

Remittances and Well-Being among Rural-to-Urban Migrants in China

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Abstract

The main objective of this paper is to propose a systematic approach to empirically analyse the effect of remittances on the utility of migrants, as proxied by their subjective well-being (SWB). Using data from a new survey on China (RUMiC), we estimate models where a measure of subjective well-being is regressed on the level of remittances and we find a sizeable positive correlation. The effect of remittances on well-being varies with the socio-economic characteristics of migrants, migration experience, and the diverse family arrangements. As a complementary objective, we use SWB measures to elicit the motivations behind remittances and find evidence that both altruistic (such as pure altruism and reciprocity) and contractual motivations (such as co-insurance and investment) are at work.

Key Words : Migrants, subjective well-being, remittances.

JEL Classification : C90, D63

The Longitudinal Survey on Rural Urban Migration in China (RUMiC) consists of three parts: the Urban Household Survey, the Rural Household Survey and the Migrant Household Survey. It was initiated by a group of researchers at the Australian National University, the University of Queensland and the Beijing Normal University and was supported by the Institute for the Study of Labor (IZA), which provides the Scientific Use Files. The financial support for RUMiC was obtained from the Australian Research Council, the Australian Agency for International Development (AusAID), the Ford Foundation, IZA and the Chinese Foundation of Social Sciences.

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1 Introduction

Remittances represent an enormous cash flow worldwide. In many countries with substantial internal mobility, remittances are also abundant at the national level. For instance, estimates show that in China nearly \$30 billion were transferred from urban to rural areas in 2005 (Gong et al., 2008). Many studies have focused on the impact of remittances on the individuals left behind – those who do not migrate – and investigate the role of these cash flows in relieving poverty, increasing education, and more generally boosting economic growth (for a recent discussion see McKenzie and Sasin, 2007).

Yet, no work has explored whether and how sending money back home affects the well-being of migrants. Given that remittances often constitute a large share of the earned income of migrants, it is expected that migrants’ utility is substantially affected. For instance, migrants’ welfare may be positively affected by transferring money to the family left behind, as this contributes to improve the welfare of individuals for whom they care. At the same time, migrants may experience a loss in welfare because of the reduction in their own disposable income. The principal aim of this paper is to propose a systematic approach to empirically analyse the effect of remittances *directly* on the experienced utility of migrants, as proxied by their subjective well-being (SWB) – otherwise coined as “happiness” or “life-satisfaction”. The key feature of our approach is that it allows to capture the overall impact of remittances on migrants’ welfare, that is, including both “monetary” and “non monetary” consequences of remitting.

Research on subjective well-being has increased substantially in the past few years, allowing to obtain new insights about economic phenomena that are difficult to capture when using a standard neoclassic economic approach (see the overviews in Dolan et al., 2008; Frey and Stutzer, 2002; Ferrer-i Carbonell and Van Praag, 2003).¹ Our paper contributes to this literature by documenting the existence of an important relationship between remittances and migrants’ utility. To the best of our knowledge, there is no study that provides empirical evidence about such nexus.²

In addition to providing a measure of the direct impact of remittances on mi-

¹ Among the major findings documented are the relatively large disutility from being unemployed (Winkelmann and Winkelmann, 1998; Clark and Oswald, 1994; Clark, 2003); that age and subjective well-being exhibit a U-shaped relationship (Blanchflower and Oswald, 2004); that married people have higher subjective well-being than unmarried ones (Clark and Oswald, 2002); and that both absolute and relative income affect subjective well-being (Easterlin, 1995; Clark et al., 2008).

² The relationship between remittances and well-being has been explored by Borraz et al. (2010) who focus on the welfare consequences of household members left behind in Ecuador. The authors document that while remittances have a positive effect on well-being, they do not compensate for the costs associated with the absence of migrants. Another strand of the literature that is somewhat related to our approach is that on monetary donations and subjective well-being (Konow, 2010; Dunn et al., 2008; Tsai and Dzorgbo, 2012)

grants' utility, our approach allows us to obtain insight about the motivations behind remittances. Under a policy viewpoint, understanding what drives the remittance behaviour is important in order to assess, for instance, whether public redistributive policies crowd-out private transfers (Cox and Fafchamps, 2007). For long time, the literature has been interested in identifying whether remittances are motivated by altruistic reasons, or by the existence of implicit contracts (see Rapoport and Docquier, 2006 for a recent overview). In order to elicit the salient motivation, the typical approach adopted in the literature is to test the relationship between remittances flows and pre-remittances income of the family left behind. Yet, no consensus has been reached about which motivation is dominant, and a number of studies argue that both altruistic and implicit contracts reasons might be at work (see, for example, Lucas and Stark, 1985; Cox et al., 2004). As a complementary aim of our paper, we explore how our subjective well-being approach can identify the motivations behind remittances.

Testing the impact of remittances on the well-being of migrants is particularly relevant in the context of China. During the past decades China has experienced a massive migration of workers from rural to urban areas. The most recent estimates from the census reveal that over 220 million people have left their rural residence for over 6 months (NBS China, 2010). Given the presence of restrictions related to household registration regulations (*hukou*), the spouse and children of many migrants are often left behind in the village.³ As a consequence, and also due to the low level of social security in rural areas, remittances are vital for sustaining family members left behind. Given their increasing numbers in urban areas, migrants' welfare is becoming an important item in the agenda of central and local policy makers in China.⁴ In addition, there are peculiar aspects of the Chinese culture, such as the moral obligation of taking care of parents and elderly, embodied in the Chinese traditional virtue of “*xiao*” (or filial piety). Arguably, this is an important driver of remittances flows in China (Yue and Ng, 1999).

Our analysis is based on a new survey, the Rural to Urban Migration in China (RUMIC), which collects data on migrants in major urban destinations. The methodology consists on estimating models where the GHQ-12 – a measure of subjective well-being – is regressed on the level of remittances. We document the existence of a sizeable positive correlation between remittances and migrants' well-being, which we refer as to the marginal utility of remittances. Our results show that the effect of

³ According to *hukou* regulations, migrants are allowed to reside in the cities as long as they are employed or up to six months after unemployment.

⁴ During the 1990s, the *hukou* regulations were partially reformed. Since then, migrants who attain certain levels of education or income, are allowed to obtain urban *hukou*. More recently, migrants have been allowed to have partial access to public medical insurance in urban areas. Yet, the persistence of *hukou* regulations still implies that welfare is accessible mostly at the place of residence and hence migrants are not eligible to access benefits such as public housing and pensions schemes. Furthermore, they are often employed in low-wage occupations.

remittances on well-being varies with the socio-economic characteristics of migrants and their migration experience. Furthermore, the effect is found to be a function of the diverse family arrangements. The well-being of migrants with strong implicit family responsibilities (for example, those whose spouse or children are left behind) is less affected by remittances. On the other hand, a stronger effect is found among those migrants with less responsibilities, in other words, those whose choice to remit is less constrained (for example, single migrants with no children). In regards to filial obligations, we find that migrants who are more detached from their home are relatively satisfied to send remittances to their parents. When exploring the reasons behind remittances, we find support that both altruistic (such as pure altruism and reciprocity) and contractual motivations (such as co-insurance and investment) are at work, albeit our results suggest that the former motivation is the dominant one.

The remaining of the paper is organized as follows: Section 2 describes the dataset and the empirical strategy. Section 3 outlines the results of our benchmark model and robustness checks, followed by the analysis by socio-economic groups, migration experience and family arrangements. In Section 4 we explore the motivations behind remittances. Section 5 provides concluding remarks.

2 Data and empirical strategy

2.1 Data and description of the sample

The analysis of this paper is based on the Rural Urban Migration in China (RUMiC) dataset. This dataset hinges on a survey being conducted in China since 2008 and comprises of three components: the Urban Household Survey (UHS), the Rural Household Survey (RHS), and the Migrant Household Survey (MHS). For the purposes of our analysis we principally use data from the first wave of the MHS, although we also extract some information from the first wave of the RHS, both conducted at the beginning of 2008.⁵

The data cover rural-to-urban migrants, randomly sampled from 15 of the major urban destinations in China, and provide an accurate representation of the migrant population, including long-term migrants and temporary workers. The MHS is hence highly representative of the mass labor mobility currently taking place in China (see Kong, 2010, for a detailed description and discussion of the methodological aspects of the RUMiC data).

⁵ Although there are currently more recent waves of RUMiC, our analysis focuses on the first wave, as this collects information about a period which precedes the financial crisis started at the end of the 2000s. The ability of the survey to track migrants over time in urban areas was hindered by the burst of the financial turmoil, as many migrants who lost their job returned back to their home villages. Furthermore, the crisis might have temporarily distorted the remittance behaviour after 2008. Hence in our analysis we focus on a less recent, but yet more representative period of time.

The original sample of the 2008 MHS covers 5,000 migrant households. A migrant is defined as an individual who lived in an urban area in 2007 but is officially registered as a rural resident, that is, he or she possesses a rural household registration (rural *hukou*). We restrict our analysis to household heads who are employed and select only cases with non-missing information.⁶ This yields a final sample of 4,675 household heads. We extract information on socio-demographic and economic characteristics of the migrants as well as on their family arrangements. We also get detailed data about the migration experience of the household head, such as whether and how much money is remitted back home, information about migration history (e.g., years since first migration) and migration intentions (e.g., whether the migrants would like, hypothetically, to continue living in the city).

2.2 The measure of well-being

The literature has explored various measures to proxy subjective well-being (SWB) which are based on “happiness”, “life-satisfaction” or “mental health” (Frey and Stutzer, 2002). The MHS includes the 12 standard questions of the General Health Questionnaire (GHQ) on mental health, a measure of subjective well-being widely employed in the economics and psychology literature (see e.g., Clark and Oswald, 1994, 2002). Each question allows responses with scores from 0 to 3. In order to obtain a measure for subjective well-being, we add the 12 GHQ variables and obtain an index which ranges from 0 to 36. This index, usually referred as to GHQ-12, can be used to proxy for the latent experienced individual utility (Kahneman and Sugden, 2005; Ferrer-i Carbonell and Van Praag, 2003; Clark et al., 2008).

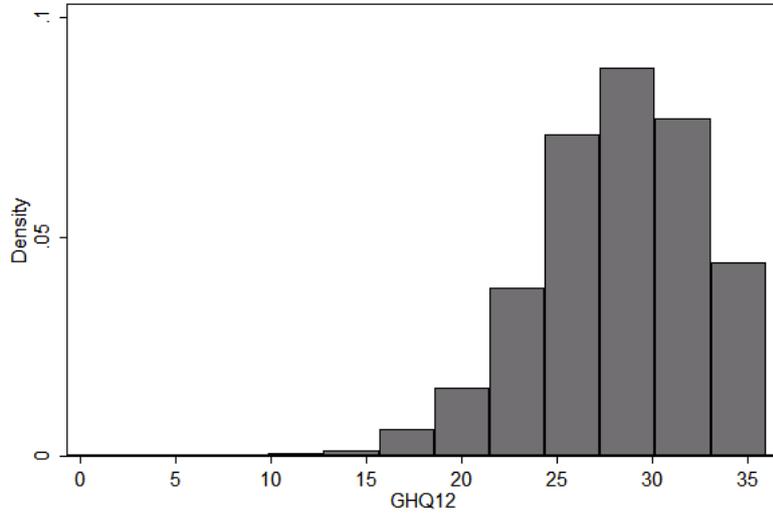
Figure 1 shows the overall distribution of the GHQ-12 index in the sample of migrants. This pattern is in line with the one reported in previous studies using well-being data (see Winkelmann and Winkelmann, 1998 for Germany; Clark and Oswald, 1994 for the UK). The distribution of the GHQ-12 index is rather skewed, with only few migrants reporting extreme low levels of well-being.

2.3 Summary statistics

Table 1 reports summary statistics of selected variables, for both the whole sample and for the groups who remit and do not remit money back home (Table A1 in the Appendix contains the statistics of the full set of variables used in the analysis). Female migrants are somewhat under-represented: this is due to the fact that males are more likely to be the household head in our sample. Migrants form a relatively

⁶ The sample of household head migrants is essentially composed by employed individuals (99.5%). One important reasons for this is that only few migrants have access to social assistance or unemployment benefits in urban areas (being these linked to the household registration) and hence if they become unemployed and cannot find another job, they are likely to return back to their village.

Figure 1: Migrants' SWB distribution



Source: RUMiC 2008.

young group (the average age is just above 30 years) and have lived away from their home village for less than eight years on average. Just more than half of the migrants are married, and have on average less than one child.⁷ The average number of years of education is below ten, with no major differences between the groups of remitters and non-remitters. Both groups have similar levels of monthly labour income, with an average just below 1,650 CYN.

The table also reports statistics about the SWB variable and three measures of remittances. A first interesting aspect is that, in terms of raw statistics, there are no appreciable differences in the average level of well-being between remitters and non-remitters. In regards to remittances, nearly 60% of the migrants send money back home, with an average flow of 200 Chinese Yuan (CYN) per month, and 350 CYN per month if only remitters are considered.

Besides the level of remittances, we also consider two alternative measures. The first is per capita remittances. To construct this, we divide the amount of remittances by the number of family members left behind in the village using the weights recommended by the OECD equivalence scale. This measure acknowledges the fact that the impact of remittances and the potential utility that the migrants draw from remitting depend on the number of effective recipients. The second alternative measure is the percentage of remittances out of the migrant's household income. This

⁷ Migrants in our sample originate from both rural areas where the one-child policy, implemented in China since the end of the 1970s, is binding and from areas where the policy is not binding. The fact that migrants report having less than one child mainly reflects that they are relatively young and half of them are unmarried.

captures a relative measure of remittances, which accounts for the fact that wealthier migrants are expected to remit higher amounts. Our data show that remitters send on average 19% of their income back to their home village.

Table 1: Summary statistics

	All		Remitters		Non-remitters	
	mean	s.d.	mean	s.d.	mean	s.d.
SWB	28.47	(4.41)	28.53	(4.28)	28.39	(4.59)
Age	30.32	(10.07)	30.59	(9.68)	29.95	(10.58)
Female (d)	0.30	(0.46)	0.30	(0.46)	0.32	(0.47)
Married (d)	0.53	(0.50)	0.57	(0.50)	0.48	(0.50)
Number of children	0.75	(0.88)	0.79	(0.87)	0.70	(0.89)
Years of education	9.29	(2.39)	9.22	(2.41)	9.39	(2.37)
Years since 1 st migration	7.74	(6.40)	8.18	(6.35)	7.13	(6.43)
Labour income (CYN)	1648.48	(1255.72)	1653.36	(1155.73)	1641.65	(1383.78)
Sends remittances (d)	0.58	(0.49)	1.00	(0.00)		
(I) Remittance (CNY)	202.17	(381.96)	346.72	(447.33)		
(II) Per capita remittances (w.r.t rural family)	93.66	(186.46)	160.63	(221.08)		
(II) Remittance as % of household income	0.11	(0.18)	0.19	(0.21)		

Source: RUMiC 2008. SWB refers to the GHQ-12 index described in the text, and ranges from 0 (lowest value) to 36 (highest value). (I) Remittances are constructed using information on the amount of money and commodities remitted back to the home village. (II) Per capita remittances are calculated by dividing the total amount of remittances by the number of members of the migrants' family in the home village using the modified OECD equivalence scale: $Per\ capita\ remittances = \frac{Remittances(1000CYN)}{1+0.5*(\#adults)+0.3*(\#children)}$. Note we only observe spouse, children, parents and parents in law. (III) Remittances as % of household income is constructed by dividing the total amount of remittances by the total income of the migrants' household.

2.4 Empirical strategy

In this section we outline the econometric model that we employ in order to estimate the impact of remittances on migrants' well-being. Due to the fact that the SWB index is measured in an ordinal scale, the appropriate model specification is an ordered probit. Yet, our preferred specification throughout the analysis is a linear regression model. Not only the interpretation and comparison of the coefficients is substantially simpler, but estimates from linear regression models and those from ordered probit specifications have been found to be qualitatively similar (Ferrer-i Carbonell and Frijters, 2004). Furthermore, the GHQ-12 index ranges from 0 to 36 and it is hence closer to a continuous measure, which also suggests the use of a linear specification. For comparison purposes, we have also estimated alternative specifications using an ordered probit model specification. The results are qualitatively similar.⁸

The baseline specification is given by the following regression model:

$$SWB_i = \alpha x_i + \beta y_i + \gamma r_i + p_m + p_h + \epsilon_i \quad (1)$$

⁸ The ordered probit models are estimated using a variable which is an aggregation of the GHQ-12 index into a 7-class ordered variable. Estimates are available upon request.

where SWB_i is the subjective-well being of individual i ; x is a vector of socio-demographic characteristics (such as gender, age and marital status) and α is the vector of related parameters to be estimated (a constant term is included as well). The term y represents the household income and β captures its marginal utility. The key variable is the remittances level r , and we are therefore interested in the estimate of the parameter γ , which informs about how SWB varies in function of the remittances – or the *marginal utility of remittances*. Finally, p_m and p_h are indicator variables for the provinces where the migrants live and come from, respectively; ϵ is a random error component.

As part of the analysis, we also estimate models where remittances are interacted with indicators representing selected characteristics of migrants (such as gender, education, years since migration, etc.). The specification that we estimate in these cases builds upon the one above and is given by the following:

$$SWB_i = \alpha x_i + \beta y_i + \gamma_1 r_i \times D_i + \gamma_2 r_i \times (1 - D_i) + \eta D_i + p_m + p_h + \epsilon_i \quad (2)$$

where D_i is the indicator of interest, γ_1 and γ_2 capture the marginal utility of remittances of the pertinent groups ($D_i = 1$ and $D_i = 0$, respectively) and η captures the well-being differential between the two groups conditional on not remitting. Throughout the analysis we will report estimates of γ_1 and γ_2 , which allows to compare the marginal utility of remittances between the groups of interest.

3 The effect of remittances on migrants' well-being: empirical results

The results of our analysis are organised as follows. As a preliminary step, we explore the relationship between remittances and migrants' utility by using standard well-being regressions. Our analysis reveals the presence of a strong positive correlation between remittances and well-being. We then conduct tests to demonstrate that our results are not driven by the presence of confounding factors or by the choice of the measure of remittances. Finally, we investigate how the effect of remittances on well-being varies in function of the migrants' socio-economic characteristics, migration experience and their family arrangements.

3.1 Do remittances affect well-being?

Benchmark estimates We explore the effect of remittances on well-being by first estimating a standard well-being regression model for the migrant population. In practice we estimate two specifications, one with and one without the remittances variable. In Table 2, we report the estimates of the remittances parameter and of a

few other key covariates. Table A2 in the Appendix provides full estimation results of our benchmark specification.

Before discussing the impact of remittances, it is useful outlining how the estimates of the regression in our sample compare to those in the existing literature. With a few exceptions, the coefficients of the main socio-economics and demographic characteristics are in line with standard findings from the literature (see Dolan et al., 2008; Ferrer-i Carbonell and Van Praag, 2003; Frey and Stutzer, 2002) for comprehensive reviews on the determinants of subjective well-being). Female migrants report lower levels of well-being compared to men, which seems to contrast current findings in the literature; yet it is important to emphasise that females in our sample are under-represented, and likely to be a self-selected group. Previous studies have documented the existence of a U-shaped relation between age and happiness (e.g., Blanchflower and Oswald, 2004). Our estimates corroborate the existence of such pattern, yet the coefficients are not estimated with precision.

Being married is associated with higher well-being (similar to what documented by Argyle, 2003 and Helliwell, 2003). The coefficient for the number of years of education is positive and significant, albeit the point estimate is somewhat large when compared to previous studies (e.g., Fuentes and Rojas, 2001; Helliwell, 2003). Having children does not seem to have a substantial impact on migrants' well-being (some studies have reported a negative impact, see e.g., Glenn and Weaver, 1978). In regards to the migration experience of the individuals, the time away from the home village (as approximated by the years since the first migration) exhibits a convex relationship with SWB. Finally, and consistently with international evidence, we find a positive association between SWB and income.⁹

When we add remittances to the specification, we find a positive and statistically significant estimate of remittances on SWB. The size of the estimated coefficient is rather large. The estimate of 0.389 implies that a standard deviation increase in the remittance level is associated with a 0.033 increase in the standard deviation of SWB. For comparison, the standardised coefficient for income is 0.032 and that for the female dummy is 0.052. The result that the estimate for remittances is as large as – and in some of our models even larger than – the one for income (which is measured in the same unit) seems compatible with a recent study by Dunn et al. (2008) who argue that spending money on other individuals increases well-being more than spending money for oneself. Furthermore, including remittances in the estimation does not substantially influence the estimates of the remaining parameters.

⁹ For completeness, we also estimate regression models using the level of remittances as dependent variable. Yet again, the scope is to investigate how our estimates compare to those of previous studies. We consider two specifications (reported in column 2 and 3 of Table A2): one for the whole sample of migrants, using tobit regression (which accounts for the censoring of remittances for those migrants who do not send money back home) and one for the sub-sample of remitters. Our results are very similar to previous studies (see e.g., Lucas and Stark, 1985; Hoddinott, 1994; Piracha and Saraogi, 2011; Vanwey, 2004)

Table 2: Benchmark regressions

	I	II
Remittances (1000 CNY)		0.389 *** (0,135)
Age	-0.001 (0.051)	-0.001 (0.051)
Age sq.	0.004 (0.069)	0.005 (0,069)
Female (d)	-0.514 *** (0.195)	-0.506 *** (0,195)
Married (d)	0.626 ** (0.278)	0.613 ** (0,278)
Divorced/Widowed (d)	-1.228 ** (0.572)	-1.215 ** (0,572)
Years since 1 st migration	-0.058 * (0.034)	-0.061 * (0,034)
Years since 1 st migration sq.	0.002 * (0.001)	0.002 * (0,001)
Years of Education	0.165 *** (0.030)	0.165 *** (0,030)
Labour income (1000 CNY)	0.140 *** (0.047)	0.115 ** (0,047)
Constant	31.923 *** (2.779)	31.979 *** (2,776)
R^2	0.172	0.173
#Obs.	4675	4675

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. (d) refers to dummy variables. See Appendix for regression containing full list of covariates.

Remittances and SWB: a spurious relationship? The estimates from the benchmark model just outlined reveal the existence of a positive correlation between remittances and migrants' well-being. This suggests that the utility of sending money back home is larger than the disutility associated, for example, with the implied loss of disposable income. This is a striking results and it is hence crucial to ensure that it is not an artifact of some unobservable confounding factors which are not accounted in the regression analysis, or else a consequence of how remittances are defined. In the following, we estimate several specifications to corroborate the robustness of the benchmark results. For the sake of presentation, we will provide the estimates of the remittance parameters only.¹⁰

As a first test, in Table 3 we ensure that our benchmark model is appropriately controlling for the role of income. In other words, we want to make sure that omitted

¹⁰ Full estimates of all models are available upon request.

variable bias issues – stemming from the well-known positive correlation between remittances and income – are not substantial. In order to explore this hypothesis, we check the sensitivity of our estimates to the presence of income-related variables. In practice, we estimate models which only include remittances (column I), a model where we add the years of education (column II), the labour income (column III) and both of them (column IV). Finally, in column V, we show the estimates from a model which further includes the income obtained from other sources (such as from land or properties). We conduct this sensitivity check for the three alternative definitions of remittances outlined in Table 1. The rationale is that it is not known a priori how remittances enter the utility function (e.g., in level or in relative terms) and estimates might be sensitive to such measurement.

When we consider the level of remittances, the addition of the years of education and of labour income systematically reduces the size of the estimated coefficient. This suggests that failing to control for income and education would imply an over-estimation of the remittances parameter – which absorbs the marginal utility of income. Yet, when adding additional income controls in column V, the estimates of the remittances parameter are remarkably stable. The model in column V is our preferred specification and corresponds to the benchmark estimates of Table 2. When using the per capita remittances variable, the coefficients show a pattern similar to the one just described for the level of remittances. The only apparent exception occurs when we use remittances in percentage of the household income: the estimated coefficient exhibits a rather stable point estimate throughout the various specifications. The likely explanation is that this measure already accounts for the presence of income.

Overall, the specifications in column V show remarkably consistent results: the estimate of the remittance parameter is positive, statistically significant and insensitive to additional income-related variables.¹¹ Throughout the analysis, the pattern of results is substantially similar when per capita remittances or remittances in percentage of income are used. Since the choice of the definition of remittances does not produce appreciable differences in the estimates, in the remaining of the paper we will report only the results for the models which use the level of remittances.¹²

A second set of robustness tests is reported in Table 4. Here we test the sensitivity of our estimates to the presence of unobservable regional attributes. Both the level of SWB and the amount of remittances that migrants send back home are likely to be functions of the characteristics of the region where migrants reside and of the region where they come from. For example, macroeconomic factors – such as the level of prices and the size of the public sector – could vary substantially across regions and thereby affect our estimates. In the first column of Table 4 we estimate a model

¹¹ As described in Table A2 in the Appendix, all models include additional income-related variables, such as an indicator for self-employment status.

¹² Detailed results using all three definitions of remittances are available upon request.

Table 3: Income, remittances and SWB

	I	II	III	IV	V
Remittances (1000 CNY)	0.473 *** (0.131)	0.452 *** (0.131)	0.387 *** (0.134)	0.383 *** (0.135)	0.389 *** (0.135)
Years of education		0.171 *** (0.030)		0.165 *** (0.030)	0.165 *** (0.030)
Labour income			0.146 *** (0.047)	0.119 *** (0.046)	0.115 ** (0.047)
Other household income					0.104 ** (0.053)
Per capita remittances (w.r.t. rural family)	0.961 *** (0.274)	0.898 *** (0.274)	0.805 *** (0.275)	0.771 *** (0.275)	0.761 *** (0.276)
Years of education		0.170 *** (0.030)		0.164 *** (0.030)	0.164 *** (0.030)
Labour income			0.148 *** (0.046)	0.122 *** (0.046)	0.119 ** (0.047)
Other household income					0.099 * (0.053)
Remittances as % of household income	0.723 ** (0.311)	0.748 ** (0.309)	0.717 ** (0.310)	0.742 ** (0.309)	0.829 *** (0.311)
Years of education		0.173 *** (0.030)		0.166 *** (0.030)	0.166 *** (0.030)
Labour income			0.170 *** (0.046)	0.143 *** (0.046)	0.138 *** (0.047)
Other household income					0.119 ** (0.054)

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. “Other household income” refers to other sources of income such as spouse’s wage or investments. All models contain the covariates of the benchmark regression in Table 2.

without province fixed effects; in the second column, we test the importance of the regions of origin by adding dummies for the province where the migrant’s hukou is registered; in the third column we investigate the role of the host regions by adding indicators for the province where the migrants reside; finally in the fourth column we introduce indicators for both sending and receiving provinces (this corresponds to our benchmark model in Table 2).

Results suggest that adding regional indicators somewhat reduces the size of the estimated coefficient, which nonetheless remains positive and statistically significant. Furthermore, the estimates appear to be more sensitive to the presence of unobservable factors in the host province. Yet, when adding indicators for both home and host provinces in the last column, the estimated coefficient is rather similar to that in the third column. On the one hand the results in Table 4 emphasise the importance of controlling for unobservable regional attributes; on the other hand they suggest that our main results still hold even after controlling for these important

confounding factors.

Table 4: Sensitivity to unobservable regional characteristics

	No Province Fixed Effects	Home Province Fixed Effects	Host Province Fixed Effects	Home & Host Province Fixed Effects
Remittances (1000 CNY)	0.500 *** (0.135)	0.441 *** (0.136)	0.376 *** (0.132)	0.389 *** (0.135)
R^2	0.125	0.149	0.168	0.173

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. All models contain the covariates of the benchmark regression in Table 2.

3.2 Migrants’ heterogeneity

Socio-demographic and economic characteristics Migrants are quite a diverse population and differ along many characteristics. These factors in turn might influence the way in which well-being responds to remittances. We explore migrants’ heterogeneity by testing the sensitivity of our results to selected socio-demographic and economic characteristics of migrants. In Table 5 we first estimate the equation (2) for different groups: males and females, married and unmarried, those below and above the median age (28), below and above the median education level (9 years) and below and above the median income level.

Finally, we also address the presence of unobserved individual heterogeneity. One important concern is that our cross-sectional data do not allow testing for the role of unobserved individual heterogeneity. Yet, the SWB literature has for long discussed that unobserved individual characteristics (such as personality traits or genetic predisposition) are important determinants of SWB (e.g., Diener et al., 1999; Boyce and Wood, 2011). We propose an alternative strategy to – at least partially – control for such latent characteristics. We exclude from the GHQ-12 index the question related to “happiness” (i.e., “*How happy are you when you consider each aspect of your life?*”), obtaining a “GHQ-11” index. We then use the happiness measure as an additional explanatory variable in the regression. Our argument is that the happiness index can partially account for the unobserved attributes of migrants – at least for those which do not vary over time.¹³

The results in Table 5 show that the estimate for females is larger than for males, albeit the coefficient is estimated with a larger standard error as well, most likely due to the relatively small sample size of this group. Younger migrants exhibit a somewhat larger marginal utility of remittances. This result is particularly interesting in light of the fact that most of the remittances in China consist of transfers from

¹³ We also estimated models for each group instead of interaction models, obtaining remarkably similar estimates.

Table 5: Migrants' socio-demographic and economic characteristics

Female (D=1)	0.506 (0.429)	Age \leq 28 (D=1)	0.498 ** (0.215)
Male (D=0)	0.373 *** (0.139)	Age $>$ 28 (D=0)	0.323 * (0.165)
Married (D=1)	0.343 ** (0.148)	Years of education \leq 9 (D=1)	0.488 *** (0.175)
Single (D=0)	0.522 * (0.281)	Years of education $>$ 9 (D=0)	0.223 (0.185)
Labour income \leq median (D=1)	0.659 * (0.343)	GHQ-11 model (Controlling for unobservable individual characteristics)	0.326 ** (0.127)
Labour income $>$ median (D=0)	0.328 ** (0.144)		

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. All results are obtained by estimating equation (2), except the GHQ-11 model where the dependent variable is modified by omitting the “happiness” question from GHQ-12 to obtain GHQ-11. The index for happiness is used a regressor (see text for details).

younger individuals to the elderly. Remittances appear to have a stronger impact on single migrants than on married ones, which might reflect differences in the responsibilities inherent to the diverse situations of migrants' families – we will explore this point in detail in the next subsections. Furthermore, less educated individuals exhibit a somewhat larger effect, a pattern that is also reflected in the group of migrants with an income below the median.¹⁴ Finally, when considering the GHQ-11 index, the results suggest that the correlation between SWB and remittances is still positive and statistically significant.

Destination, desires and duration of stay The diverse migration experience of the individuals in our sample might as well have an impact on the marginal utility of remittances. We consider this hypothesis by exploring three relevant aspects: the time away from the home village, the distance from home, and future migration intentions. We capture the length of time that the migrant has left his or her home village by using information on the year when the individual migrated for the first time. We hence construct a variable for the “years since migration” (YSM).¹⁵ Then, we derive an indicator for whether the migrants left home for 6 or more years or for

¹⁴ We have further explored the interaction between remittances and income, using quartiles of the income distribution. Even in this case we found that the marginal utility of remittances decreases monotonically with income. This result reflects the diminishing marginal utility associated with the concavity of the SWB function.

¹⁵ It is important to emphasize the fact that since we are analysing internal migration, the migration experience could be discontinued, i.e., migrants might have gone back home in between the period that they are interviewed and when they have left home for the first time. Yet, an inspection of the RUMiC data suggest that only 16% of migrants have been back to their hometown for longer than 3 months since their first migration. Hence, circular migration is unlikely to affect our results.

less time (this corresponds to the median of the YSM variable). We also estimate an additional specification which uses quartiles of YSM. Similar to the approach used before, we estimate models whereby we interact the remittance variable with the relevant YSM indicators.

We also acknowledge that proximity of current residence to the home village might have a strong impact on the level of well-being of migrants and on the marginal utility of remittances. We approximate the effect of distance from home by partitioning the sample between migrants who moved within and migrants who moved outside the province of origin (where the hukou is registered).¹⁶ Our aim is to compare the estimated effect between these two groups. In a similar fashion, we explore the effect of migration intentions by dividing the sample into two groups: migrants who express the wish to continue staying in the host city for an indefinite amount of time and migrants who do not wish so. Albeit this information is only an approximation of the real migration intentions, it provides insight about how migrants feel about being detached from their home village.¹⁷

The estimates in the first column suggest that most of the impact of remittances is concentrated on the group of migrants who have lived longer away from home. Similarly, estimates by quartiles of YSM show that the effect of remittances increases. Results in the second column suggest that the effect of remittances is large and statistically significant for those who migrated within the home province, but negligible for those who migrated outside the home province. Interestingly, this result holds over the years since first migration: the effect is negative and large (albeit imprecisely estimated) for the recent migrants who have migrated within the province, and it is positive and statistically significant for migrants who have left their home village for longer time and have moved within the province. Based on these results, we conclude that distance from home reduces the positive impact of remittances on well-being: those who migrate far away from home may feel less attached to their hometown and the family left behind.

The estimates in column four and five of Table 5 suggest that there is a positive impact of remittances on well-being for both individuals who wish to live indefinitely in the city and those who do not wish so. Yet, the latter group of immigrants exhibit, on average, an estimate which is much larger than the other group (0.573 vs. 0.307). Expressing the desire of living indefinitely in the city might capture a certain detachment of migrants from their hometown or from the family left behind; for this reason they may not feel as satisfied by remitting as those who plan to return

¹⁶ RUMiC data indicates that 57% percent of migrants moved within the home province.

¹⁷ The exact wording of the question is: “If policy allowed, how long would you like to stay in the city?” Hence, this question relates to a hypothetical scenario of a policy allowing unconditional residence of migrants in the city. The hypothetical nature of the question is due to the fact that, in general, policy does not encourage migrants to reside permanently in urban areas.

back home. Consistent with previous results in this table, the marginal utility of remittances increases with the years since migration.

Table 6: Duration of stay, destination, and migration intentions

	Benchmark model	Migrated within province	Migrated out of province	Does not wish to stay forever	Wishes to stay forever
Remittances (1000 CNY)	0.389 *** (0.135)	0.489 ** (0.204)	0.184 (0.189)	0.573 ** (0.237)	0.307 * (0.166)
Ysm<6	-0.097 (0.240)	-0.376 (0.495)	-0.037 (0.266)	0.293 (0.412)	-0.391 (0.293)
Ysm≥6	0.596 *** (0.167)	0.682 *** (0.244)	0.334 (0.252)	0.711 *** (0.275)	0.574 *** (0.217)
Ysm 0-2	-0.065 (0.346)	-1.425 (0.959)	0.389 (0.397)	0.505 (0.564)	-0.719 (0.471)
Ysm 3-5	-0.094 (0.329)	0.390 (0.521)	-0.430 (0.449)	0.138 (0.606)	-0.149 (0.354)
Ysm 6-10	0.495 ** (0.242)	0.497 (0.341)	0.401 (0.367)	0.842 * (0.458)	0.342 (0.268)
Ysm >10	0.697 *** (0.212)	0.857 *** (0.281)	0.254 (0.335)	0.633 * (0.340)	0.914 *** (0.293)
#Obs	4675	2654	2021	1990	2685

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. The results in the second and third panels are obtained by following the interaction model described in equation (2) with the appropriate number of indicators. Each column represents a partition of the sample.

3.3 Migrants and the family left behind

Remittances: obligation or choice? Remittances consist mostly of intra household transfers. Therefore, their impact on well-being may be very sensitive to the migrant’s family structure and living arrangements, for example, the number of children and elderly, or whether the migrants’ family, or part of it, is left behind in the hometown. Some of these aspects represent peculiarities of today’s China. For example the “filial piety”, i.e., providing care and assistance to parents and elderly members of the family is a very important factor embedded in the Chinese culture (Yue and Ng, 1999). Furthermore, the persistence of the hukou system makes it difficult for migrants to bring along the family in the city, especially young children. As a consequence, the phenomenon of leaving family behind is substantial.

In this section, we examine how our benchmark results are sensitive to the situation of the migrants’ close and extended family. To this end we first identify the place of residence of the household head’s spouse, children aged below 16 and parents. We create indicators describing the following family situations: “Single

no children”, “Migrated with spouse, has no children”, “Migrated with spouse and children”, “Spouse left behind, has no children”, “Migrated with spouse, all children left behind”, and “Spouse and children left behind”. This classification allows us to explore whether the impact of remittances on SWB follows a particular pattern in function of these diverse family situations. As a preliminary step, Table 7 reports the average remittances for the different groups. As expected, the level of remittances increases with the degree of “responsibilities” towards the family left behind in the hometown. For example, a migrant whose spouse is left behind but has no children remits more than a migrant who is single, but less than a migrants whose spouse and children live in the hometown.

Table 7: Family structure and living arrangements: Summary statistics

	Remittance (CNY)	#Obs
Single no children	153.87 (280.79)	2149
Migrated with spouse, has no children	159.19 (364.74)	445
Migrated with spouse and children	129.11 (298.03)	658
Spouse left behind, has no children	251.30 (374.72)	331
Migrated with spouse, all children left behind	303.53 (515.02)	432
Spouse and children left behind	402.03 (578.10)	560
Children and/or spouse left behind	320.97 (506.02)	1455
No children nor spouse left behind	148.49 (294.81)	3220
Only parent(s) in home village	157.20 (293.74)	2473

Source: RUMiC 2008.

In Table 8 we estimate models whereby the remittance variable is interacted with an indicator for each of the migrant family situations outlined Table 8. One would expect that migrants with close family members living in the hometown (e.g., the group “Spouse and children left behind”) should exhibit a higher marginal utility of remittances. Contrary to this conjecture, we find that the well-being of these groups is not significantly affected by remittances. On the other hand, the largest effect is found among those groups who have less family responsibilities (e.g., migrants who are single or who migrate with their spouses but have no children). This result suggests that remittances might be perceived as a strong implicit obligation by migrants with family responsibilities, making them less satisfied when compared to those migrants who remit but have less or no responsibilities. In other words, the latter groups experience higher utility possibly because they have a choice whether

to remit or not. To further corroborate this result, we reclassify migrants into those with more pronounced family responsibilities (i.e., “Spouse and/or children left behind”) and compare them with those migrants without such responsibilities. Yet again, the estimates confirm that remitting is associated with a large effect on SWB only for the latter group, while for those migrants who may feel morally obliged to remit, the coefficient is negligible in size and statistically insignificant.

Table 8: Family structure and living arrangements

<i>Indicator (D)</i>	Single, has no children	Migrated with spouse, has no children	Migrated with spouse and children	Spouse left behind, has no children	Migrated with spouse, all children left behind	Spouse and children left behind	Children and/or spouse left behind
(D = 1)	0.526 * (0.352)	1.402 *** (0.333)	0.362 (1.506)	0.024 (0.436)	-0.131 (0.419)	0.318 (0.236)	0.116 (0.164)
(D = 0)	0.346 ** (0.149)	0.284 ** (0.138)	0.357 ** (0.144)	0.404 *** (0.141)	0.486 *** (0.152)	0.471 *** (0.159)	0.661 *** (0.209)

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. Each column is a separate regression. Results are obtained by estimating the interaction model described in equation (2).

Filial piety In order to provide further insight on the importance of the family left behind, we focus on the role of filial obligations.¹⁸ To this aim, we use an approach similar to the one in Table 8, and construct an indicator which is equal to one if the migrant has only (either or both) parents in their hometown and zero otherwise. This partition of the data allows us to explore whether our SWB approach is capable of providing insights about the role of filial piety. In Table 9 we explore the results for these two groups. In the first column, we report the coefficients of a model where remittances are interacted with the indicator for whether only parents are left behind. In the remaining columns, we test the sensitivity of the results to both the location of migrants and their migration intentions.

The estimates in the first column suggest that the impact of remittances on SWB is larger for migrants with only parental obligations. Interesting results emerge when we consider the importance of distance and of migration intentions. When we focus on migrants who only have parents in the hometown different from what we found in Table 6 – migrants exhibit a larger marginal utility of remittances when they migrated outside their home province compared to those who migrated within. Similarly, migrants who wish to stay forever in the city experience higher utility than those who do not. While on the one hand these results appear in contrast with our estimates for the whole sample in Table 6, they are consistent with the presence of filial obligations. In other words, for those migrants who are more detached from their hometown – because they live faraway from it or because they do not wish to

¹⁸ More than 75% of the migrants report having parents still alive in the hometown. This reflects the fact that the sample of migrants is relatively young.

return to it – remittances have a relatively large impact on SWB suggesting that they only want to help their parents without self-interest.

Table 9: Parents and migration experience

<i>Only parent(s) in hometown</i>	All migrants	Migrated within province	Migrated out of province	Does not wish to stay forever	Wishes to stay forever
(D=1)	0.589 ** (0.240)	0.353 (0.338)	0.723 ** (0.350)	0.461 (0.383)	0.678 ** (0.299)
(D=0)	0.297 * (0.155)	0.575 ** (0.262)	-0.058 (0.217)	0.590 ** (0.286)	0.140 (0.182)

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. Each column is a separate regression using a partition of the data. Results are obtained by estimating the interaction model described in equation (2).

4 The motivations behind remittances: altruism or self-interest?

This section aims at exploring whether our SWB approach can provide insight on the motivations behind remittances. The analysis contained in the previous section suggests that remittances generate utility for migrants. Yet this result might be driven by several reasons behind the remitting behaviour, such as altruism or self-interest (Lucas and Stark, 1985). To understand whether our approach is capable of providing information about which motivation dominates in our sample of migrants, we first provide a brief summary of the theoretical and standard empirical approach used to identify these motivations. We then investigate the reasons behind remittances using the standard approach employed in the literature and compare it with the results of our SWB approach.

Theory and empirical approaches There has been a long debate in the literature regarding the motivations behind remittances. Two major determinants have been theorised: *altruism* and the presence of *implicit contracts* between the migrant and the family left behind (also referred to as *quid pro quo* motivation). The empirical evidence on which motivation dominates is rather mixed, and suggests that both altruistic and contractual motives are at work (e.g., Becker, 1974; Stark and Levhari, 1982; Lucas and Stark, 1985; Vanwey, 2004; Cox et al., 2004; Brown and Jimenez, 2011; Gubert, 2002; Secondi, 1997).

The most common approach to identify the reasons behind the remitting behaviour is to analyse the relationship between remittances and the income of the

family back home (before remittances). In “pure” altruistic models, it is assumed that the only objective of the migrant is to support individuals left behind. Therefore, the poorer the family back home, the more the migrants would like to remit. These models hence predict that the remittances levels increase as the income of the family back home decreases (Becker, 1974; Lucas and Stark, 1985).¹⁹ On the other hand, under the contractual hypothesis, the migrant remits money in order to comply with an implicit contract with the family back home. In practice, remittances are the price that the migrants pay in exchange of certain contractual services such as co-insurance, inheritance, future investments, children’s care, or the “right” to return back home. The price of these services is an increasing function of the wealth level of individuals left behind; thus contractual models predict that remittances increase as the income of the family back home increases (Kotlikoff and Spivak, 1981; Kimball, 1988; Lucas and Stark, 1985; Coate and Ravallion, 1993).

There is still no consensus in the literature about which motivation is the dominant one, and the empirical evidence is quite mixed (Agarwal and Horowitz, 2002; Vanwey, 2004; Lucas and Stark, 1985; Secondi, 1997). Such mixed evidence inspired the “mixed motives model” developed by Cox et al. (2004). The rationale is that altruism is typical of those households who have an income below a certain subsistence threshold, while the contractual motivation is likely to be at work among those households whose income is above a certain threshold (Agarwal and Horowitz, 2002; Brown and Jimenez, 2011; Cox and Fafchamps, 2007; Amuedo-Dorantes and Pozo, 2006). More recently, studies have explored this research question in the context of China. The main result of these studies suggest that the motivation behind remittances in China is mixed, since altruism alone is not capable of explaining their remittance behavior (e.g., Secondi, 1997; Ma, 2001; Murphy, 2002; Bai and He, 2002; Feng and Heerink, 2008; Snyder and Chern, 2008).

SWB and motivations behind remittances As a preliminary check to identify which motivation dominates in our sample, we investigate – as in the standard approach – the relationship between the income (before remittances) of the family left behind and the level of remittances. One of the obstacles for rigorously testing this hypothesis is that our data do not provide a direct measure for the income of the individuals left behind. With this caveat in mind, we use proxy variables which provide insights about the income level of the family left behind. Our preferred proxy is obtained by a question where migrants are asked to provide an estimate of the average unskilled daily wage in their rural home village.²⁰

¹⁹ Becker (1974) model of altruistic remittances assumes “pure” altruism. However, there are other forms of altruism which have been identified in the literature. One example is the “warm glow” altruism suggested by Andreoni (1989).

²⁰ Another key variable that would have been useful for the analysis is the actual level of SWB of the family members left behind. Unfortunately this is not available in our data.

We then estimate a tobit regression of remittances on a full set of covariates (in line with the specification in Table A1 in the Appendix) and including also indicators for each quartile of the distribution of our proxy variable for the income of the rural household. In Figure 2 we report the coefficients which pertain to the income quartiles of the family left behind. These coefficients are measured in the left y-axis (the third quartile is set as the reference group). Following Cox et al. (2004) and Brown and Jimenez (2011), the simple relationship between remittances and the income of the family left behind can be used as an intuitive way to identify between altruistic and contractual motivations. Our graph reveals the presence of a U-shaped pattern between remittances and the proxy for the income of the family left behind. This suggests that migrants remit more when the family back home is poor (implying the existence of altruistic motivations), but also when family back home is rich (implying the existence of contractual obligations). When the average income of the left behind family is close to the median, the level of remittances is the lowest.

The preliminary results above confirm previous empirical findings of studies on China, that is, that both motivations are at work (Secondi, 1997; Snyder and Chern, 2008). These results encourage us to explore whether such motivations transpire also when our SWB approach is used. To this aim, we estimate a regression model using SWB as dependent variable, and where we interact the level of remittances with the indicators for the income quartiles. We also report the results in Figure 2, where the coefficients for the interaction variables are measured in the right y-axis. The pattern of estimates of the SWB regression is strikingly similar to the one discussed above, i.e., the effect of remittances on well-being is stronger at both high and low levels of the income of the family left behind. These results suggest that well-being is higher both among those migrants who support family members in need and among those who are paying for the price of implicit contractual arrangements. In Figure 3, we replicate this analysis by using per capita remittances: the pattern of the two curves is even more similar than the one presented in Figure 2. Another important aspect that emerges is that the turning point of both curves in the graph is located in correspondence of the third quartile of the income distribution. This leads us to conclude that in our sample, the altruistic motivation dominates the contractual motivation.

We further investigate the effectiveness of our approach to capture the motivation behind remittances by exploring the patterns of the results when information about the income of migrants is added. In Table 10 we estimate a SWB model in line with those used to construct the graphs, with the only difference – for sake of simplicity – that we have a indicator for the median income (instead of quartiles) of the family back home. In the first column, we present the estimates for all migrants; in the remaining two columns we partition the sample into migrants whose income is

Figure 2: Level of remittances, SWB and income of the family left behind

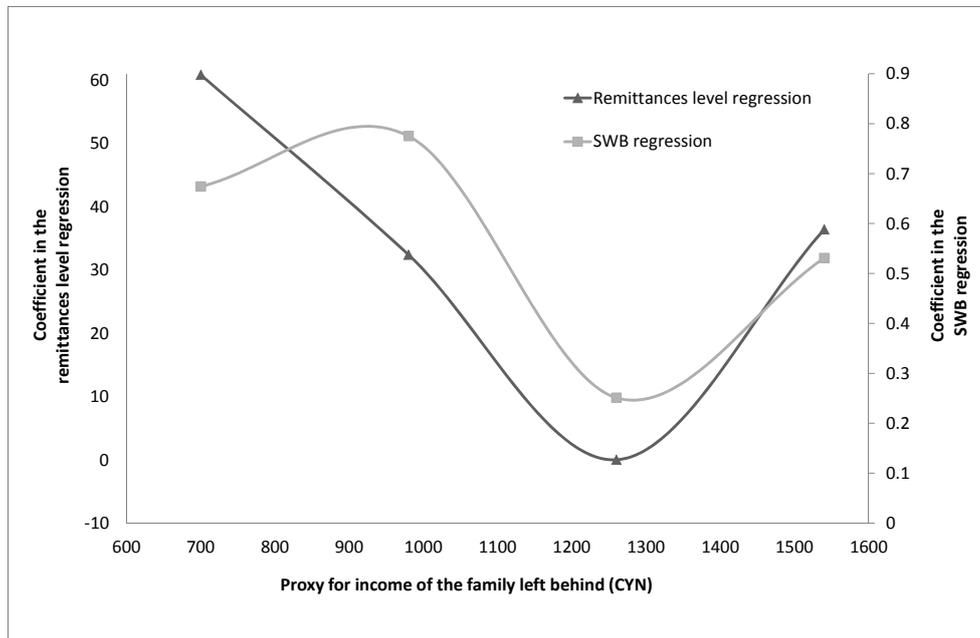
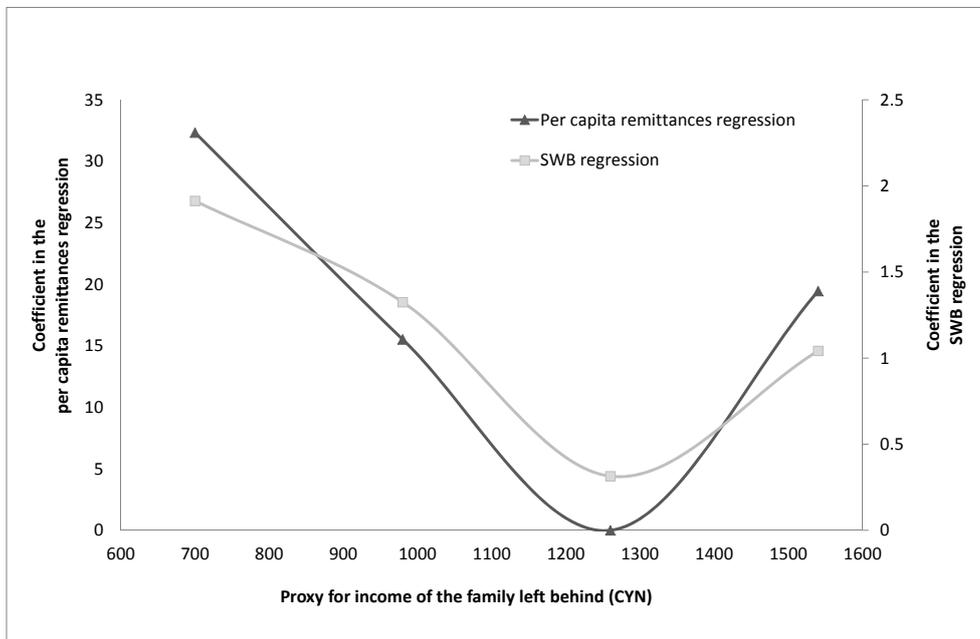


Figure 3: Per capita remittances, SWB and income of the family left behind



Source: RUMiC 2008. Points from the per capita remittances regression show the marginal remittances level increase with respect to income quartiles of the family left behind (with the 3rd quartile as reference group). Points from the SWB regression capture the marginal utility of remittances for the given income quartile of the family left behind, obtained by estimating the interaction model described in equation (2) with four income indicators.

above and below the median. The rationale is to investigate how the patterns of our estimates changes in relation to the finding presented in Table 5. The coefficients in column 1 confirm the visual pattern of the graphs: both altruism and contractual obligations are at work. Yet the former motivation seems to prevail, as documented by the larger coefficient. The results from the last two columns suggest that poorer migrants (those who were found to have a larger effect in Table 5) remitting to richer families are better off than poorer migrants remitting to poorer families. This suggests the presence of strong contractual motivations for this group. On the other hand, richer migrants exhibit the opposite pattern suggesting altruistic motivations.²¹

Table 10: Motivation behind remittances

<i>Migrant's income</i>			
<i>Rural family's income</i>	All migrants	Below median	Above median
Above median (D=1)	0.338 ** (0.152)	0.907 * (0.505)	0.259 (0.161)
Bellow median (D=0)	0.629 ** (0.260)	0.373 (0.505)	0.693 ** (0.318)
# Obs.	4522	2284	2238

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. Each column is a separate regression using a partition of the data. Results are obtained by estimating the interaction model described in equation (2).

In light of the interesting results in the previous table, we explore the motivations behind remitting for some of the key findings in the previous section. This entails that we add one more dimension to the previous analysis. In Table 11 we investigate the patterns along several characteristic of the migrants, such as gender, migration experience and family responsibilities. Each estimate corresponds to the three-way interaction term between remittances, the migrants' income indicator and the indicator for each of the aforementioned characteristics. In line with Table 10, we report estimates for all migrants and then separately for rich and poor migrants.

Migrant characteristics and motivations One important question in the remittances literature is to understand whether motivations behind remittances vary

²¹ We also use two alternative measures to proxy the income of the individuals left behind. One is derived from a question on the economic background of migrants' parents as reported by the respondent (extremely poor, moderately poor, moderately rich and rich). The second is derived by matching through a propensity-score approach the main socio-economic characteristics of the sample of migrants in the MHS with the same characteristics of the sample of migrants who are part of the RHS. Information on current migrants in the RHS is obtained by relying on the data provided by the respondents who are present during the interview (in general the household head or his/her spouse). These measures produce similar results to those in Table 10.

by gender (Vanwey, 2004). The results in the top left panel of Table 11 suggest that females who remit to richer families are better off, while those who remit to poorer families exhibit a negative, albeit statistically insignificant, estimate. Males who remit to poorer families exhibit higher well-being.

The analysis by years since migration reveals that migrants who have recently left home appear to experience disutility by sending money back home, especially the group of poorer migrants who remit money to poorer families. On the other hand, for those migrants who have migrated for longer time, the impact of remittances is relatively large irrespectively of the economic situation of the family left behind. When we consider migrants who are more attached to their hometown, we find that the altruistic motivation is particularly strong.

As an illustration of strong familial responsibility, we explore the results for the group of migrants whose children are left behind. The magnitude of the coefficients for this group reveals an altruistic pattern.²² This can be confirmed by observing that for those migrants without obligations, the pattern of the estimates is similar to the one in Table 10, but with a stronger effect. The final factor that we explore is related to the presence of filial piety. Estimates in the last panel of Table 11 reveal a relatively large effect for those migrants who have only parents left behind in the village, suggesting that filial piety might be behind these strong altruistic motivations. Yet again, for the group of poorer migrants, self-interest motivations are prominent.

Table 12 reports the results using various other attributes which might influence the motivations behind remittances. The variables that we consider allow us to provide insights about more specific reasons why migrants send money back home. For example, in the top left part of the table, we explore the significance of the reasons of migration. This is done by deriving two indicators from the question “Why did you leave your rural hometown?”. The first is obtained from those migrants who replied “Too poor at home, want to assist with family expenditure” and the second from those who answered “No future in hometown, didn’t like rural life style”. In line with the previous analyses, we estimate a model where we interact each indicator with the level of remittances. Our expectation is that the estimates for the migrants who moved to economically assist the family should follow an altruistic pattern; on the other hand, the results for those individuals who are dissatisfied with life in rural areas should be more consistent with self-interest motivations. The pattern of the estimates corroborates our expectations.

Another set of results in the table explores the role of the help that parents provide to the migrant during the year. Migrants who report having received financial or psychological support or assistance with daily affairs report a stronger marginal

²² In the previous section we showed that for those migrants with stronger responsibilities, the impact of remittances is negligible and statistically insignificant.

Table 11: Remitting motivations and migrants' characteristics

	<i>Income of family left behind</i>		<i>Migrant's income</i>		<i>Income of family left behind</i>		<i>Migrant's income</i>	
	All	Below median	Above median	All	Below median	Above median	All	Below median
<i>Female</i> (D=1)	1.2740*** (0.461)	2.2290** (1.005)	1.0150* (0.542)	-0.0510 (0.257)	0.6340 (0.829)	-0.0070 (0.288)	-0.0510 (0.257)	0.6340 (0.829)
	-0.502 (0.634)	-0.377 (0.946)	-0.396 (0.887)	-0.038 (0.479)	-1.212* (0.725)	0.818 (0.642)	-0.038 (0.479)	-1.212* (0.725)
	0.249 (0.154)	0.645 (0.536)	0.195 (0.163)	0.501*** (0.187)	1.075* (0.601)	0.365* (0.193)	0.501*** (0.187)	1.075* (0.601)
(D=0)	0.823*** (0.270)	0.621 (0.563)	0.820** (0.324)	0.933*** (0.288)	1.435** (0.634)	0.655** (0.329)	0.933*** (0.288)	1.435** (0.634)
<i>Wishes to stay forever</i> (D=1)	0.282 (0.183)	0.989 (0.617)	0.217 (0.197)	0.364 (0.222)	0.303 (0.743)	0.406* (0.232)	0.364 (0.222)	0.303 (0.743)
	0.544* (0.304)	0.76 (0.674)	0.461 (0.342)	0.938*** (0.335)	0.342 (0.620)	1.208*** (0.411)	0.938*** (0.335)	0.342 (0.620)
	0.429* (0.243)	0.839 (0.706)	0.333 (0.261)	0.309 (0.199)	1.493*** (0.543)	0.120 (0.227)	0.309 (0.199)	1.493*** (0.543)
(D=0)	0.746* (0.416)	-0.090 (0.668)	1.047* (0.539)	0.305 (0.366)	0.449 (0.771)	0.225 (0.436)	0.305 (0.366)	0.449 (0.771)
<i>Has children back home</i> (D=1)	0.056 (0.190)	0.519 (0.818)	0.002 (0.202)	0.497* (0.268)	1.782** (0.818)	0.387 (0.293)	0.497* (0.268)	1.782** (0.818)
	0.441 (0.332)	1.074 (0.835)	0.285 (0.380)	0.929** (0.457)	0.072 (0.852)	1.240** (0.556)	0.929** (0.457)	0.072 (0.852)
	0.606*** (0.211)	1.097** (0.550)	0.543** (0.230)	0.264 (0.171)	0.605 (0.554)	0.182 (0.180)	0.264 (0.171)	0.605 (0.554)
(D=0)	0.742** (0.379)	-0.181 (0.606)	1.292** (0.501)	0.481 (0.295)	0.516 (0.581)	0.442 (0.362)	0.481 (0.295)	0.516 (0.581)

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. Results are obtained by estimating a double interaction model with the same approach of the model described in equation (2).

Table 12: Remitting motivations: altruism, reciprocity, investment and co-insurance

	(D=1)	(D=0)	(D=1)	(D=0)
Reason for migration: No future in home town, don't like rural life style	0.222 (0.220)	0.447 *** (0.166)	Reason for migration: Too poor at home, want to assist with family expenditures	0.589 ** (0.281)
Parents assisted financially last year	0.530 (0.359)	0.368 *** (0.143)	Has a sick parent back home	0.808 *** (0.234)
Parents assisted psychologically	0.611 *** (0.215)	0.242 (0.158)	Migrant has a property in home village	0.417 *** (0.139)
Parents assisted with daily affairs	0.739 ** (0.340)	0.344 ** (0.146)	Migrant medical expenses above median	0.456 ** (0.187)
No help from parents	-0.317 (0.153)	0.540 *** (0.312)	Has no insurance (i.e. unemployment, injury or pension)	0.575 *** (0.265)

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. All results are obtained by estimating the interaction model described in equation (2).

utility of remittances. This pattern is consistent with the presence of reciprocity as motivation to remit. This is corroborated by the finding that those migrants who did not receive help from their parents report a disutility from remitting, albeit the coefficient is not statistically significant at the conventional levels.

The effect of remittances on well-being is higher also for those migrants who report having a property in the home village. One potential interpretation is that investment motivations are behind the remittances: the migrant is better off sending money as this is used to look after his or her property.

Co-insurance motivations transpire when we analyse individuals with above median health expenditure. Individuals who spend relatively more on health – arguably the less healthy, at least in the context of rural China – report a higher marginal utility of remittances. This might reflect the fact that remitting money is perceived by these migrants as a form of co-insurance, in that they expect the members of the family left behind to take care of them upon return.²³ This result is confirmed when focusing on migrants who report not having any form of insurance (i.e., pension, employment or health). Since these individuals need to be hedged against various risks (e.g., losing a job), remitting money is associated with higher well-being since the family back home is perceived as a safety net in case of adverse events.

5 Summary and conclusion

This paper has two objectives. First we examine the impact of remittances on the subjective well-being of migrants in China. Second, we document that subjective well-being can be used to obtain new insights about the motivations underlying remitting behavior. Our methodology is based on estimating well-being regression models using remittances as one of the regressors. Our results indicate that migrants experience welfare gains by remitting. These results are robust to model specifications and the presence of individual and regional unobserved heterogeneity. Furthermore, we investigate the role of the migration experience. We find that the impact of remittances is significant only for those migrants who moved within the province and for those who would like to eventually return back home, aspects which capture both physical and psychological proximity to the family left behind.

Significant differences emerge when we examine the role of family arrangements. Our estimates suggest that migrants with family responsibilities are not as satisfied by remitting as those without such obligations. This suggests that implicit obligations to remit reduce the positive effect of remittance on well-being. We also find evidence that filial obligations appear stronger among those who are more detached from their families left behind.

²³ A very similar pattern emerges when we use indicators for health status.

In order to explore the motivations behind the remittance behaviour we study the relationship between subjective well-being and remittances in function of the income of family left behind. We find evidence that both altruistic and contractual motivations are at work in our sample, albeit our estimates suggest that the former motivation is the dominant one. In addition, our method allows us to further explore how these motivations vary as a function of the migration experience and the family obligations.

To the best of our knowledge, this study is the first attempt to use self-reported well-being to estimate the impact of remittances on migrants' utility and to elicit their motivations to remit. Understanding the welfare impact of remittances is of great importance, especially in countries such as China, where the size of the migration phenomenon has reached gigantic proportions. Our findings may have several policy implications. First, the well being of migrants can be enhanced by facilitating remittances. Second, the finding that money transfers are not entirely motivated by altruistic reasons implies – in line with evidence from previous research – that private transfers might not be crowded-out by public transfers.

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Appendix

Table A1: Summary statistics

	All		Remitters		Non-remitters	
	mean	s.d.	mean	s.d.	mean	s.d.
<i>Socio-demographic</i>						
SWB	28.47	(4.41)	28.53	(4.28)	28.39	(4.59)
Age	30.32	(10.07)	30.59	(9.68)	29.95	(10.58)
Female (d)	0.30	(0.46)	0.30	(0.46)	0.32	(0.47)
Married (d)	0.53	(0.50)	0.57	(0.50)	0.48	(0.50)
Divorce/ widowed (d)	0.02	(0.14)	0.02	(0.13)	0.02	(0.14)
Number of children	0.75	(0.88)	0.79	(0.87)	0.70	(0.89)
Has parents in home village (d)	0.78	(0.42)	0.82	(0.39)	0.73	(0.45)
Years of education	9.29	(2.39)	9.22	(2.41)	9.39	(2.37)
<i>Employment</i>						
Unemployment insurance (d)	0.12	(0.33)	0.12	(0.32)	0.14	(0.34)
Pension insurance (d)	0.20	(0.40)	0.20	(0.40)	0.20	(0.40)
Injury Insurance (d)	0.20	(0.40)	0.20	(0.40)	0.19	(0.39)
Years in current employment	3.52	(4.22)	3.64	(4.31)	3.35	(4.10)
Log working hrs.	4.10	(0.27)	4.11	(0.27)	4.10	(0.27)
Self employed (d)	0.20	(0.40)	0.19	(0.39)	0.22	(0.41)
Labour income (CYN)	1648.48	(1255.72)	1653.36	(1155.73)	1641.65	(1383.78)
Other household income (CYN)	513.38	(1136.66)	522.36	(1190.93)	500.81	(1056.27)
<i>Migration experience</i>						
Months out of home village in 2007	10.94	(2.26)	10.99	(2.15)	10.87	(2.41)
Years since 1 st migration	7.74	(6.40)	8.18	(6.35)	7.13	(6.43)
Migrants within home province (d)	0.57	(0.50)	0.57	(0.49)	0.56	(0.50)
Plans to stay forever (d)	0.57	(0.49)	0.58	(0.49)	0.57	(0.50)
Sends remittances (d)	0.58	(0.49)	1.00	(0.00)		
(I) Remittance (CNY)	202.17	(381.96)	346.72	(447.33)		
(II) Per capt. remittances (w.r.t rural family)	93.66	(186.46)	160.63	(221.08)		
(III) Remittance as % of household income	0.11	(0.18)	0.19	(0.21)		
#Observation	4675		2726		1949	

Source: RUMiC 2008. SWB refers to the GHQ-12 index described in the text, and ranges from 0 (lowest value) to 36 (highest value). (I) Remittances are constructed using information on the amount of money and commodities remitted back to the home village. (II) Per capita remittances are calculated by dividing the total amount of remittances by the number of members of the migrants' family in the home village using the modified OECD equivalence scale: $Remittances\ per\ capt. = \frac{Remittances(1000CYN)}{1+0.5*(\#adults)+0.3*(\#children)}$. Note we only observe spouse, children, and parents and parents in law. (III) Remittances as % of household income is constructed by dividing the total amount of remittances by the total income of the migrants' household.

Table A2: Benchmark regressions

<i>Depende variable:</i>	SWB		Remittances (CYN)	
	Not controlling remittances	Controlling remittances	All	Only remitters
Remittance (1000 CNY)		0.389 *** (0.135)		
Age	-0.001 (0.051)	-0.001 (0.051)	9.375 (7.176)	-2.288 (5.391)
Age sq.	0.004 (0.069)	0.005 (0.069)	-16.391 * (9.657)	1.664 (7.127)
Female (d)	-0.514 *** (0.195)	-0.506 *** (0.195)	-29.455 (27.290)	-21.827 (21.759)
Good health (d)	ref.	ref.	ref.	ref.
Average health (d)	-1.786 *** (0.132)	-1.790 *** (0.132)	5.450 (18.915)	7.897 (17.673)
Bad health (d)	-3.275 *** (0.199)	-3.287 *** (0.199)	54.118 ** (25.908)	22.137 (24.889)
Married (d)	0.626 ** (0.278)	0.613 ** (0.278)	50.719 (39.277)	44.307 (32.409)
Divorced/Widowed (d)	-1.228 ** (0.572)	-1.215 ** (0.572)	-79.991 (71.604)	3.822 (54.927)
Has no children age ≤ 16 (d)	ref.	ref.	ref.	ref.
Has a child age ≤ 16 (d)	-0.134 (0.249)	-0.153 (0.248)	78.053 ** (35.152)	51.662 (33.162)
Has 2 or more children age ≤ 16 (d)	0.209 (0.320)	0.166 (0.320)	123.533 *** (44.342)	146.327 *** (49.187)
Has no adult children (d)	ref.	ref.	ref.	ref.
Has an adult children (d)	-0.075 (0.307)	-0.087 (0.307)	14.179 (42.376)	71.831 * (42.468)
Has 2 or more adult children (d)	0.428 (0.402)	0.401 (0.402)	95.784 * (57.483)	72.977 (54.383)
Years since 1 st migration	-0.058 * (0.034)	-0.061 * (0.034)	18.828 *** (4.692)	6.829 (5.302)
Years since 1 st migration sq.	0.002 * (0.001)	0.002 * (0.001)	-0.552 *** (0.171)	-0.197 (0.222)
Migrated within home province (d)	0.188 (0.218)	0.195 (0.217)	-17.453 (32.355)	-12.383 (43.321)
Years of education	0.165 *** (0.030)	0.165 *** (0.030)	-0.017 (4.031)	2.549 (3.552)
Log working hrs.	-1.084 *** (0.281)	-1.086 *** (0.281)	28.337 (37.623)	20.747 (39.941)
Years in current employment	0.008 (0.017)	0.008 (0.017)	1.244 (2.378)	0.140 (2.878)
Long employment contract (d)	0.434 *** (0.145)	0.434 *** (0.145)	4.011 (20.515)	0.955 (18.291)
Self-employed (d)	0.484 ** (0.206)	0.534 *** (0.206)	-198.571 *** (28.210)	-180.030 *** (28.871)
Unemployment insurance (d)	0.570 ** (0.248)	0.586 ** (0.249)	-87.599 ** (38.392)	-25.525 (33.172)
Pension insurance (d)	-0.602 *** (0.223)	-0.583 *** (0.223)	-66.460 ** (33.476)	-64.401 ** (31.769)
Injury insurance (d)	0.728 *** (0.218)	0.701 *** (0.218)	109.047 *** (32.405)	62.717 ** (30.986)
labour income (1000 CYN)	0.140 *** (0.047)	0.115 ** (0.047)	80.935 *** (7.305)	120.296 *** (25.021)
Other household income (1000 CYN)	0.102 * (0.054)	0.104 ** (0.053)	-7.100 (7.898)	-2.624 (8.543)
Constant	31.923 *** (2.779)	31.979 *** (2.776)	-405.169 (387.033)	-461.007 (368.799)
Sigma constant			525.571 *** (7.562)	
R^2	0.172	0.173		0.168
#Obs.	4675	4675	4675	2726

Source: RUMiC 2008. */**/** indicate significance at the 10%/5%/1% level. Third column is a censored tobit, all others are OLS regressions. (d) refers to dummy variables. All regressions include additional controls regarding rural village characteristics not reported due to limited space.