

Research on the Relationship between Remittance and Subjective Well-Being

Empirical Analysis based on CHIPS Micro Data

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Abstract: Using the data from the Rural Urban Migration in China 2008, we estimate the relationship and mechanism between the remittance and subjective well-being of the rural—urban migrants in China. And we get some conclusions after robustness tests and use work months of the year as the instrumental variable to deal with the possible endogenous bias. Our results show that remittances and the subjective well-being of the immigrants has a weak but significant and negative relationship and the marginal effect of remittance on happiness is higher than the marginal utility of revenue, even if the effect of per capita remittances and the relative remittances is eliminated.

1 INTRODUCTION

After China carried out reform and open policy, the limit of labor mobility has been gradually loosened. Cheap labor forces and favorable policies have attracted labor-intensive processing industries overseas to transfer to eastern coastal China and this trend brought the “peasant worker rush” phenomenon. With the implement of OBOR and other national strategies, new peasant workers will be the significant force to promote China’s economy and push our new urbanization forward. Domestic migration between city and country brings internal flow of remittance (Feng Hu, Qiwen Wang, 2007).

Aimed at these questions, this text will be based on theoretical analysis, taking advantage of cross-sectional data of CHIPS2008, using whether remitting and remittance as the index of their remittances, to investigate the influence remittance makes to their subjective well-being. Finally, we find that remitting acts of peasant workers will lightly reduce their subjective well-being.

This text might have made following innovations: First, studies before mainly focus on the correlations between income and subjective well-being, there hasn’t been any study about

peasant workers’ remittances and their subjective well-being in China yet. So, focusing on this, the text is to express a glimpse of this issue. Second, this text tries to overcome the endogenous bias by using a new instrumental variable, providing valuable references for similar studies from now on. Third, this text deepens our understanding of the standard of human well-being from the view of remittance, contributing to solve the problem how we increase peasant workers’ happiness by remittance.

2 MANUSCRIPT PREPARATION

2.1 Literature Review

Rise of studies about subjective well-being benefits from life-standard research campaign and positive psychology campaign. Many scholars discuss the elements that affect subjective well-being from different angles, such as some micro-variables like sex, age, schooling, income and marriage. Along them, income plays an important part in happiness economics in nowadays economic society: According to economic rationally hypothesis, there’s a positive correlation between subjective

well-being and income. But in fact, in countries which have different degrees of development, the relationship between subjective well-being and income is totally different. In the opinion from Easterlin, the correlation between individual happiness and his income is positive, but the presence of Critical Point Theory makes it impossible for a country's average happiness increase with the rise of income (Feng Hu , Yupeng Shi , 2013). Besides, the effect of absolute income and income anticipation are also remarkable in subjective well-being (Chuliang Luo , 2008) ,inequality in income gives negative impacts to subjective well-being. Furthermore, household debts also affect subjective well-being a lot (Frey, B., A. Stutzer.,2002).

Although there are a lot of studies talking about subjective well-being, faced with a large scale of remittance from China's migrant workers, empirical studies about remittance from migrant workers and their subjective well-being are only few. Alpaslan Akay and others find that remittances have positive relation with migrants' subjective well-being based on research theories before, and this is the first time that academia develops researches on correlations between migrants' remittance and their subjective well-being (Blanchower, D. and A. Oswald , 2004).To sum up, few foreign learners set out to analyze it, but no studies related at home. According to this, this text is based on qualitative and quantitative analysis, combining with the facts of our own country, to study from ways like what peasant workers' remittance affects their subjective well-being and how it can increase their subjective well-being.

2.2 Data Sources and Model Building

2.2.1 Data Sources

The data this text uses are from a micro-research of CHIPS(2008). This research involved 15 cities in 9 provinces, including 5000 samples from urban families, 8000 samples of rural families and 5000 migrant samples. According to our aim, this text chooses samples of urban and rural immigrants in CHIPS (2008) database. These samples are representative, fully reflecting the basic situation such as statistical characteristics, income and

outcome, insurance and guarantee, and family business and life.

2.2.2 Model Building and Equations

In order to study the impact from peasant workers' remittances to their subjective well-being, we design following basic metering regression model in the light of researchers before:

$$SWB_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Y_i + \alpha_3 R_i + \varepsilon_i \quad 1$$

In model 1, explained variable SWBi shows the control variables set of the individual part of the *i*th peasant worker, including: sex (to man as reference group), age and its square value, quantity of children, marital status (to married as reference group), schooling, employment status (to employed as reference group). Explaining variable *Y_i* shows the *i*th worker's family financial situation, including: peasant workers' monthly income and family debts; $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are coefficients or coefficient vectors of solve-for parameter, ε_i is the random disturbance term of regression model.

2.3 Representation of Peasant Workers' Subjective Well-Being

The measurement of subjective well-being mainly includes three methods of happiness, life-satisfaction and mental health, 12-item General Health Questionnaire (GHQ-12) can effectively evaluate subjective well-being (Fang Luo , 2007). In accordance with experience, we adopt quartering as our method (as 0-1-2-3 point score, its total score ranges from 0 to 36) to get the index of peasant workers' subjective well-being. Table 1 is the distribution of 3368 samples' subjective well-being index. In general, migrant workers' subjective well-being distributes rather closely, more subjectively happy they are, more they distribute.

2.4 Representation of Social and Economic Characteristics of Migrant Workers

According to previous studies, migrant workers' individual characteristic variable and family financial variable affect their subjective well-being to some extent. Besides, this article adopts the months that migrant workers go out for work and

business a year as instrumental variable to cope with endogenous problems; we add two variables of average remittance and relative remittance for robustness examination. We follow different situations of overall migrant workers, migrant workers who have remittances and who don't have remittances, and make descriptions for these samples' social and economic characteristic variables respectively, table 2 shows as follows.

The remittance of main explaining variable indicates the monthly remittance standard of migrant worker's family. At the same time, we have controlled other explaining variables which are proved to possibly affect happiness in previous studies: (1) Age. Impacts that age makes on subjective well-being usually shows an U type characteristic (Yuanping Lu, Tao Wang, 2011). (2) Marital status. Usually, those who have been married are more satisfied with their life (Yanhua Zhang, Yu Jing, Chang Bo, 2005). (3) Quantity of children. Due to the time cost and money cost they need to pay, quantity of children has a tight correlation with their subjective well-being. (4) Gender. Because men always take more family responsibility, women usually have higher subjective well-being. (5) Education year. We can increase migrant workers' subjective well-being by increasing the time for them to have education. (6) Employment status. Employment status plays an important part in migrant workers' subjective well-being. (7) Labor income. Labor income has positive correlation with migrant workers' subjective well-being. (8) Family debts. Families in higher debts tend to have better expectation to the future and higher subjective well-being (Alpaslan Akay, 2012).

2.5 Tables

Table 1: subjective well-being distribution of all groups.

subjective well-being index	Sample size	Proportion (%)
0	2	0.06
1-6	2	0.06
7-12	13	0.39
13-18	93	2.76
19-24	579	17.19
25-30	1499	44.51
31-36	1180	35.04
Total	3368	100

Table 2: Descriptive Analyze for Main Variables.

Variables	all		remitting		non-remitting	
	AVE	SD	AVE	SD	AVE	SD
Age	31.27	10.54	31.22	10.43	31.35	10.72
Sq-age	1088.9	761.6	1083.4	749.0	1097.9	782.15
Gender	0.62	0.49	0.63	0.48	0.61	0.49
Marital	0.58	0.49	0.58	0.49	0.57	0.49
Edu-year	7.97	3.98	7.93	3.99	8.04	3.95
Employ	0.96	0.20	0.96	0.19	0.96	0.20
Kid	0.88	0.96	0.88	0.96	0.87	0.96
Income	2415.5	1560.7	2679.4	1737.5	1981.2	1083.9
debts	285.2	1923.0	122.6	880.1	168.4	1095.9

Annotation: ①Gender:0 for women, 1 for men; ②Marital status:0 for single, 1 for married; ③Employment status:0 for unemployed, 1 for employed; ④0 for non-remittance, 1 for remittance; ⑤Labor income, family debts and remittance are monthly amount; ⑥Average remittance uses amendatory OECD equivalence scale: $\text{remittance} / (1 + 0.5 * \text{adults} + 0.3 * \text{juveniles})$, $\text{relative remittance} = (\text{remittance} / \text{labor income})$

3 ANALYZE OF EMPIRICAL RESULTS

3.1 The Benchmark Regression Results

Because subjective well-being is a non-negative continuous variable, we first adopt Tobit method to evaluate econometric model. The benchmark regression results are in Table 3. The first line only considers the influence remittance make to migrant workers subjective well-being. Without bringing in control variable, remittances reduce migrant workers' subjective well-being dramatically but with low extent. Regression equation (2) considers all variables including remittance and dramatic but weak negative effects that remittances bring to migrant workers' subjective well-being. Therefore, whether bringing in control variables or not, remittance standard can make prominent effects to migrant workers' subjective well-being.

The third line doesn't think about family remittances, studying about what individual characteristics of migrant workers and family financial characteristic variable bring to subjective well-being. In terms of individual characteristics of migrant workers: Regression coefficients of age and square of age are dramatically respectively negative

and positive under 1% statistical level, indicating that migrant workers' subjective well-being firstly descend and then rise up with age in our country; Men's regression coefficient is dramatically positive, showing that men are happier than women; Results in marital status show that those who have been married are significantly happier than those who haven't got married; the unemployed migrant workers dramatically unhappier than the employed. Whether there are any children in the family makes no difference to migrant workers' subjective well-being; Under 5% statistical level, the regression coefficient of education year is significant negative, indicating that longer they are educated, lower their happiness is. In terms of family: Family debts make weak but significant positive effect to subjective well-being. The effects labor income makes are positive, but the marginal effects brought by remittance are more than those brought by income.

Furthermore, the forth, fifth and sixth lines all adopt Ologit model, their results are similar to those using Tobit, remittance variable is still significant.

Table 3: Empirical results of how remittances affect subjective well-being.

Var	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Tobit	Tobit	Tobit	OLogit	OLogit	OLogit	IVTobit	1st stage	2SLS
Remittance	-0.000** (0.000)	-0.000** (0.000)							
Income		0.000*** (0.000)	0.000*** (0.000)		0.000** (0.000)	0.000** (0.013)	0.000 (0.000)	-0.003 (0.003)	0.000 (0.000)
Family debts		0.000** (0.000)	0.000** (0.000)		0.000* (0.000)	0.000* (0.000)	0.000* (0.000)	0.013* (0.008)	0.000* (0.000)
Age		-0.040*** (0.011)	-0.040*** (0.011)		-0.018 (0.019)	-0.019 (0.019)	0.039 (0.130)	6.725 (4.829)	0.047 (0.129)
Square of age		0.001*** (0.000)	0.001*** (0.000)		0.000 (0.000)	0.000 (0.000)	-0.001 (0.002)	-0.092 (0.0621)	-0.001 (0.002)
Gender		1.431*** (0.181)	1.428*** (0.181)		0.524*** (0.064)	0.523*** (0.064)	1.568*** (0.335)	7.805 (15.679)	1.511*** (0.323)
Quantity of children		-0.111 (0.159)	-0.120 (0.159)		-0.048 (0.055)	-0.051 (0.055)	0.126 (0.163)	2.529 (7.852)	0.119 (0.157)
Education year		-0.050** (0.022)	-0.050** (0.022)		-0.013* (0.008)	-0.012 (0.008)	-0.133* (0.077)	-5.135*** (1.878)	-0.129* (0.074)
Employment Status		1.578*** (0.52)	1.626*** (0.519)		0.439** (0.192)	0.457** (0.191)	-0.383 (1.753)	-116.758*** (44.776)	-0.372 (1.693)
Marital status		0.402* (0.225)	0.394* (0.225)		0.187* (0.101)	0.188* (0.101)	0.555 (0.451)	4.085 (21.964)	0.505 (0.436)
Intercept	28.48** (0.104)	-27.25*** (0.622)	27.08*** (0.616)				33.05*** (4.506)	21.78*** (91.074)	32.64*** (4.352)
R2	0.000	0.005	0.005	0.000	0.006	0.005		0.007	0.000
AR								0.004***	
Wald test							35.43***		34.47***
N	3368	3368	3368	3368	3368	3368	3297	3297	3297

Annotation: ①*、**、***respectively show significant level of 10%, 5% and 1%②Wald test indicates exogenous exemplary inspection.

3.2 The Endogenous Processing

Accessing equation (1) by using Tobit model will lead to key parameter's biased estimation. In order to amend endogenous errors, we decide to use instrumental variable LM, it shows the total amount of months migrant workers going out for work and business last year. It will straightly affect the frequency they remit and then affect their amount of remittances, but make no difference to their subjective well-being.

Using this instrumental variable, we adopt the IVTobit model, its results are in Table3, Line 7; at the same time, we choose 2SLS accessing model and its report of results is in Table3, line 8 and line 9. Line 7 and line 9 in Table3 show that all Wald exogenous exemplary inspections have rejected to use remittance as exogenous variable's original assumption, that is to say the remittance is internal variable. Line 8 in Table3 shows that robustness examinations of weak instrumental variable have turned the original assumption down and indicates that there's no problem about weak instrumental variable. Therefore, there is neither problem of weak instrumental variable nor endogenous problem in instrumental variable we use. It turns out to be that remittance still performs significantly in subjective well-being.

3.3 Robustness Problems

In order to examine the reliability of these results, we conduct following robustness examinations. Firstly, we use alternative instrumental variables of migrant workers' remittances to make regression for benchmark model again; Secondly, we consider whether bringing into new variables will make any difference to our results. The examination results will be sorted out and then reported in Table4.

(1)Seeking for alternative instrumental variables for migrant workers' remittances. In the robustness examination, we respectively adopt regression of average remittance of migrant workers, per-capita remittance and a dummy variable of whether there is a remittance as alternative variable for migrant workers' remittance. In Table4, when we respectively use remittance, average remittance and relative remittance to perform regression, the rise of relative remittance affects migrant workers'

happiness much more than absolute remittance and per-capita remittance. Overall, remittance level really makes a significant difference to migrant workers' subjective well-being, the major conclusions are still correct.

(2)Bringing into the medical expenditure control variables. We bring into the medical expenditure as control variables to regress to benchmark model again and its results are reported in Table4, line 2. It's observed that migrant workers' remittance will make weak and steady negative effects on their subjective well-being, and that medical expenditure variables make no difference to their remittance. Therefore, it's plain to see, our model is robust.

Table 3: Explanation results of robustness

Variables	(1) Ologit	(2) Ologit
Remittance	-0.0001** (0.0000)	-0.0001** (0.0001)
Medical expenditure		-0.0000* (0.0000)
Other variables	Already controlled	Already controlled
N	3368	3368
Pseudo R2	0.0002	0.0013
Per-capita remittance	-0.0003** (0.0001)	-0.0003* (0.0001)
Medical expenditure		-0.0000* (0.0000)
Other variables	Already controlled	Already controlled
N	3368	3368
Pseudo R2	0.0002	0.0013
Relative remittance	-0.2838*** (0.0819)	-0.2718*** (0.0833)
Medical expenditure		-0.0000* (0.0000)
Other variables	Already controlled	Already controlled
N	3368	3368
Pseudo R2	0.0006	0.0017

Annotation: *、**、***respectively show significant level of 10%, 5% and 1%.

3.4 Equations

$$SWBi = \alpha_0 + \alpha_1 X_i + \alpha_2 Y_i + \alpha_3 R_i + \varepsilon_i \quad (1)$$

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5 CONCLUSIONS AND POLICY PROPOSALS

Studies find that remittances from migrant workers make negative effects to their subjective well-being. Remittances will shortly reduce their subjective well-being; but the marginal effect to happiness of their remittances is far greater than income effect, the marginal effect to their happiness of relative remittance is larger than the marginal effect of per-capita remittance. Therefore, we think remittances especially relative remittances are an important way to improve migrant workers' welfare. Relative results are still correct when considering endogenous problems.

After the financial crisis in 2008, it's a long term for us to adjust our imbalance of economic structure and transition of urbanization. To some degree, after we lowered our annual economic growth target, the pressure of employment increased among migrant workers. In order to protect the interests of migrant workers, we should start in reducing remittances and increasing income to promote increasing in happiness, and this will bring them more positive sentiments. (De Neve et al., 2013 , Gielen et al., 2014 , ShuLi , 2015)We have following policy proposals for this:

First, we should properly organize the rural system of social security. The rural guarantee system construction in our country occurs to be imbalanced. Because of altruism motivation, migrant workers will send more income back home to keep family' s basic life. Therefore, while social security system is all-covered, government also needs to design a system based on facts from different areas at the same time to ensure we can really make "cover the basic" , "multi layers" come true.

Second, we should provide service sources for migrant workers to go back to start a business. On one hand, the government should contribute to realizing the equality of urban and rural fundamental public services; on the other hand, government should positively build incubator for migrant workers to make a business.

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