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Rural Pension, Income Inequality and Family Transfer in China

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Abstract

China's new Rural Pension scheme, announced in October 2009, is destined to be the world's largest, at least in terms of membership. By the time it is fully implemented, in 2012, it will comprise some 600 million members, with about 105 million receiving benefits at that time.

The new scheme is motivated by concern about the widening income gap between the urban and the rural sectors, the rich and the poor in China. But it is unclear that the rural elderly will benefit by the full amount of the pension, because many currently receive private transfers from their children, and these may be adjusted after the introduction of pension benefits.

This paper uses the China Health and Retirement Longitudinal Study (CHARLS) data to investigate the net impact on the old age household income inequality when the new rural pension plan is in place. Logit and OLS analysis are used to estimate the changes of the probability and value of family transfers when other variables change. Results indicate that net private transfers are in most cases uncorrelated with household income, suggesting that the current public transfer (the new rural pension) will not crowd out private transfers. Based on these findings, Gini index simulations are employed to compare income inequality with and without rural public pension. The improvement in Gansu rural income inequality is significant while there is only slight improvement in Zhejiang. Transfers to low income regions from migrants are found to significantly improve income inequality for rural elders as well.

Key words: income inequality, rural pension, family transfers, China

1. Introduction

Although China's economic growth in the past thirty years may have reduced world income inequality positively, it has a negative impact on its own domestic income structure (Berry and Serieux, 2004). The growing income disparity has become an imperative issue for the current Chinese government. One of the policy responses is to establish a full coverage social security network for all its population. In 2009 the government introduced a national basic pension pillar, the New Rural Pension Plan (NRPP). Initially a pilot project for 10% of the population in rural areas, it soon became policy that all rural elderly should be covered by the end of 2012. Without any contribution history, every rural resident over the age of 60 is now entitled to a basic pension of RMB 55 per month.

Many of the current rural elderly receive transfers from younger family members, as part of their overall retirement income. It is natural to ask whether these transfers will be adjusted in light of the new pension. To what extent will the NRRP "crowd out" private transfers? And, consequentially, what will be the net impact of the NRRP on inequality? This paper explores these questions. It offers a brief analysis of the income disparity status in China, followed by an account of how it came about. Part 3 –describes the basic principles of the NRPP. In part 4, the impacts of the NRPP are discussed. For this we use recently collected

household survey data from two provinces – Gansu and Zhejiang – the so-called CHARLS data. This survey was in the field before the introduction of the NRPP in 2008. We estimate simple Logit and OLS models to, analyse the possible family transfer behaviour changes with the NRPP plan. The consequent improvement in inequality, summarised by movements in the using the Gini index and Lorenz curve, is reported. Part 5 concludes.

2. *Income Disparity in Current China*

Generally speaking, in China, the urban sector is richer than the rural sector, the east is richer than the west and the south is richer than the north. If we compare a typical rich province – Zhejiang, to a typical poor one – Gansu, the income disparity can be reflected in numbers.

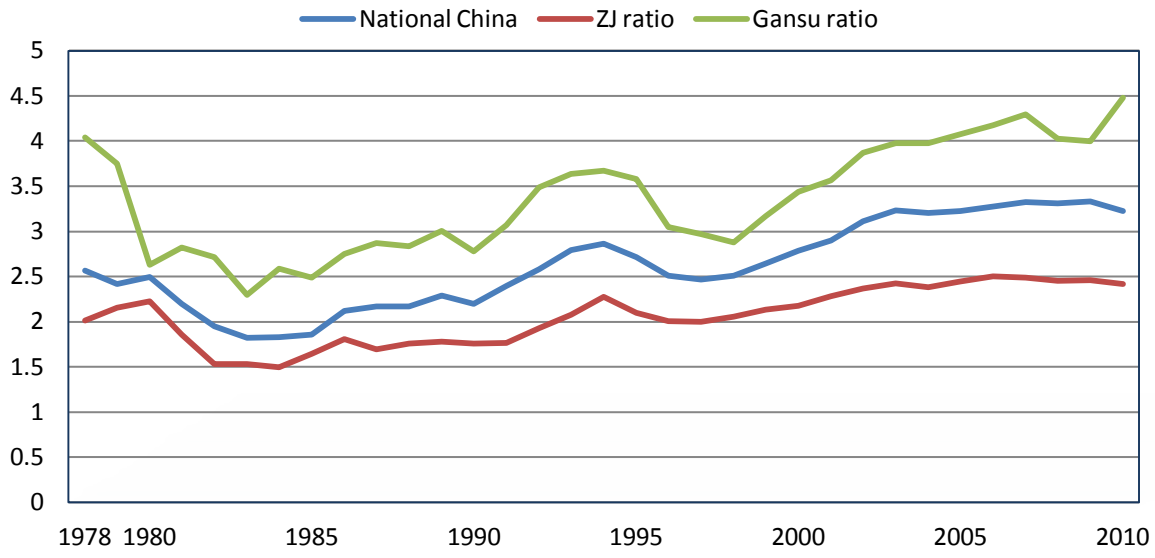
Table 1. Statistics in Zhejiang and Gansu province and national, 2009 figures

Region	Zhejiang (43 % rural)	Gansu (82% rural)	National (47% rural)
Population	54 million	26 million	1360 million
GDP Per Capita at 2009	RMB 44335[1]	RMB 12852	RMB 24600
Ave. Urban Income[2]	RMB 24611	RMB11930	RMB 17175
Ave. Rural Income	RMB10007	RMB 2980	RMB 5153

Source: Various Zhejiang, Gansu and national Government Annual Reports.

The table shows quite big gaps between Zhejiang and Gansu. Not only is GDP per capita in Zhejiang almost four times the Gansu figure, but the difference between the rural and urban sectors also indicates much greater disparity in poor areas. This inter/intra disparity has gone through different stages in the past 30 years of economic reform. The following chart describes the historical evolution of the income disparity.

Chart 1: Urban/rural income ratio from 1978-2010: National, Zhejiang and Gansu



Source: from China Statistic Year book, Zhejiang Statistic Year books and Gansu Statistic Year books, various years

[1] RMB 44335 is equivalent to USD6490 in 2009 exchange rate of USD:RMB=1:6.83.
[2] Average income here refers to disposable income only.

Following an improvement in the urban-rural disparity in the period immediately following the opening of China in 1978, this ratio has been steadily worsening since. Between our rich and poor provinces, the same pattern appears. Absolute living standards have been improving, but the gap between the rich and poor provinces is almost where it was before the open policy. The North-South dilemma is also true in China. Comparatively, the rich are richer and the poor poorer.

Though controversial, Gini index is widely used to summarise income inequality. According to a recent OECD report (Herd, 2010b, pp 1), the household Gini index in China around 2007 was around 0.40 which is similar to that of USA. Though the figures are generally high, it is regarded as conservative since the high income groups are probably under-represented in the surveys.

A large survey was done by the Survey Center of Zhejiang Academy of Social Science in June 2010. The survey was conducted in 6 cities which covered 12 counties, altogether 1152 valid samples. This survey showed that the actual Zhejiang household Gini index could be as high as 0.43 in urban areas and 0.53 in rural areas[3] (ZASS, 2010, p 269).

Using CHARLS (2009) data for the rural elderly households, the picture is even more extreme. The overall rural Gini index from the data is 0.79, with Gansu at 0.81 and Zhejiang a 0.77. The sharp contrast between the rural rich and poor suggests that the very poor are very poor indeed.

What have been the drivers of these changing patterns of inequality in China over the past 30 years? Consistent with the trends in Chart 1, it is generally acknowledged that the open policy in late 1970s had positive effect on improving income inequality. This is probably due to the introduction of the Land Tenure System in rural areas which increased rural income. But this was the only time period in the past 30 years that rural income growth surpassed urban growth.

The second wave of reform focused on state owned enterprises (SOEs). Through the early 1990s, economic restructuring, wage system changes, and labour force segmentation, pushed up the earnings inequality (Khan and Riskin, 2005, Knight and Song, 2008, Deng and Li, 2009). Fiscal policies, investment policies, social welfare reforms and government stimulus policies also operated to favour the urban sector.

Much research has been devoted to the qualitative and empirical analysis of this inequality. Herd (2010) suggested that in recent years, if migration is taken into account, disparities are markedly less, and have tended to decline. Even so, geographical inequality remains very high by international standards. It reflects intra- more than inter-provincial differences, pointing to persistent, if diminishing, labour market segmentation (p 1). Benjamin (et al, 2005) provides empirical research on rural inequality in China and concludes that: 1) geography as the most important factor is ruled out; 2) non-agriculture income is a key source of inequality (the income of the primary sector fell from 66% to only 48% in the 20 years after 1985 (World Bank 2009, p 112)); 3) falling crop prices is one of the main reason for inequality. Yang (1999) argues that labour mobility, the welfare system and financial policies of inflation subsidies and investment credits to the urban sector are responsible for rural urban disparities. Tsui (1998) emphasized within-region contributions to inequality are too important to be ignored, arguing that region-based preferential and redistributive measures should be designed with intra-regional inequality.

3. *The Government Response – A Universal Social Security Network*

Intra and inter regional and urban-rural inequality are seen as possible sources of social instability which may inhibit further economic growth. Recently, policies to improve social inequality have been developing

[3] Source from Zhejiang Blue Book 2010.

rapidly. Two phrases in China are frequently mentioned: San Nong and Ming Sheng. "San-Non" (rural, farmer, agriculture) implies its aim to *increase farmers' income, increase agriculture growth and maintain rural stability*. "Ming Sheng" means focus on *education, employment, medical insurance, housing, social security and fair distribution*.

Government actions have followed. The new rural medical insurance gives much better protection compared to the past; 9 years of free education is compulsory and officials in towns and villages would be punished if their children do not go to schools; farmers are free from any agriculture taxes and getting subsidy for purchasing certain capital goods.

One solution to stem the inequality gap is to increase the welfare to the poor in poor regions. One of the most vulnerable groups is the rural elders who are mostly not covered by any social security schemes. The rural pension reform in China has been experienced various versions during the past thirty years, and there has been little momentum. None of the schemes was successful and the total number involved was insignificant[4].

The New Rural Pension Plan (NRPP) was triggered under such an environment in late 2009, and then the newly issued Urban Residents Social Pension Policy (here after called URSPP) in June 2011. These two policies have basically the same structure but are aimed at two different groups of people: NRPP targets rural residents and URBPP is for residents in urban areas without official pension schemes like the Enterprise Pension System or the Civil Servants Pension Scheme. The NRPP and URSPP cover more than 700 million people in China, more than half of the total population. By implementing the NRPP and URSPP, the Chinese government is claiming to achieve full coverage of pension benefit to all Chinese people.

On June 7th 2011, the State Council Document (2011) No 18 issued another document "Guidelines towards Development of Urban Residents Social Pension Insurance Pilot Project" (URSPP). It targeted the rural non employed population. Ten contribution levels are stipulated (from RMB 100 to RMB 1000 per head per year instead of the five in NRPP;, otherwise the other terms and conditions are the same as the NRPP (see Box 1 for details).

4. New Rural Pension Plan Impact on Rural Old Age Household Income Inequality

There are two ways to evaluate this new plan. One is to look at the implementation and delivery status and the other is to measure the net income increase for the elders.

The spread of NRPP is amazingly rapid. In 2010, it was targeted at 10% of the rural population of the selected areas from the central government plan. In fact, developed provinces like Zhejiang, Beijing and Shanghai accomplished full coverage to all aged people above 60 within one year. This active implementation is directly supported by the State Council via financial transfers. By the end of August 2011, national coverage was already over 60%. About 212 million rural residents have joined the NRPP, with nearly 60 million pensioners[5]. The government required that the NRPP and URSPP should cover the whole population by the end of 2012.

[4] It is reported that the total number involved in previous rural pension plans was only 3% of the total rural elderly.
[5] Information from Ministry of Human Resources and Social security of P.R. China website: http://www.mohrss.gov.cn/page.do?pa=40288020240500280124088 2b84702d7&guid=7874726a48034b32a72934105c98c2c5&og=4028802023e4c2330123e9a140f60ad7

Box 1. Policy details of NRPP and URSPP

The NRPP, officially in State Document (2009) No 32, naming "Guidelines of State Council to the Development of Rural Social Pension Insurance Pilot Project" has four core principles: basic guarantees, wide coverage, flexible arrangements and sustainable development."

Firstly, the beginning stage should be in accordance with the actual conditions in rural areas and with low levels, its contribution standards and benefit formula should be in accordance with the economic development; secondly, individuals (families), communities and governments should share the responsibilities reasonably, its responsibility and its rights should be comparable; thirdly, the policy for contribution is not mandatory and the members should be promoted by the government voluntarily; and lastly, the central government would design the principles and major policies, local government should design its own implementation regulations and local government should be responsible for the management of their own residents.

The key guidance of NRPP includes:

1. The coverage group is rural residents from 16 years old (students are not included) who have not joined urban enterprise pension schemes. These residents are entitled to join the NRPP with their "Hukou" registered place.
2. NRPP Fund is composed of three parts: individual, community and government.
    a) Individual contribution: those who join the system should pay the contributions, the current design is 5 levels: 100 yuan, 200 yuan, 300 yuan, 400 yuan and 500 yuan per year per head. Local governments can adjust contribution levels according to its actual income conditions. Members can choose their own contribution levels and will benefit more if they contribute more. The government will adjust its contribution levels according to the growth of individual net income.
    b) Community subsidy: qualified villages should subsidize the contributors if conditions allow them to do, the standard of subsidy should be decided by the village demographic meetings. Other economic organization, non-profit organizations and individual charities are encouraged to supply subsidies to the contributors.
    c) Government subsidy: the government will be responsible to pay for all qualified members basic pension benefit, the central government will transfer 100% to mid-west areas and 50% to eastern areas. The local government should co-contribute to contributors to NRPP, co-contribution should be no less than RMB 30 per head per year; for those who choose higher level of contributions, certain encouragements should be articulated, details should be designed by the provincial (city and district) governments. To those heavily disabled or difficult groups who can not afford contributions, the local governments should pay for the lowest contribution level.
3. The state government should set up individual life time pension record accounts. All contributions, including individual contribution, community subsidy and other organization and personal contributions, local government co-contributions should all be recorded in the individual's account book. The account balance will be credited interest accordingly to the published People's Reserve Bank's one year interest rate to financial institutions.
4. The benefit of the pension should be combined by basic pension and individual account pension until the person dies.
    a) Central government defines that the basic pension level should be RMB 55 yuan per head per month. Local governments can increase its basic pension level according to its actual conditions; to those who pay contribution continuously for long period of time, premium basic pension can be designed. Increased and premium basic pension funds should be funded by the local governments.
    b) The balance of individual account should be annuitized with annuity factor of 139 per month (in accordance with the current Enterprise Pension System in urban areas). If the contributor dies, the capital balance in its individual account, apart from the co-contributions from governments can be inherited. The government co-contribution should be used to pay for other pensioners' benefits.
5. The pension benefit can be claimed by rural registered residents above 60 years old who have not benefited from urban Enterprise Pension System. Pensioners can claim benefit on monthly basis.
6. Upon implementation of the New Rural Pension Scheme, those who are already 60 and above and who are not entitled to urban pension benefits do not need to contribute and can get benefit on monthly basis, but their qualified children should pay their contributions; if the person's age has 15 years less than the retirement age, they may contribute accordingly to the actual remaining years or pay in lump sum up to maximum of 15 years; if the person's age has 15 years more than the retirement age, he should pay by year and accumulated contribution should be no less than 15 years.

As for the delivery of the benefit, Zhejiang University, on behalf of Ministry of Social Security surveyed 10,000 people in 2011 across 100 covered new rural pension counties. The survey reported that 97% of elders in rural China received the basic pension in due time and 92% residents of the selected areas have joined the rural pension scheme. So far, the initial implementation has been successful.

We summarise the policy impact on inequality using the Gini index. Can the NRPP significantly improve the Gini index in rural China or not? And how much could be achieved? What is the impact on the traditional retirement arrangement - family transfer?

In China, filial piety has been rooted in people's mind for more than two thousand years. It is a primary virtue in Chinese culture and has been the main resource to support the elderly parents traditionally. Children taking care of their parents can simply be expected due to the moral heritage, until recently. With globalization the free market economy, and regional migration, this has been changing.

The question of the extent to which public transfers crowd out private transfers has received some attention in the literature. Gile (et al 2010) suggest that public transfer would only crowd out private transfer at very low levels of income but becomes less responsive at or above poverty line, therefore irrelevant over time. Albarran and Attanasio (2002) found that in Mexico public transfers crowd out private transfers both in likelihood to receive and the amount received. McGarry and Schoeni (1995) found that using Logit, OLS and fixed effect models, for transfer from children to parents, high income and high wealth are more likely to transfer; black are more likely to transfer than whites; and recipients are more likely to be poor , less likely to be male or married. And they conclude that income and transfers are negatively correlated. In Peru, Cox and Jemenez (1992) showed that without social security, the amount of private transfers from young to old would have been almost 20% larger. Cai (et al 2008) indicated that in urban China, public pension system will not crowd out private transfers even at very low levels of income.

There has also been limited research on intergenerational transfers in rural China. Anhui province data was used to analysis grandparents transfer issues (Silverstein, et al, 2004). They found family transfers (financial plus in-kind) significant to household income, distance to living households, child education and parented grandchildren; and number of children is not significant using Tobit model. Shenzhen migration workers transfer behaviours (Li, et al., 2006) focused on migrant workers' transfer behaviours to their rural parents. Li (et al 2006) indicated that for adult children transfers, the more income they earn, the more probability they would transfer to their parents. Both are not recipients oriented.

The new 2008 pilot CHARLS data in China makes the empirical analysis for intergeneration transfer behaviour possible. The survey was in Gansu and Zhejiang provinces, the forma a poor province and the latter the largest GDP per capita province in China. In 2008, there was no universal pension system in rural China, so family support might be the major channel to elders.

Methodology

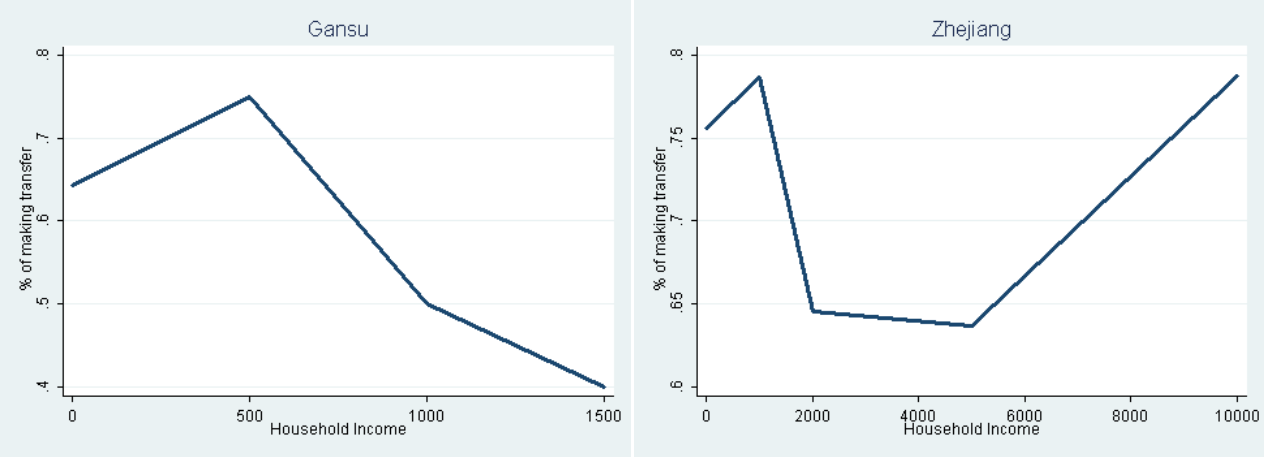
We focus on the rural China poverty improvement with the New Rural Pension Scheme based on the current private transfer status. With CHARLS data, we manage to have income and transfer data separately and enable us to analyse whether income increase would have any effect on private transfers. We use logit model to identify the probability of transfer and OLS model to quantify the transfer amount.

Sample (Appendix 1 and 2)

The total rural household sample size is 283 for Gansu province and 303 for Zhejiang province. The household contains at least one adult above 60 years old. Before transfer, some 83% of the elder families

have no income in Gansu (vs. 38% in Zhejiang). The median of total income of rural families plus private transfers is RMB 300 for Gansu and RMB 3060 for Zhejiang (mean is RMB2040 and RMB 7681 respectively, without weight).

Chart 2. Probability statistics for rural family transfer – Gansu and Zhejiang in 2008



Due to the limited sample size at high income households in Gansu, the chart did not include income group above 1500 which would point upward sharply. The above trend indicated that the current transfer behaviour is associated with an interesting phenomenon: at about half of the average income level, the transfer probability is the lowest while at average income level the probability to transfer reaches the peak.

Logit Result (Appendix 3)

The result shows no significant relationship between rural household income and children transfer amount or probabilities except at RMB 5000-10,000 bracket for Zhejiang household income. It shows strong significant to the number of children in both provinces and number of children working outside the village for Gansu.

The following major findings provide a better understanding of the analysis:

1. Household income of the elders is not significant to the transfer except RMB5000-10,000 bracket for Zhejiang (which is about the mean household income level). At that level in Zhejiang, the probability to transfer increases by 26% and would expect to receive RMB 694 (23% if median income) more compared to the household income level RMB 2000-5000 bracket. This seems to prove the previously mentioned literature of Cai (et al 2006) and suggested that the public transfer at the moment is not crowding out private transfers in China (with the limited amount of public pension). And transfer behaviour may mainly due to the traditional filial piety moral.
2. Number of children is significant to private transfers, which shows that more children can ensure better retirement life for current rural families. Having one more child has 8% more probability of transfers and RMB 486 (16% of median income) more in Zhejiang; while has 8% more probability and RMB 322 (107% of median income) more of transfers in Gansu. The Chinese tradition that "having children for retirement life" still works!
3. Private transfer is not related with age, marriage, number of parents (including parents-in-laws).
4. Having more children living in cities (migrant children) increases probability of transfers in Gansu while it is insignificant in Zhejiang. It indicates that with one of the two children as migrant in cities

from Gansu, the parents have about 24% more probability to receive transfers and about RMB 845 (282% if median income) more per year. Immigration proves to reduce the income inequality in Gansu while it is no longer an important factor in Zhejiang.

The results of findings might be explained in several aspects:

1. Private transfers are not response significantly to income maybe to the fact that samples are not properly distributed and the results might be biased. Another reason might be that the parents income are unknown to children who made transfers, but the behaviour might be changed if it turns into public pension transfer which is known to everybody and the children know exactly the pension their parents get. So it might be true still that the public transfer will partly crowd out the private ones in certain conditions.
2. Sample size might be the reason to have some distorted result. Net income is negative probably due to the missing information or wrong input of data.

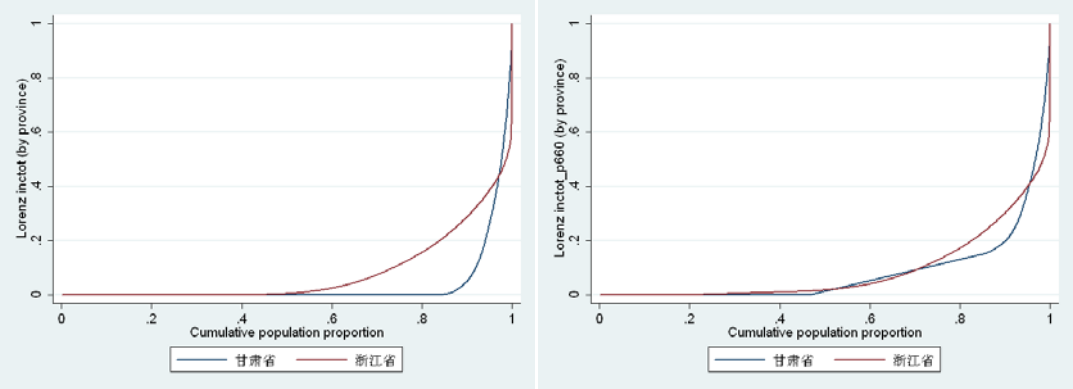
It still might be true that in rural areas, at least in recent years, private family transfers is mainly driven by the traditions. We assume that for the first few years, public pension transfer will not crowd out the private transfers based on the above results.

Income Inequality Improvement

Another way to evaluate the effect of rural pension is to simulate the Gini index with or without pension for the two provinces in rural areas *(Appendix 4), together with the Lorenz curve.*

Chart 3: Lorenz Curve for Zhejiang and Gansu Province with and without New Rural Pension

Rural individual total income by province (left: without pension, right: with pension; blue line for Gansu and red for Zhejiang)



Income inequality improvement in Gansu rural is more than 10% without pension transfer but much smaller (less than 3%) in Zhejiang rural. If negative income households are set to 0, there would be more significant improvements in Gini index – Gansu from 0.8107 to 0.6631 and Zhejiang from 0.7746 to 0.7535.

This is largely due to the fact that majority in Gansu have no income and dependent on their children' transfers and the median transfer is minimum. Some very large outliers exist in both provinces which greatly increase the value of Gini index, this also shows that the gap between the rich and the poor people in both provinces are paramount.

Income inequality in both provinces in rural areas is still outstanding even with the pension transfers (without distorting the private transfers), showing at least 0.7 and above. This means pension transfer is an effective way to reduce inequality but not sufficient enough. As the Gini index in CHARLS data is extremely

high compared to the other data sets, the real effect of public transfers may not be truly reflected in the simulation results.

5. Conclusion

The CHARLS data implied that currently China's public pension plan in rural area should not crowd out private transfers. It might be the fact that the public transfer is still at a very low level and does not constitute a major part of family income. In order to have a more effective transfer, targeting those who are really in need of social security might be a better choice than universal basic safety net in China. The Gini index also explains how small amount of public transfers could significantly improve income inequality in poor areas like Gansu while it has very small effect on rich provinces. At the moment, urbanization or having more rural migrants working in cities in low income areas like Gansu could significantly improve the income inequality of rural elders. A universal rural pension plan is necessary, but a targeted subsidy transfer mechanism might work out better to alleviate poverty and improve income inequality in China.

With the second wave of CHARLS data, further analysis might provide interesting results for the development of family transfer behaviour change, if any.

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Appendix 1: Statistic Description for CHARLS data – rural data only

	Unweighted			Weighted		
	overall	Gansu	Zhejiang	overall	Gansu	Zhejiang
No. obs.	586	283	303	6426383	2317354	2531995
Gender						
Male	46.59%	44.52%	48.51%	47.14%	44.40%	48.67%
Female	53.41%	55.48%	51.49%	52.86%	55.57%	51.33%
Marital Status						
Single	46.42%	45.94%	46.86%	45.45%	45.65%	45.34%
Married	53.58%	54.06%	53.14%	54.55%	54.35%	54.66%
Age						
Mean	69.86	68.91	70.76	69.88	68.91	70.42
S.D.	(7.21)	(6.45)	(7.76)	(0.334)	(0.417)	(0.466)

Appendix 2 : Income status of CHARLS data – 60+ only/all households

Private Transfer	Overall	Gansu		Zhejiang	
		Rural	Urban	Rural	Ubran
Household income					
income only (mean)	6476	1439	17938	4796	20842
income only (median)	0	0	11134	850	14496
income + transfer (mean)	8539	2040	19504	7681	25318
income + transfer (median)	1988.5	300	12129	3060	18000
Observations	734	283	66	303	82

Note:

1.The above table show net transfer by category according to household with at least one elderly above 60. The transfer includes transfers between elderly with their parents, their children and their grandchildren.

2. The mean and median is calculated by the total sample including both positive and negative transfers.

3. The transfer is not adjusted by the number of children since the transfer also includes elder's parents, and some household doesn't have any child (which was excluded in the previous one I send to you)

Appendix 3: Logit and OLS results for Zhejiang and Gansu rural elderly family transfers (weighted sample)

Regression Analysis

Zhejiang			Gansu		
	Logit	OLS		Logit	OLS
Household income			Household income		
1-1000	-0.0065	-446.42	1-500	-0.0313	36.51
	(0.0732)	(803.56)		(0.1809)	(248.88)
1001-2000	-0.1060	2074.82	501-1000	-0.1447	611.08
	(0.1211)	(1572.10)		(0.2915)	(1230.19)
2001-5000	-0.0985	-2194.20	1001-1500	0.1748	-1332.07
	(0.1525)	(1645.22)		(0.3897)	(1368.41)
5001-10000	0.2778**	694.21	>1500	0.0203	-1337.26
	(0.1213)	(963.02)		(0.3200)	(1468.90)
>10000	-0.1739	3722.42			
	(0.0751)	(3779.81)			
Age	-0.0041	5.06	Age	0.0024	0.9525
	(0.0042)	(47.63)		(0.0050)	(22.34)
Female	0.0174	-666.51	Female	0.0068	-154.35
	(0.0533)	(1137.99)		(0.0580)	(403.42)
Married	-0.0290	999.90	Married	-0.0951	314.63
	(0.0614)	(895.93)		(0.0580)	(317.89)
Number of children	0.0829***	468.36***	Number of children	0.0772***	321.73**
	(0.0204)	(161.17)		(0.0193)	(144.26)
Number of parents	-0.0206	-919.75	Number of parents	-0.0367	-79.13
	(0.0508)	(1315.07)		(0.0712)	(304.55)
% children living in the cities	0.0908	-595.98	% children living in the cities	0.4692***	1691.35*
	(0.0931)	(1946.30)		(0.1109)	(921.29)
N	289	289		279	279

Marginal effects; Standard errors in parentheses

=" p<0.1 ** p<0.05 *** p<0.01"*

**Note: For income variables the marginal effect is the average of difference in probability for the two consecutive income brackets.*