−0.1554	−0.1554
	(0.1079)	(0.1086)	(0.1085)
Years of schooling completed	0.0019	0.0017	0.0017
	(0.0040)	(0.0040)	(0.0040)
Unemployed	−0.1677**	−0.1682**	−0.1683**
	(0.0765)	(0.0765)	(0.0765)
Log household income per capita	0.2198***	0.2191***	0.2191***
	(0.0377)	(0.0377)	(0.0377)
Communist Party member	0.0658**	0.0651**	0.0652**
	(0.0275)	(0.0275)	(0.0276)
Square meters of housing per capita	0.0039***	0.0040***	0.0040***
	(0.0013)	(0.0013)	(0.0013)

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Expect big income increase		0.3440***	0.3451***	0.3451***
		(0.0616)	(0.0615)	(0.0615)
Expect small income increase		0.1131***	0.1142***	0.1142***
		(0.0236)	(0.0236)	(0.0237)
Expect income decrease		–0.3607***	–0.3598***	–0.3598***
		(0.0345)	(0.0345)	(0.0345)
Health:	Good	0.2141***	0.2146***	0.2146***
		(0.0256)	(0.0256)	(0.0256)
	Bad	–0.1462***	–0.1454***	–0.1454***
		(0.0551)	(0.0550)	(0.0550)
Constant		0.5181	0.5124	0.5116
		(0.3881)	(0.3874)	(0.3889)
Number of observations		5674	5671	5671
F-test		36.4300	35.0800	33.7900
R-squared		0.1467	0.1471	0.1471

Note: *, **, ***: Coefficient different from zero at 10, 5, 1 percent significance levels respectively.

Robust standard errors are in parentheses.

Table 3

Happiness functions of *only* "born" urban residents

Dependent variable: cardinal happiness scores; Regression method: OLS

	(1)	(2)	(3)	(4)	(5)
Horizontal inequality	0.3305** (0.1329)	0.3259** (0.1323)	0.0574 (0.0425)	0.2466 (0.4931)	–0.0326 (0.1029)
Age × horizontal inequality	–0.0069** (0.0027)	–0.0063** (0.0027)			
Party member × horizontal inequality			–0.1476** (0.0604)		
Log household income per capita × horizontal inequality				–0.0262 (0.0552)	
Years of schooling completed × horizontal inequality					0.0041 (0.0086)
Intellectual youth		0.2591* (0.1341)			
Intellectual youth × horizontal inequality		–0.1244* (0.0678)			
Relative income	0.0738 (0.0613)	0.0672 (0.0620)	0.0698 (0.0621)	0.0726 (0.0632)	0.0747 (0.0614)
City-level Gini	0.4400 (0.5268)	0.4937 (0.5304)	0.4922 (0.5292)	0.4555 (0.5274)	0.4596 (0.5267)
Personal Characteristics	–	–	–	–	–
Male	0.0852*** (0.0317)	0.0847*** (0.0317)	0.0851*** (0.0317)	0.0876*** (0.0317)	0.0882*** (0.0317)
Age	–0.0114 (0.0122)	–0.0161 (0.0130)	–0.0253** (0.0104)	–0.0259** (0.0104)	–0.0259** (0.0104)
Age squared	0.0003*** (0.0001)	0.0003*** (0.0001)	0.0003*** (0.0001)	0.0003*** (0.0001)	0.0003*** (0.0001)
Marital status: Married	0.1899* (0.1033)	0.2004* (0.1038)	0.1780* (0.1042)	0.1759* (0.1043)	0.1772* (0.1045)
Divorced	–0.2921* (0.1682)	–0.2860* (0.1683)	–0.3079* (0.1691)	–0.3071* (0.1692)	–0.3053* (0.1691)
Widowed	–0.0104 (0.1473)	0.0020 (0.1471)	–0.0148 (0.1482)	–0.0196 (0.1483)	–0.0187 (0.1485)
Years of schooling completed	0.0005 (0.0056)	0.0007 (0.0056)	0.0004 (0.0056)	0.0007 (0.0056)	–0.0073 (0.0177)
Unemployed	–0.2182** (0.0880)	–0.2150** (0.0878)	–0.2220** (0.0878)	–0.2209** (0.0881)	–0.2211** (0.0880)
Log household income per capita	0.2269*** (0.0704)	0.2330*** (0.0717)	0.2325*** (0.0715)	0.2788* (0.1492)	0.2265*** (0.0704)
Communist Party member	0.0846** (0.0331)	0.0839** (0.0332)	0.3688*** (0.1201)	0.0864*** (0.0332)	0.0861*** (0.0331)
Square meters of housing per capita	0.0044** (0.0020)	0.0045** (0.0020)	0.0043** (0.0020)	0.0043** (0.0020)	0.0043** (0.0020)
Expect big income increase	0.3251*** (0.1217)	0.3200*** (0.1219)	0.3342*** (0.1229)	0.3274*** (0.1228)	0.3286*** (0.1228)

Expect small income increase		0.1348***	0.1333***	0.1333***	0.1351***	0.1350***
		(0.0326)	(0.0325)	(0.0325)	(0.0326)	(0.0326)
Expect income decrease		– 0.3758***	– 0.3740***	– 0.3773***	– 0.3777***	– 0.3771***
		(0.0436)	(0.0436)	(0.0435)	(0.0435)	(0.0436)
Health:	Good	0.2236***	0.2219***	0.2220***	0.2219***	0.2224***
		(0.0312)	(0.0312)	(0.0312)	(0.0312)	(0.0312)
	Bad	–0.1280*	–0.1246*	–0.1274*	–0.1287*	–0.1287*
		(0.0662)	(0.0663)	(0.0662)	(0.0663)	(0.0663)
Constant		–0.2767	–0.2672	0.2179	–0.0897	0.4571
		(0.7279)	(0.7452)	(0.6939)	(1.3427)	(0.7106)
Number of observations		2929	2929	2929	2929	2929
F-test		29.42	27.07	29.12	29.02	29.06
R-squared		0.1720	0.1729	0.1720	0.1705	0.1705

Note: *, **, ***: Coefficient different from zero at 10, 5, 1 percent significance levels respectively.

Robust standard errors are in parentheses.

Appendix Table 1

City-level variable definitions and descriptions

Variable	Definitions	Obs.	Mean	s. d.	Min	Max
Horizontal inequality	Income ratio between urban residents and migrants in a city	27	1.9252	0.4898	1.2909	3.34
City-level Gini	Including urban residents and migrants	27	0.3461	0.0353	0.2794	0.4043

Appendix Table 2

Decomposition of entropy index based on the *hukou* group

Index	Total inequality	Within-group inequality	Between-group inequality (Horizontal inequality)	Between-group inequality/ total inequality
GE(0)	0.2528	0.2077	0.0451	17.84%
GE(1)-Theil Index	0.2360	0.1952	0.0407	17.31%
GE(2)	0.2939	0.2562	0.0377	12.83%

Appendix Table 3

Personal characteristics variable definitions and descriptions

Variable		Definitions	Full sample 5674		Urban residents 3729		Migrants 1945		ANOVA test
			Mean	s. d.	Mean	s. d.	Mean	s. d.	p value
Happiness		Cardinal happiness scores	2.4455	0.8441	2.4857	0.8594	2.3686	0.8085	0.0000
Male		Dummy variable, male = 1	0.4813	0.4997	0.4138	0.4926	0.6108	0.4877	0.0000
Age			43.04	11.73	47.14	10.88	35.16	8.98	0.0000
Marital status: Married		Dummy variable, married = 1	0.9233	0.2661	0.9343	0.2478	0.9023	0.2970	0.0000
	Divorced	Dummy variable, divorced = 1	0.0143	0.1186	0.0164	0.1269	0.0103	0.1009	0.0671
	Widowed	Dummy variable, widowed = 1	0.0196	0.1385	0.0268	0.1616	0.0057	0.0750	0.0000
Years of education			10.02	3.33	11.08	3.08	8.00	2.80	0.0000
Unemployed		Dummy variable, unemployed = 1	0.0314	0.1743	0.0429	0.2027	0.0093	0.0958	0.0000
Household income per capita		Per capita household yearly income	7398.93	5676.07	8865.29	5615.81	4587.58	4637.56	0.0000
Communist Party member		Dummy variable, Communist Party member = 1	0.2342	0.4236	0.3374	0.4729	0.0365	0.1876	0.0000
House square meters per capita			14.15	9.59	17.26	8.34	8.21	9.02	0.0000
Expect big income increase		Dummy variable, expect big income increase = 1	0.0368	0.1884	0.0196	0.1386	0.0699	0.2551	0.0000
Expect small income increase		Dummy variable, expect small income increase = 1	0.4778	0.4996	0.4397	0.4964	0.5506	0.4976	0.0000
Expect income decrease		Dummy variable, expect income decrease = 1	0.1646	0.3709	0.2006	0.4005	0.0956	0.2942	0.0000
Health:	Good	Dummy variable, good Health = 1	0.6972	0.4595	0.5884	0.4922	0.9059	0.2920	0.0000
	Bad	Dummy variable, good Bad = 1	0.0515	0.2210	0.0678	0.2515	0.0201	0.1402	0.0000