Tolerance for Income Inequality in Rural China

Masashi Hoshino (Waseda University)

Paper prepared for the 34th IARIW General Conference

Dresden, Germany, August 21-27, 2016

Session 8D: Well-Being IV

Time: Friday, August 26, 2016 [Afternoon]

Tolerance for Income Inequality in Rural China*

Masashi Hoshino†

July 31, 2016

Abstract

This paper analyzes tolerance for widening income inequality in rural China. China has large income inequality, and some villages face risk of social unrest. We estimate how rural resident have tolerances for widening income inequality within village. Tunnel effect which Hirschman and Rothschild argue applies to our empirical analysis, we focus on own income increase, neighborhoods' income increase, and expectation for own income increase. The statistical analysis is based on rural household data in Sichuan, China from 2005 to 2006. The empirical results are as follows; (1) rural resident who envy neighborhoods' increased consumption expenditure do not tolerate for widening income inequality within village, (2) rural resident who expect for own income increase in the near future tolerate the inequality, (3) rural resident who have a lot of wealth or stock tolerate the inequality.

Keywords: Income inequality; Subjective well-being; Rural area; China

* This research was supported in part by Grant-in-Aid for Scientific Research (A) (20252007) and (25243006) from Japan Society for the Promotion of Science (JSPS).

† Chubu Region Institute for Social and Economic Research, Nittochi Nagoya Building 15th floor, 2-1-1 Sakae Naka-ku, Nagoya 460-0008, Japan. E-mail:kag960209@yahoo.co.jp

1 Introduction

Widening income inequality has posed a threat to social stability in China. Figure 1 shows that income inequality and risk of social instability had increased in China in the 1990s and the 2000s. Gini coefficient of household disposable income per capita which was based on previous income definition was 0.303 in 1978, 0.393 in 1993, and 0.445 in 2006 (Chen et al. 2010: 20)[1]. On the basis of new income definition, Gini coefficient of household disposable income per capita stabilized during the 2000s, and has declined slowly since 2009 (NBS 2013; 2014; 2015). Ministry of Public Security of China had reported the number of incidents of mass disturbances (*quntixing shijian*) such as rural riots and mass protests. The number of the incidents of mass disturbances rose from 8,700 in 1993 to 94,000 in 2006. According to a rural survey in China in 2004, about half of respondents recognized that income inequality threatened social stability (Whyte 2010).

(Figure 1 to be inserted around here)

Tolerance for widening income inequality in the period of rapid economic development is the tunnel effect hypothesized by Hirschman and Rothschild (1973). An expectation for increasing in own income affects tolerance for widening income inequality, since people see improving neighborhoods' economic position with their own eyes. Chinese rural residents recognize neighborhood or fellow villagers as reference group (Knight et al. 2009: 637). The rural residents may tolerant for widening income inequality within village, because they expect income increase in near the future through neighborhoods' economic successes. On the other hand, the relative income hypothesis states that individual utility varies inversely reference group's income. Increase in the neighborhoods' income has a negative impact on subjective well-being.

Although previous studies have been made on the impact of income inequality on subjective well-being in China, no studies have ever tried to analyze tolerance for widening income inequality in rural China. Urban people who perceived income distribution as unequal reported lower level of subjective well-being (Smyth and Qian 2008). Knight and Guntalika (2010a) pointed out that social and economic discrimination reduced subjective well-being of migrants. Declining in relative income to the reference group had a negative effect on subjective well-being, as far as reference group's income increased as well as own income increased (Knight and Guntalika 2011). If income inequality related to household registered system, urban

[1] This Gini coefficient trend is similar to that of Ravallion and Chen (2007: 20). Ravallion and Chen (2007: 20) estimated from 1981 to 2001 only.

residents felt unhappy (Jiang et al. 2012). Several studies suggested that widening income inequality raised subjective well-being in rural China. Subjective well-being of rural residents were sensitive to perception of own economic position in the village. Widening income inequality within county has a positive effect to subjective well-being (Knight et al. 2009; Knight and Guntalika 2010b). Wang et al. (2015) found that increasing income inequality within county raised subjective well-being in the county which Gini coefficient is less than 0.405, and decreases in the country which Gini coefficient is more than 0.405.

This paper analyzes tolerance for widening income inequality within village in rural China. The tunnel effect hypothesis applies to our empirical analysis. This study employs rural household data of 13 villages in inland China, and focuses on improving neighborhoods' economic position and expectation for own income increase.

The paper is organized as follows. Section 2 discusses the rural household data. Section 3 provides empirical results. The final section offers some concluding remarks.

2 Data

Our data set was taken from the Sichuan Province Rural Household Survey which conducted by the Sichuan Academy of Social Sciences in Sichuan from 2005 to 2006. The survey was conducted in northern area of the Sichuan Basin and in the eastern edge of the West Sichuan Highland. The sample covered 297 households from 13 administrative villages (*cunmin weiyuanhui*), 7 towns, and 2 counties.

(Table 1 to be inserted around here)

Table 1 provides sample summary statistics. The survey collected economic and social indicators such as household disposable income, consumption expenditure, living space, sex, age, minority nationality, education, perception and so on in 2006.

64.3% of respondents are male. Respondents' average age is 49.212. Tibetan nationality represents 22.2% of respondents. An educational standard is not so high. 19.9% of respondents had experienced migrant workers.

Household disposable income per capita is equivalent disposable real income (2005=100). We divided household disposable income into the square root of resident population with nonresident students. The household disposable income is that we subtract productive expenditure and tax from total income and add remittances from migrants. The mean of household disposable income per capita is 6394.284 Yuan.

Drought affected rural household income. Increase in household disposable income per capita

on the previous year is -255.514 on averages. And perception of increase in household disposable income on the previous year is 2.226 on average.

(Table 2 to be inserted around here)

Table 2 shows Gini coefficient of 13 villages. We calculate household disposable income per capita inequality within village in 2005 and 2006. The 10 villages of 13 villages have upward trend with income inequality. Gini coefficient of total sample rose from 0.501 to 0.544.

And table 2 presents the distribution of tolerance for widening income inequality within village. 3.4% of the respondents are “strongly agree”, and 9.4% of them are “agree”. More than 60% of sample report intolerant for widening intra village income inequality.

It is interesting to compare Gini coefficient with distribution of tolerance for inequality. Villages whose Gini coefficients are very high or increase rapidly do not always have high percentage of “strongly disagree” and “disagree”. Gini coefficient of the number 1 village is 0.525, however the total percentage of “strongly disagree” and “disagree” is 22.7%. In the number 5 village, Gini coefficient increase 0.210 point. The no. 12 village’s Gini coefficient is 0.571, although 22.2% of respondents tolerate widening income inequality within village.

3 Empirical analyses

This paper applies tunnel effect hypothesized by Hirschman and Rothschild (1973) to our empirical model. We estimate the following tolerance for widening income inequality functions:

$$TOL_i^A = \alpha + \beta_1 \Delta Y_i^A + \beta_2 \Delta Y_i^B + \beta_3 E_i^A + \Sigma\gamma H_i + u_i, \qquad i=1, 2,\ldots, n$$

where TOL_i^A is tolerance for widening income inequality within village. Subscripts *A*, *B*, and *i* denote self, reference group (fellow villagers’), and individuals.

ΔY_i^A, ΔY_i^B,and E_i^A, are the key variable in our estimates. ΔY_i^A is increase own income. We use two type variables. First one is increase in household disposable income per capita on the previous year. The other type is perception of increase in household disposable income on the previous year.

ΔY_i^B means increase fellow villagers’ household disposable income per capita. We also use villagers’ household consumption expenditure per capita, as people can perceive improving neighborhoods’ economic position with their own eyes.

E_i^A is expectation for own income increase. We employ a question about possibility of decreasing household income and jobless of your household member over the next two years.

H_i includes the individual characteristic such as sex, age, ethnic nationality, communist member, years of education and so on.

We use ordered probit to estimate the model.

(Table 3 to be inserted around here)

This paper examines the tolerance for widening income inequality functions. Table 3 shows the results.

Increase in fellow villagers' household consumption expenditure per capita on the previous year has a negative effect significantly to tolerance for inequality. Rural residents envy neighborhoods' economic success, and then they can be intolerant of widening income inequality within village. The relative income hypothesis applies to this case. It is noted that increase in fellow villagers' income does not have any effects. Rural residents can see neighborhoods' consumption behavior with their own eyes.

No possibility of decreasing household income and jobless of household member over the next two years has a positive impact significantly to tolerance for inequality, although increasing own income not affect tolerance for inequality. In near the future rural resident expect for own income increase, they can tolerate widening income inequality within village.

Cost of building or buying house has a positive effect to tolerance for inequality. The more rural people have wealth or stock, the more they can tolerate widening income inequality within village. On the other hand, log per capita household disposable income per capita and consumption expenditure do not have impact significantly. Flow income level does not affect but stock income level affects to tolerance for widening income inequality.

Unemployed dummy variable has positive effect to tolerance for inequality significantly. Unemployed respondents are not jobless but do housework and help agriculture. As they basically do not earn money, they can tolerate widening income inequality.

4 Conclusions

This paper analyzes how rural residents tolerate for widening income inequality within village in China. We utilize rural household survey data in Sichuan, China from 2005 to 2006, and estimate tolerance for widening income inequality functions. The paper applies tunnel effect hypothesized by Hirschman and Rothschild (1973) to our empirical model.

The empirical results are summarized as follows: (1) rural resident who envy neighborhoods' increased consumption expenditure do not tolerate for widening income inequality within village; (2) rural resident who expect for own income increase in the near future tolerate the

inequality, (3) rural resident who have a lot of wealth or stock tolerate the inequality.

These results suggest that sustainable income growth in rural area is important for social stability. Expectation for own income growth have a positive impact to tolerance for widening income inequality within village. If rural residents are disappointed in own income increase, they could complaint against widening income inequality. Intolerant of widening income inequality has posed a threat to social stability (Figure 1). The question to consider next is why rural residents expect increase own income in near the future.

References

Chen, Jiandong, Dai Dai, Ming Pu, Wenxuan Hou, and Qiaobin Feng. (2010), "The trend of the Gini coefficient of China." *BWPI Working Paper*, 109.

Hirschman, O, Albert and Rothschild, Michael. (1973), "The Changing Tolerance for Income Inequality in the Course of Economic Development." *Quarterly Journal of Economics*, 87(4), pp.544–566.

Jiang, Shiqing, Lu, Ming, and Sato, Hiroshi. (2012). "Identity, inequality, and happiness: Evidence from urban China," *World Development*, 40(6), 1190–1200.

Keidel, Albert. (2006), "China's Social Unrest: The Story Behind the Stories." *Carnegie Endowment for International Peace - Policy Briefs*, September 2006, 48.

Knight, John, and Gunatilaka, Ramani. (2010a). "Great expectation? The subjective well-being of rural-urban migrants in China." *World Development*, 38(1), 113–124.

Knight, John, and Gunatilaka, Ramani. (2010b). "The rural-urban divide: Income but not happiness?" *Journal of Development Studies*, 46(3), 506–534.

Knight, John, and Gunatilaka, Ramani. (2011). "Does economic growth raise happiness in China?" *Oxford Development Studies*, 39(1), 1–24.

Knight, John, Song, Lina, and Gunatilaka, Ramani. (2009). "Subjective well-being and its determinants in rural China," *China Economic Review*, 20(4), 635–649.

Levy, Paul S. and Lemeshow, Stanley. (2008), "Variance Estimation in Complex Sample Surveys." *Sampling of Population: Methods and Applications*, Fourth Edition, Hoboken, New Jersey: Wiley, pp. 367–394.

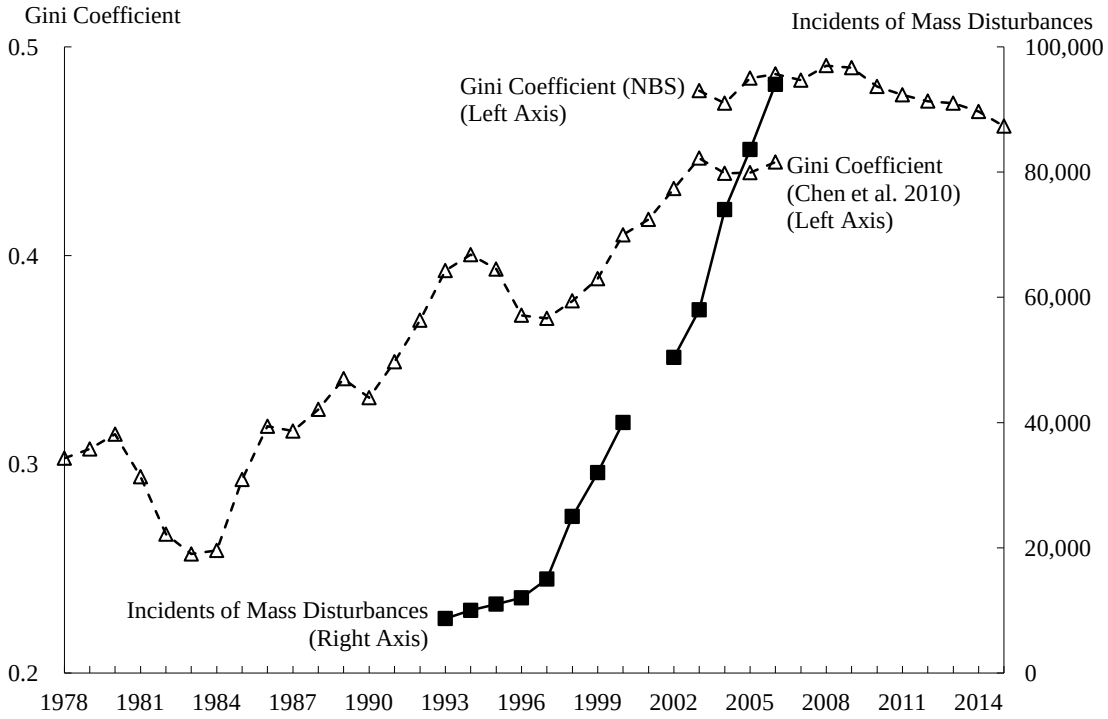
National Bureau of Statistics of the People's Republic of China (2013) "Ma Jiantang jiu 2012 nian uomin jingji yunxing qinqkuang da jizhe wen," 1/18/2013.
(http://www.stats.gov.cn/tjgz/tjdt/201301/t20130118_17719.html)

National Bureau of Statistics of the People's Republic of China (2014) "2013 nian guomin jingji jingji fazhan wenzhong xianghao," 1/20/2014.
(http://www.stats.gov.cn/tjsj/zxfb/201401/t20140120_502082.html)

National Bureau of Statistics of the People's Republic of China (2015) "2014 nian guomin jingji

zai xinchangtai xia pingwen yunxing," 1/20/2015.
(http://www.stats.gov.cn/tjsj/zxfb/201502/t20150211_682459.html)
National Bureau of Statistics of the People's Republic of China (2016) "2015 nian guomin jingji yunxing wenzhong youjin, wenzhong youhao," 1/19/2016.
（http://www.stats.gov.cn/tjsj/zxfb/201601/t20160119_1306083.html)
Ravallion, Martin and Chen, Shaohua. (2007), "China's (Uneven) Progress against Poverty." *Journal of Development Economics*, 82(1), pp. 1–42.
Ravallion, Martin and Lokshin, Michael. (2000), "Who Wants to Redistribute? The Tunnel Effect in 1990s Russia." *Journal of Public Economics,* 76(1), 87-104.
Smyth, Russel, and Qian, Xiaolei. (2008). "Inequality and happiness in urban China," *Economic Bulletin*, 4(23), 1–10.
Tanner, Murray Scot. (2004), "China Rethinks Unrest." *Washington Quarterly*, 27(3), pp. 137–156.
Wang, Peng, Pan, Jay, and Luo, Zhehui. (2015). "The impact of income inequality on individual happiness: Evidence from China," *Social Indicators Research*, 121, 413–435.

Figure 1. Trend of income inequality and incidents of mass disturbances in China



Source) The data were from Chen et al. (2010: 20), NBS (2013), NBS (2014), NBS (2015), NBS (2016), Tanner (2004: 139), Keidel (2006: 3), Hu (2007: 161), and Song and Song (2008: 110).

Table 1 Sample summary statistics (2006)

Variables (Definition)	Mean	SD	Min	Max
Income				
Household disposable income per capita	6394.284	7923.783	1	82004.88
Household consumption expenditure per capita	4132.005	3886.117	98.328	40780.49
Living space	139.377	82.884	15	1000
Cost of building or buying house	15189.43	18485.1	1	100000
Increase own income				
Increase in household disposable income per capita on the previous year	-255.514	8339.176	-34224.88	77130.25
Perception of increase in household disposable income on the previous year (strongly disagree = 1; disagree = 2; remain the same = 3; agree = 4; strongly agree = 5)	2.226	1.185	1	5
Increase fellow villagers' income				
Increase in fellow villagers' household disposable income per capita on the previous year	-255.514	1384.634	-3036.149	3343.437
Increase in fellow villagers' household consumption expenditure per capita on the previous year	617.723	913.2549	-1718.63	2261.785
Individual characteristic				
Sex dummy (female = 1, male = 0)	0.357	0.480	0	1
Age	49.212	11.636	19	84
Tibetan nationality dummy	0.222	0.416	0	1
Qiang nationality dummy	0.010	0.100	0	1
Communist party member dummy	0.121	0.327	0	1
Years of education	4.690	3.507	0	13
Unemployed dummy	0.071	0.257	0	1
Experience of migration	0.199	0.400	0	1
Perception				
Tolerance for widening income inequality within village (strongly disagree = 1; disagree = 2; so-so =3; agree = 4; strongly agree = 5)	2.101	1.181	1	5
Possibility of decreasing household income and jobless of household member over the next two years (strongly agree = 1; agree = 2; so-so = 3; disagree = 4; strongly disagree = 5)	3.162	1.151	1	5
Perception of increase unemployment, landless farmer, and poverty population (strongly disagree = 1; disagree = 2; so-so =3; agree = 4; strongly agree = 5)	2.643	1.301	1	5

Source) The Sichuan Province Rural Household Survey and author's calculation.

Note) Sample size is 297.

Table 2 Gini coefficient and tolerance for widening income inequality within village

Village No.	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Gini 2005	0.393	0.468	0.388	0.387	0.262	0.428	0.428	0.407	0.270	0.447	0.392	0.513	0.504	0.501
Gini 2006	0.525	0.362	0.390	0.476	0.472	0.419	0.419	0.452	0.429	0.609	0.454	0.571	0.511	0.544
Difference	0.132	-0.107	0.002	0.089	0.210	-0.008	-0.010	0.045	0.159	0.162	0.062	0.059	0.006	0.043
Tolerance for widening income inequality within village (%) (2006)														
Strongly disagree	18.2	52.4	53.8	33.3	39.1	42.9	50.0	44.4	57.1	66.7	55.6	44.4	46.2	45.5
Disagree	4.5	28.6	26.9	16.7	4.3	17.9	13.6	18.5	9.5	0.0	16.7	14.8	15.4	15.2
Neither	63.6	9.5	11.5	29.2	34.8	21.4	27.3	33.3	19.0	33.3	27.8	18.5	23.1	26.6
Agree	9.1	4.8	0.0	16.7	17.4	14.3	9.1	3.7	14.3	0.0	0.0	14.8	11.5	9.4
Strongly agree	4.5	4.8	7.7	4.2	4.3	3.6	0.0	0.0	0.0	0.0	0.0	7.4	3.8	3.4

Source) Author’s calculated.

Table 3 Tolerance for widening income inequality within village: Ordered probit

Variables	(1)	(2)	(3)	(4)
Increase own income				
Increase in household disposable income per capita on the previous year	-0.094		-0.099	
	(0.074)		(0.074)	
Perception of increase in household disposable income on the previous year		0.048		0.041
		(0.061)		(0.061)
Increase fellow villagers' income				
Increase in fellow villagers' household disposable income per capita on the previous year	-0.028	-0.015		
	(0.068)	(0.067)		
Increase in fellow villagers' household consumption expenditure per capita on the previous year			-0.141**	-0.132*
			(0.068)	(0.068)
Expectation for own income increase				
Possibility of decreasing household income and jobless of household member over the next two years	0.127**	0.123**	0.121**	0.121**
	(0.061)	(0.061)	(0.061)	(0.061)
Income				
Log household disposable income per capita	-0.104	-0.146**	-0.091	-0.127*
	(0.074)	(0.074)	(0.074)	(0.075)
Log household consumption expenditure per capita	-0.030	-0.044	-0.023	-0.032
	(0.073)	(0.073)	(0.073)	(0.073)
Living space	-0.060	-0.057	-0.038	-0.035
	(0.077)	(0.076)	(0.076)	(0.076)
Cost of building or buying house	0.165**	0.160***	0.135*	0.137*
	(0.074)	(0.073)	(0.073)	(0.073)
Individual characteristic				
Female	-0.188	-0.163	-0.188	-0.173
	(0.166)	(0.165)	(0.165)	(0.164)
Age	0.117	0.120	0.122	0.130
	(0.083)	(0.082)	(0.082)	(0.082)
Tibetan nationality dummy	-0.216	-0.209	-0.233	-0.231
	(0.172)	(0.173)	(0.172)	(0.173)
Qiang nationality dummy	0.630	0.648	0.634	0.667
	(0.610)	(0.611)	(0.610)	(0.611)
Communist party member dummy	-0.240	-0.266	-0.211	-0.231
	(0.210)	(0.210)	(0.210)	(0.210)
Years of education	0.102	0.105	0.0975	0.101
	(0.080)	(0.080)	(0.080)	(0.080)
Unemployed dummy	0.661***	0.670***	0.662***	0.684***
	(0.255)	(0.254)	(0.254)	(0.254)
Experience of migration	0.223	0.226	0.230	0.230
	(0.173)	(0.173)	(0.173)	(0.173)
Perception of increase unemployment, landless farmer, and poverty population	-0.065	-0.068	-0.071	-0.073
	(0.053)	(0.053)	(0.054)	(0.054)
Pseudo R-squared	0.049	0.047	0.054	0.052
Log likelihood	-376.588	-377.297	-374.717	-375.417

Source) Author's calculated.