

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

Alpaslan Akay [§]

Corrado Giulietti [†]

Juan D. Robalino [†]

Klaus F. Zimmermann ^{*}

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Abstract

The main objective of this paper is to propose a systematic approach to empirically analyse the relationship between sending remittances and the utility of migrants, as proxied by their subjective well-being (SWB). Using data from a new survey on China, we estimate models in which a SWB measure is regressed on the level of remittances, finding a sizeable positive correlation. The estimates vary with the socio-economic characteristics of migrants, migration experience and the diversity of family arrangements. As a complementary objective, we use SWB measures to elicit the motivations behind remittances, finding evidence that both altruistic and contractual motivations are at work among rural-to-urban migrants in China.

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

JEL Classification : J61, D64, I3

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[§]IZA – Institute for the Study of Labor, P.O. Box 7240, 53072 Bonn, Germany and University of Gothenburg – Akay@iza.org

[†]IZA – Institute for the Study of Labor, P.O. Box 7240, 53072 Bonn, Germany – Giulietti@iza.org

[†]Cornell University - Department of Economics, Ithaca N.Y. 14853, USA – jr872@cornell.edu

^{*}IZA – Institute for the Study of Labor, P.O. Box 7240, 53072 Bonn, Germany and University of Bonn – Zimmermann@iza.org

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 for China show that nearly US\$30 billions were transferred from urban to rural areas in 2005 (Gong et al., 2008). However, no research has explored whether and how sending money back home relates to the well-being of migrants. Given that remittances often constitute a large share of migrants' earned income, it is expected that their utility is substantially affected. For instance, migrants may experience a loss in welfare caused by the reduction in their own disposable income. However, at the same time, migrants' welfare may be positively influenced by transferring money to the family left behind, as this contributes towards improving the welfare of individuals for whom they care.

The principal aim of this paper is to propose a systematic approach to empirically analyse the relationship between sending remittances and the utility of migrants, as proxied by their subjective well-being (SWB). The key feature of our approach is that it allows the capturing of the overall role of remittances on migrants' well-being, i.e., including both "monetary" and "non monetary" aspects of sending remittances. Research on SWB has increased substantially in the past few years, resulting in new insights into economic phenomena that are difficult to capture when using a standard neoclassic economic approach (see the surveys in Frey and Stutzer, 2002; Ferrer-i-Carbonell and Van Praag, 2003; Dolan et al., 2008).¹ Our paper contributes to this literature by documenting the existence of an important relationship between remittances and migrants' well-being. To the best of our knowledge, there is no study that provides empirical evidence about such a nexus.²

After having established the existence of a relationship between SWB and remittances, we explore how such relationship provides insight into the motivations behind sending remittances.³ The literature has long been interested in identifying whether remittances are motivated by altruistic reasons or by the existence of implicit contracts (see Rapoport and Docquier, 2006 for an overview). No consensus has been reached concerning which motivation dominates, with a number of studies arguing that both altruistic

¹ Among the major findings documented are the relatively large disutility from being unemployed (Clark and Oswald, 1994; Winkelmann and Winkelmann, 1998; Clark, 2003); that age and SWB exhibit a U-shaped relationship (Blanchflower and Oswald, 2004); that married people have higher SWB than those unmarried (Clark and Oswald, 2002); and that both absolute and relative income affect SWB (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 from the household. Another strand of the literature somewhat related to our approach focuses on monetary donations and SWB (Dunn et al., 2008; Konow, 2010; Tsai and Dzorgbo, 2012).

³ From a policy perspective, 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).

and contractual motives might be at work (see, e.g., Lucas and Stark, 1985; Cox et al., 2004). We build upon such literature and elicit whether altruistic or contractual motivations prevail by testing how the relationship between SWB and remittances varies in function of the economic conditions of the family left behind in the village. A stronger positive relationship between remittances and SWB in correspondence of low levels of the income of the family back home would suggest the presence of altruistic motivations; a stronger relationship at higher levels of the income of the family left behind could on the other hand suggest that contractual motives are at work.

Exploring the relationship between sending remittances and the well-being of migrants is particularly relevant in the context of China, given that it has experienced a massive migration of workers from rural to urban areas in recent decades. The most recent estimates from the 2010 census suggest that over 220 million people left their rural residence for over 6 months (National Bureau of Statistics of China, 2010). Given the presence of restrictions related to household registration regulations (hukou), the spouse and children of many migrants often have to remain in the village. Consequently, and also due to the low level of social security in rural areas, remittances are vital for sustaining the family members left behind. Due to their increasing numbers in urban areas, the welfare of migrants is becoming an important agenda item for central and local policy makers in China.⁴ In addition, there are unique aspects of Chinese culture, such as a strong moral obligation to care for parents and the elderly, embodied in the Chinese traditional virtue of “xiao” (filial piety). Arguably, this is an important driver of remittances flows in China (Yue and Ng, 1999).

Our analysis is based on the Rural to Urban Migration in China (RUMiC), which collects data on migrants in major urban destinations. The methodology consists on estimating models in which a measure of SWB is regressed on the level of remittances. We document the existence of a sizeable positive correlation between sending remittances and migrants’ well-being, which we refer to as the marginal utility of remittances. The relationship between remittances and well-being varies along socio-economic characteristics of migrants and their migration experience. This relationship is also found to be a function of diverse family arrangements. The well-being of migrants with strong implicit family responsibilities (e.g., migrants whose spouse or children are left behind) exhibits a weak relationship with sending remittances. On the other

⁴According to hukou regulations, migrants are generally allowed to reside in a city as long as they are employed or up to six months after unemployment. During the 1990s, the hukou regulations were partially reformed. Since then, migrants who attain certain levels of education or income, have been allowed to obtain urban hukou. More recently, migrants have been allowed partial access to public medical insurance in urban areas. However, the persistence of hukou regulations still implies that welfare is accessible mostly at the place of residence. Hence migrants are not eligible to access benefits such as public housing and pensions schemes, and furthermore they are often employed in low-wage occupations.

hand, a much stronger positive correlation is found among those migrants with fewer responsibilities; in other words, migrants whose choice to remit is less constrained (e.g., single migrants with no children). With regards to filial obligations, we find that migrants who are more detached from their family back home experience relatively higher well-being when sending remittances. When exploring the reasons behind remittances, we find support for both altruistic and contractual motivations being at work, albeit with altruism being the dominant motivation.

The remainder 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, while Section 5 provides concluding remarks.

2 Data and empirical strategy

2.1 Data and description of the sample

The Rural Urban Migration in China (RUMiC) dataset used in the analysis relies on a survey in China conducted since 2008 which comprises of three parts: the Urban Household Survey (UHS), the Rural Household Survey (RHS), and the Migrant Household Survey (MHS). For the purposes of our analysis we use data from the first wave of the MHS.⁵

The data covers rural-to-urban migrants randomly sampled from 15 of the major urban destinations in China, providing an accurate representation of the migrant population, including temporary workers (see Kong, 2010 for a description and discussion of the methodological aspects of the data).

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, i.e., he or she possesses a rural household registration (rural hukou). We restrict our analysis to household heads who are employed and only select cases with complete information.⁶ Consequently, this yields a final sample of

⁵Although more recent waves of RUMiC are available, our analysis focuses on the first wave, as this collects information of the period preceding the financial crisis that started at the end of the 2000s. The ability of the survey to track migrants over time was hindered by the financial crisis. As of the end of 2008, around 23 million migrants had returned to their home village, the majority jobless and in need of new employment (National Bureau of Statistics of China, 2010). Furthermore, the crisis might have temporarily distorted the remittance behaviour after 2008. Accordingly, our analysis focuses on a less recent, yet more representative period.

⁶In our analysis we focus on household heads assuming that they are the “breadwinners”, and those who ultimately decide the amount to remit to the family back home. We prefer to restrict our sample to household heads principally because we do not have information on how the income is pooled between household members, nor do we have further information concerning intra-household bargaining power. For completeness, we have extended our analysis to other members of the household, obtaining very similar results to our benchmark. We also exclude unemployed individuals because most internal migrants in China are migrant workers. Our sample shows that virtually all migrants (99.5%) are employed, owing to few migrants

4,675 household heads. We extract information on socio-demographic and economic characteristics of the migrants, their family arrangements, migration history and migration intentions, and how much money is remitted back home.

2.2 The measure of well-being

The literature has explored various proxies of SWB, which are generally based on “happiness”, “life-satisfaction” or “mental health” measures (Frey and Stutzer, 2002). The MHS includes the 12 standard questions of the General Health Questionnaire (GHQ) on mental health, a measure of SWB widely employed in the economics and psychology literature (e.g., Clark and Oswald, 1994, 2002), whereby each question allows responses with scores from 0 to 3. In order to obtain a measure for SWB, we added the scores of the 12 GHQ questions and derive a SWB index ranging from 0 to 36. Usually referred to as the GHQ-12, this index can be used to proxy for the latent experienced individual utility (or “psychological distress”, as argued by Argyle, 1987). Hence, low levels of the GHQ-12 index indicate “mental stress” or low well-being, while high levels correspond to relatively higher well-being. The distribution of the GHQ-12 index is left-skewed, with only few migrants reporting extreme low levels of well-being. This pattern is in line with that reported in previous studies using other well-being measures (see Clark and Oswald, 1994 and Winkelmann and Winkelmann, 1998).

2.3 Summary statistics

Table 1 reports summary statistics of selected variables for both the whole sample and 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). Women are somewhat under-represented, due to the fact that men are more likely to be the household head in our sample. Migrants form a young group (with an average age just above 30) 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 fewer 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

⁷Migrants 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 fewer than one child mainly reflects that they are relatively young and that half of them are unmarried.

Chinese Yuan (CYN).

The table also reports statistics concerning the SWB and three measures of remittances. An interesting aspect is that there are no appreciable differences in the average level of well-being between remitters and non-remitters. Nearly 60% of the migrants send money back home, with an average flow of 200 CYN per month, and 350 CYN per month if only remitters are considered. We also consider two alternative measures of remittances, the first of which is per capita remittances. To construct this variable, we divide the amount of remittances by the number of family members left behind in the village, using the weights suggested by the OECD equivalence scale. This measure acknowledges that the utility drawn by the migrants from sending remittances depends on the number of effective recipients. The second alternative measure is the percentage of remittances out of the migrant's household income, which accounts for the fact that wealthier migrants might remit higher amounts. Our data shows that remitters send on average 19% of their income back to their home village.

2.4 Empirical strategy

In this section, we outline the econometric model that we employ in order to estimate the relationship between remittances and migrants' well-being. Due to the SWB index being measured in an ordinal scale, the appropriate model specification would be an Ordered Probit model. However, our preferred specification throughout the analysis is a linear regression model. The interpretation and comparison of the coefficients from linear regression models are substantially simpler than within an Ordered Probit model, and estimates of the two specifications have been found to be qualitatively similar (Ferrer-i-Carbonell and Frijters, 2004). Furthermore, our SWB measure ranges from 0 to 36 and it is hence closer to a continuous measure, which also reinforces the suitability of a linear specification. The baseline specification is given by the following regression model:

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

where SWB 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 also included). The term y represents the household income and β captures the marginal utility of income. The key variable is the remittances level r . Therefore we are interested in the estimate

of the parameter γ , which reveals how SWB varies as a function of the remittances – or the *marginal utility of sending remittances*. Finally, p_m and p_h are indicator variables for the provinces where the migrants live and come from, respectively, while ϵ is the error term.

As part of the analysis, we also estimate models in which remittances are interacted with indicators representing selected characteristics of migrants (such as gender, education, years since migration, etc.). The specification we estimated in such cases builds upon that above:

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

where D 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 sending remittances.

It is important to emphasise that our results could be affected by endogeneity issues, such as reverse causality. Migrants' behaviour contributes to their well-being, but by the same nature of well-being, feeling better is also likely to affect migrants' behaviour. Accordingly, this implies that the level of remittances might be influenced by the well-being of migrants. For the same reason, reverse causality is possibly at work between well-being and many other variables, such as income, health and marital status (Lyubomirsky et al., 2005; Stutzer and Frey, 2006; Gardner and Oswald, 2007; Powdthavee, 2010). Ideally equation (2) should be estimated using a two-step procedure in which the level of remittances is modelled in the first stage. This procedure requires an instrumental variable that only affects SWB through remittances. However, given the nature of well-being, identifying a variable that would affect remittances yet not the feeling of individuals is somewhat problematic.

A few studies on well-being suggest that causality goes from income to well-being (Luttmer, 2005; Powdthavee, 2010; Pischke, 2011). While the results of this literature cannot be fully generalised to the case of remittances, we think that they offer insightful suggestions that the role of reverse causality may be limited, even in our case. In our estimations, we carefully control for several confounding factors – especially income-related – substantially reducing potential omitted variable bias. We also carry out a series of robustness checks and conduct a wide range of alternative specifications to strengthen the interpretation of our results.

3 Empirical results

We first explore the relationship between sending remittances and migrants' utility by using standard well-being regressions, finding a strong positive correlation between remittances and well-being. We subsequently 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 show how the relationship between remittances and well-being varies in function of the migrants' socio-economic characteristics, migration experience and family arrangements.

3.1 Do remittances affect well-being?

Benchmark estimates. As a first step, we estimate a standard well-being regression model for the migrant population. We consider two specifications, with and without the remittances variable. In Table 2, we report the estimates of the remittances parameter and of a few other key covariates.⁸

Before discussing the impact of remittances, it is useful to outline 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-economic and demographic characteristics are in line with standard findings from the literature (see Frey and Stutzer, 2002; Ferrer-i-Carbonell and Van Praag, 2003; Dolan et al., 2008 for comprehensive reviews on the determinants of SWB). Women report lower levels of well-being compared to men, which seems to contrast existing empirical evidence, although it is important to emphasise that women are underrepresented in our sample. Previous studies have documented the existence of a U-shaped relation between age and well-being (e.g., Blanchflower and Oswald, 2004). Our estimates corroborate this pattern, yet the coefficients are imprecisely estimated. Being married is associated with higher well-being (similar to what is documented by Argyle, 2003 and Helliwell, 2003). The coefficient for the years of education is positive and significant (e.g., Fuentes and Rojas, 2001; Helliwell, 2003), while having children does not seem to be substantially linked to migrants' well-being (some studies have reported a negative relationship, see, e.g., Glenn and Weaver, 1978). The time away from home (as approximated by the years since the first migration) exhibits a convex relationship with SWB. Finally, and consistently with existing evidence, we find a positive association between SWB and income.⁹

⁸Full estimation results of our benchmark specification are reported in Akay et al. (2012).

⁹For completeness, we also estimate regression models using the level of remittances as dependent variable. Once again, the scope is to investigate how our estimates compare to those of previous studies. We consider two specifications: one for the whole sample of migrants, using tobit regression (i.e., accounting 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,

When adding remittances to the specification, we find a positive and statistically significant estimate, with a rather large size of the coefficient. 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 for the dummy for women is 0.052. The result that the estimate for remittances is as large as that for income (and in some of our models even larger) is 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 on oneself. For the purpose of comparison, we have also estimated alternative specifications using an Ordered Probit model specification, achieving qualitatively similar results.¹⁰

Remittances and SWB: a spurious relationship? The estimates from the benchmark model outlined above reveal a positive correlation between remittances and migrants' well-being. This is an interesting result, especially in light of the established finding (at least in cross-sectional analyses) that income raises happiness. While one would expect the reduction in migrants' disposable income implied by sending remittances to reduce well-being, the estimated positive correlation suggests that the loss of utility due to lower disposable income is more than compensated by the non-monetary utility gains associated with sending remittances.

It is crucial to ensure that our results are not an artifact of some unobservable confounding factors that are not accounted in the regression analysis, or even a consequence of how remittances are defined. Accordingly, we estimate several specifications to corroborate the robustness of the benchmark results. For the sake of presentation, we only provide the estimates of the remittance parameters.¹¹

As a first test we ensure that our benchmark model appropriately controls for the role of income (see Table 3): namely, we want to ensure that omitted 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. We estimate a model only including remittances (column I), and models in which we add the years of education (column II), labour income (column III) and both of them (column IV). Finally, in column V, we show the estimates from a model that further includes the income obtained from other sources (such as from

e.g., Lucas and Stark, 1985; Hoddinott, 1994; Vanwey, 2004; Piracha and Saraogi, 2011). These estimates are reported in Table A3 of Akay et al. (2012).

¹⁰The Ordered Probit models are estimated using a variable that is an aggregation of the GHQ-12 index into a 7-class ordered variable.

¹¹Full estimates of all models are available upon request.

the spouse's wage, from investments, land or other property). We conduct these sensitivity checks 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 relative terms), and that estimates might be sensitive to such measurement.

When considering the level of remittances, the addition of the years of education and labour income systematically reduces the size of the estimates. This suggests that failing to control for income and education would imply an overestimation of the remittances parameter – which absorbs the marginal utility of income. However, 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 in Table 2. When using per capita remittances, the coefficients show a pattern similar to that just described for the level of remittances. The only exception occurs when we use remittances in percentage of the household income: the 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 in the denominator.

Overall, our preferred specification shows remarkably consistent results, with the estimate of the remittance parameter positive, statistically significant and insensitive to additional income-related variables. While we are aware that other omitted variables could still bias our estimates, the results in column V reassure that there is still a strong positive association between sending remittances and migrants' SWB, even after accounting for an important confounding factor such as income.¹² Throughout the analysis, this pattern is substantially similar when using per capita remittances or remittances in percentage of income. Given that the choice of the definition of remittances does not produce appreciable differences in the results, in the remainder of the paper we will only report the estimates for the models that use the level of remittances.¹³

¹²All models include additional income-related variables, such as an indicator for self-employment status.

¹³We have also conducted robustness tests to check the sensitivity of the estimates to the presence of unobservable regional attributes. In practice, we compare estimates of models with without and with (our preferred estimates) fixed effects for provinces of origin and destinations of migrants. While the estimates become smaller in size when controlling for province fixed effects, our main results still hold even after controlling for these important confounding factors. These results are reported in Table 4 of Akay et al. (2012). Furthermore, in unreported results we have estimated models with 15 city of residence dummies instead of 9 indicators for provinces of residence. The results are essentially similar; for example, the benchmark regression yields a coefficient of 0.356 with a standard error of 0.124.

3.2 Migrants' heterogeneity

Socio-demographic and economic characteristics. We explore migrants' heterogeneity by testing the sensitivity of our results to selected socio-demographic and economic characteristics of migrants. In Table 4, we first estimate equation (2) for different groups: men and women, married and unmarried, and those below and above the median age (28), the median education level (9 years) and the median income level. We also attempt to address the presence of unobserved individual heterogeneity. Our cross-sectional data does not allow testing for the role of unobserved individual heterogeneity. However, the SWB literature has 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). Therefore, we propose an alternative strategy to – at least partially – control for such latent characteristics. We exclude the question related to “happiness” (i.e., *“How happy are you when you consider each aspect of your life?”*) from the GHQ-12 index, obtaining a “GHQ-11” index. We use the GHQ-11 index as response variable and the happiness measure as an explanatory variable in the regression. Our argument is that controlling for happiness helps to capture unobservable factors – at least those time invariant – correlated with happiness and hence mitigate the influence of unobservable heterogeneity (see Akay et al., 2011 for a similar approach).¹⁴

The results in Table 4 indicate a larger estimate for women than men, albeit also with the coefficient estimated with a larger standard error, most likely due to the relatively small sample size of this group. Younger migrants exhibit a somewhat larger estimated coefficient than older migrants; similarly, remittances appear to have a stronger effect on single rather than married migrants. Less educated individuals exhibit a somewhat larger effect, a pattern also reflected in the group of migrants with an income below the median. Although the coefficients of the interaction terms are not statistically different from each other, the point estimates suggest a diverse marginal utility of remittances across the various groups.¹⁵ Finally, when considering the GHQ-11 index, we find that the correlation between SWB and remittances is still positive and significant at the 5% level. While this is only an indirect test to control for unobservable heterogeneity, it also suggests that the results in terms of well-being are confirmed, even after accounting

¹⁴We have also estimated a model in which we use the happiness measure as dependent variable. Consistently, we found a positive correlation between sending remittances and happiness, albeit with estimates only significant at 10% (0.086 with a standard error of 0.048). The weak statistical significance is mainly attributable to the happiness variable being defined in a four point scale, hence exhibiting scarce variation.

¹⁵We have also 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, reflecting the diminishing marginal utility associated with the concavity of the SWB function.

for factors that are correlated with happiness (including the possibility that happier individuals remit more).

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 migration intentions. We capture the length of time that the migrant has been away from the home village by using information concerning when the individual migrated for the first time, and hence construct a proxy for the years since migration (YSM).¹⁶ Subsequently, we derive an indicator for whether the migrants left home for 6 or more years or for less time (corresponding to the median of the YSM variable). We also estimate an additional specification that uses quartiles of YSM. We estimate models interacting the remittance variable with the pertinent YSM indicators.

Acknowledging that proximity of current residence to the home village might have a strong impact on the level of migrants' well-being and the marginal utility of remittances, we approximate the effect of distance from home by partitioning the sample between migrants who moved within and outside the province of origin (where the hukou is registered).¹⁷ Our aim is to compare the estimates between these two groups. In a similar fashion, we explore the role 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 period and those who do not wish so. Despite this information only representing an approximation of the real migration intentions, it provides some insight into how migrants feel about being detached from their home village.¹⁸

The estimates in the first column reveal that group of migrants who have lived at least six years away from home exhibit a stronger positive correlation than those who were away for less than six years (the two coefficients are statistically different at the 5% level). Results by quartiles of YSM show a similar pattern, with the estimates of the interaction term “Ysm>10 × remittances” and the interaction term “Ysm 0-2 × remittances” being statistically different at the 10% level. Results in the second column suggest a large marginal utility of sending remittances for individuals who migrated within the home province.

¹⁶It is important to emphasize that since we analyse internal migration, the migration experience could be interrupted, i.e., migrants might have returned back home in between the period that they were interviewed and when they left home for the first time. 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, and therefore circular migration is unlikely to affect our results.

¹⁷Our data indicates that 57% of migrants moved within the home province.

¹⁸The 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 owes to policy generally not encouraging migrants to reside permanently in cities.

Interestingly, this result holds over the years since migration: the estimate is negative (albeit imprecisely estimated) for recent migrants who have migrated within the province, and is positive and statistically significant for migrants who left their home village long ago and have moved within the province. The estimates of the two interaction terms are statistically significant at the 5% level. These results suggest that distance from home weakens the positive relationship between sending remittances and well-being, namely that those who migrate far away from home may feel less attached to the their hometown and the family left behind. Consistently, results in the third column suggest a smaller marginal utility of sending remittances for individuals who migrated outside the home province. However, the estimates are not statistically significant at conventional levels.

The results in columns four and five of Table 5 indicate a positive correlation for both migrants who wish to live indefinitely in the city and those who do not wish so. However, on average, the latter group of migrants exhibit a much larger estimate than those who wish to live indefinitely in the city (0.573 vs. 0.307). Expressing the desire to live indefinitely in the city might capture migrants' detachment from their hometown or the family left behind, and therefore they may not feel as satisfied with sending remittances as those who plan to return back home. Consistent with previous results, the marginal utility of sending remittances increases with the years since migration.

3.3 Migrants and the family left behind

Remittances: obligation or choice? Given that remittances mostly consist of transfers within the household, 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. Indeed, some of these aspects represent peculiarities of present day 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, hukou regulations make it difficult for migrants to bring their families to the city, and consequently the phenomenon of leaving family behind is widespread.

In this section, we examine the sensitivity of our benchmark results to the situation of the migrants' close and extended family. 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, no children", "Migrated with spouse and children", "Spouse left

behind, no children”, “Migrated with spouse, all children left behind”, and “Spouse and children left behind”. This classification allows us to explore whether the relationship between remittances and SWB follows a particular pattern in function of these diverse family situations.¹⁹

In Table 6 we estimate models in which the remittance variable is interacted with an indicator for each of the migrants’ family situations described above. While one would expect migrants with close family members living in the hometown (e.g., the group “Spouse and children left behind”) to exhibit a higher marginal utility of remittances, we instead find that the well-being of these groups is not significantly correlated with sending remittances. On the other hand, the largest estimates are found among those groups who have fewer family responsibilities (e.g., migrants who are single or migrate with their spouses but have no children). This 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 yet have fewer or no responsibilities. In other words, migrants with fewer responsibilities may experience higher utility because they have a choice whether to remit or not. However, only a few of the interactions terms are statistically different from each other across the various models. To corroborate this result in a statistically robust manner, we reclassify migrants into those with more pronounced family responsibilities (i.e., “Children and/or spouse left behind”), comparing them with those migrants without such responsibilities. The estimates in the last column confirm that sending remittances is only associated with a large effect on SWB for the latter group (0.661), while the coefficient is negligible in size for those migrants who may feel morally obliged to remit (0.116). In this case, the coefficients of the two interaction terms are statistically different from each other.

Filial piety. In order to provide further insight concerning the importance of the family left behind, we focus on the role of filial obligations.²⁰ We use an approach similar to that in Table 6, constructing an indicator that 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 SWB data provides insights into the role of filial piety. We report the results for these two groups in Table 7. In the first column, we show the coefficients of a model in which remittances are interacted with the indicator for whether only parents are

¹⁹Table 7 in Akay et al. (2012) reports the average level of remittances for these groups. As one would expect, 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 yet has no children remits more than a migrant who is single, but less than a migrant whose spouse and children live in the hometown.

²⁰More than 75% of the migrants report having parents still alive in the hometown, which reflects the quite young age of migrants in our sample.

left behind, while in the remaining columns, we test the sensitivity of the results to both the location of migrants and their migration intentions.

The results in the first column suggest that the estimated positive correlation is larger for migrants with only parental obligations, although the estimates of the two interaction terms are not statistically different from each other. Interesting results emerge when we consider the importance of distance and migration intentions. When we consider individuals who only have parents in the hometown – different from what we found in Table 5 – migrants exhibit a larger marginal utility of sending 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 these results appear to contradict our estimates for the whole sample in Table 5, they are consistent with the presence of filial obligations. In other words, for those migrants who are more detached from their hometown – owing to living far or not wishing to return – remittances are strongly associated with SWB, suggesting that migrants gain utility from helping their parents.

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

This section aims to explore whether using SWB data can provide insight into the motivations behind remittances. The estimated positive association between remittances and migrants' SWB might be driven by several reasons behind sending remittances, 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 standard theoretical and empirical approach used to identify these motivations. We subsequently investigate the reasons behind remittances using the standard approach employed in the literature and compare it with the results using SWB data.

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

The most common approach in the literature involves analysing the relationship between remittances and the income (before remittances) of the family back home. 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. Accordingly, this approach predicts that the remittances level increases as the income of the family back home decreases (Becker, 1974; Lucas and Stark, 1985).²¹ On the other hand, under the contractual hypothesis, the migrant remits money in order to comply with an implicit contract with the family left behind. In practice, remittances are the price that the migrants pay in exchange of certain 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, and thus contractual models predict that remittances might increase as the income of the family back home increases (Kotlikoff and Spivak, 1981; Lucas and Stark, 1985; Kimball, 1988; Coate and Ravallion, 1993).

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

SWB and motivations behind remittances. As a preliminarily check to identify which motivation dominates in our sample, we investigate – as in the standard approach – the relationship between the income of the family left behind and remittances. One of the obstacles for rigorously testing this hypothesis is that our data does not provide a direct measure for the income of the individuals left behind.²² With this

²¹ Becker (1974) model of altruistic remittances assumes “pure” altruism. However, there are other forms of altruism identified within the literature. One such example is the “warm glow” altruism suggested by Andreoni (1989). Such “impure altruism” would imply that migrants derive utility simply from sending money, but not from the improvement of the conditions of the family back home. Our data does not allow us to distinguish between “pure” and “impure” altruism, and hence our results necessarily pertain to both forms of giving.

²²An additional key variable that would have been useful for the analysis is the actual level of SWB of the family members left behind; however this is not available in our data.

caveat in mind, we use proxy variables that provide insights into the income level of the family left behind. Our preferred proxy is obtained from a question whereby migrants are asked to provide an estimate of the average unskilled daily wage in their rural home village. We have explored additional variables that, on the one hand, are perhaps closer proxies for the economic conditions of the family left behind, yet on the other hand are noisier, due to their scarce variation. These include the size of land per capita assigned to each member of the family left behind, the value of the property back home and the socio-economic background of the migrant's parents.²³

We estimate a Tobit regression of remittances on a full set of covariates, also including indicators for each quartile of the distribution of our preferred proxy variable for the income of the rural household.²⁴ In Figure 1 we report the coefficients that pertain to the income quartiles of the family left behind, 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 disentangle altruistic from 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), yet also when family back home is rich (implying the existence of contractual obligations). The level of remittances is the lowest when the average income of the left behind family is close to the median.

These preliminary results confirm previous empirical findings on China, namely that both motivations are at work (Secondi, 1997; Snyder and Chern, 2008). This encourages us to explore whether such motivations also hold when SWB data is used. We estimate a regression model using SWB as dependent variable, where we interact the level of remittances with the indicators for the income quartiles. We also report the results in Figure 1, where the coefficients for the interaction variables are measured in the right y-axis. The pattern of estimates of the SWB regression is remarkably similar to that of the remittances regression, in that the effect of remittances on well-being is stronger at both high and low levels of the income of the family left behind. This suggests that well-being is higher both among migrants who support family

²³In principle, the size of the land per capita is a good proxy for capturing economic conditions of the family left behind. Although land in China is not owned by individuals, it is still a productive asset. However, most of the variation in land per-capita is attributed to differences across rather than within villages. The value of the property back home is also a potentially useful proxy. Aside from measurement issues, the main problem of this variable is yet again its intrinsic scarce variation in our sample. Our fourth proxy makes use of a variable that classifies the family background of migrants' parents as: 1) Extremely poor, 2) Poor, 3) Intermediate rich, and 4) Rich. We aggregate categories 1) and 2) to capture a "poor" background of the family left behind, and 3) and 4) into a relatively "rich" category.

²⁴The estimates of these models are reported in Akay et al. (2012).

members in need and those who are paying for the price of certain implicit contractual arrangements.²⁵ Furthermore, the turning point of the curves is located in correspondence of the third quartile of the income distribution, which prompts the conclusion that the altruistic motivation dominates the contractual motivation within our sample.

We further investigate the effectiveness of our approach by exploring the patterns of the results when information concerning the income of migrants is added. In the first panel of Table 8, we estimate a SWB model in line with those used to construct the graphs, with the only difference that – instead of all quartiles – we have an indicator for “rich/poor” using the upper quartile of the income proxy of the family back home as a cut-off. 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 above and below the median. In the remaining panels of Table 8, we present the same results using the three alternative proxies for the economic condition of the family left behind.

The coefficients for our preferred proxy in column 1 confirm the visual pattern of the graphs, namely that both altruism and contractual obligations are at work. Despite the estimates of the two interaction terms are not statistically different from each other, the larger coefficient for the interaction “Poor × remittances” suggests that the former motivation might prevail. The results from the final two columns suggest that poorer migrants (those who were found to have a larger effect in Table 4) sending remittances to richer families are better off than poorer migrants sending remittances 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, although the estimates of the interaction terms are different from each other only in the last column. The very same pattern of results is observed when we consider alternative proxies. When we use the indicator based on the amount of land per-capita assigned to each family member back home, we again find that poorer (richer) migrants remitting to richer (poorer) families are better off than poorer (richer) migrants remitting to poorer (richer) families. Remarkably similar point estimates are also obtained when we consider the value of the property back in the village as proxy for the economic conditions of the family left behind. Also in the case of these two proxy the estimates of the interaction terms are different from each other only in the model of migrant’s income below the median. Finally, when we use the economics conditions of migrants’ parents as proxy, we also find that migrants’ well-being is higher when remitting to poorer families. However, the estimated coefficients

²⁵We have replicated this analysis by using per capita remittances and found that the pattern of the two curves is even more similar than that in Figure 1.

are not statistically significant when the family left behind is relatively rich. The likely explanation of this imprecise estimate is the small cell sizes pertaining to this indicator: the “rich” category is only composed by 6% of the observations, rather than 25% as in the case of the other three proxies. This also results in the estimates of the interaction terms not being statistically different.

Migrants’ characteristics and motivations. We have also explored the motivations behind sending remittances for some key characteristics of migrants, such as gender, migration experience and family responsibilities. This is done by estimating a three-way interaction term between remittances, the proxy for the income of the family left behind and an indicator for each of the aforementioned characteristics. The patterns of the estimates confirms the results in Table 8, but there are interesting differences depending on migrants’ characteristics.²⁶

In Table 9 we investigate the role of additional attributes that might influence the motivations behind remittances. The variables considered allow us to provide insights into 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 achieved 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, did not like rural life style”. We estimate models in which we interact each indicator with the level of remittances. Our expectation is that the estimates for the migrants who moved to assist the family economically should follow an altruistic pattern, while the results for those individuals who are dissatisfied with life in rural areas should be more consistent with self-interest motivations. Indeed, the pattern of the estimates corroborates our expectations.

Another set of results in the table explores the role of the help provided by parents to the migrant during the past 12 months. Migrants who report having received financial or psychological support or assistance with daily affairs report a stronger marginal utility of remittances. While this is not a direct test, this pattern is consistent with the presence of reciprocity as a motivation to remit. This is corroborated by the finding that those migrants who did not receive help from their parents report a disutility from sending remittances, although the coefficient is not statistically significant.

The effect of remittances on well-being is also higher for migrants with a property in the home village.

²⁶Full estimates are reported in Table 11 of Akay et al. (2012).

One potential interpretation is that investment motivations are behind the remittances: the migrant is better off sending money, as this could be used to look after his or her property. However, the coefficients of the interaction terms are not statistically different from each other.

Co-insurance motivations can be shown when we analyse individuals with above median health expenditure. Individuals who spend relatively more on health – arguably the less healthy in the context of rural China – report a higher marginal utility of remittances. This might reflect that sending remittances 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.²⁷ This result is confirmed when focusing on migrants who report not having any form of insurance (i.e., pension, employment or health). Given that these individuals need to hedge against various risks (e.g., losing a job), sending remittances is associated with higher well-being due to the family back home being perceived as a safety net in the case of adverse events. The estimates for the interaction terms between remittances and having or not insurance (0.568 and -0.225) are statistically different from each other.

Finally, our results indicate that migrants are happy to assist the family when they have a sick parent back at home, with the estimates of the two interaction terms being borderline statistically different. This result is compatible with altruism being the motivation behind remitting money.

5 Summary and conclusion

This paper has two objectives. First, we examine the relationship between remittances and the subjective well-being of migrants in China. Second, we document that subjective well-being data can be used to obtain insights into the motivations underlying the behaviour of sending remittances. Our methodology is based on estimating well-being regression models, using remittances as one of the regressors. The results indicate that migrants experience welfare gains by sending remittances. This result is robust to model specifications and the presence of individual and regional unobserved heterogeneity. Furthermore, we investigate the role of migration experience, finding that the utility associated with sending remittances is only significant for migrants who moved within the province and those who would like to eventually return back home. Significant differences emerge when we examine the role of family arrangements. Our estimates suggest that migrants with family responsibilities are not as satisfied by sending remittances as those without such

²⁷A very similar pattern emerges when we use indicators for health status.

obligations, which indicates that implicit obligations to remit mitigate the positive association between remittances and well-being. We also find evidence that filial obligations appear stronger among those who are more detached from their families left behind.

In order to explore the motivations behind the remittance behaviour, we study the relationship between subjective well-being and remittances as a function of the income of family left behind, as captured by various proxies. We find evidence that both altruistic and contractual motivations are at work in our sample, albeit with our estimates suggesting the former motivation to be the dominant one. While our data does not allow identifying various forms of altruism (e.g. “pure altruism” vis-a-vis “warm glow” giving), our analysis provides insight into more specific reasons behind remitting, such as the presence of reciprocity or co-insurance.

To the best of our knowledge, this study is the first attempt to use self-reported well-being to estimate the relationship between remittances and migrants’ utility, and to elicit their motivations to remit. Understanding the welfare effect of remittances is of great importance, especially in countries such as China, where the magnitude of internal migration has reached phenomenal proportions. Bearing in mind a cautious interpretation in terms of causality, our findings may have several policy implications. First, the well-being of migrants can be enhanced by facilitating remittances. Second, if remittances were fully motivated by altruism, and hence exclusively targeting the poorest – much like public programs – this would have implied that private transfers could be crowded-out by public transfers. However, in line with evidence from previous research, our finding that both motivations are at work implies that such crowding out is only partial.

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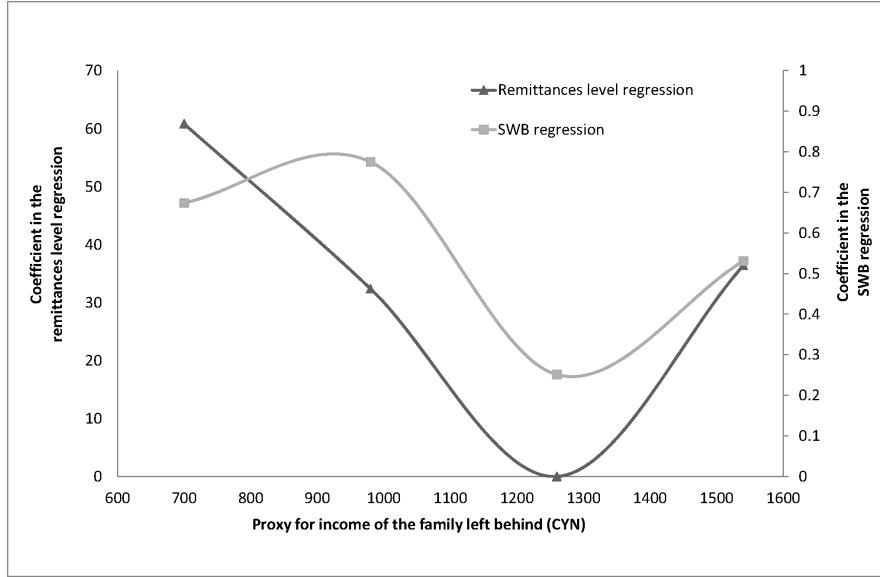
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Figures and Tables

Figure 1: Level of remittances, SWB and income of the family left behind



Source: RUMiC 2008. Points from the remittances regression show the marginal increase in the level of remittances 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.

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)		
(III) 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: $\text{Per capita remittances} = \frac{\text{Remittances}(1000\text{CYN})}{1+0.5*(\#\text{adults})+0.3*(\#\text{children})}$. 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.

Table 2: Benchmark regressions

	I	II
Remittances (1000 CNY)		0.389 *** (0.119)
Age	-0.001 (0.053)	-0.001 (0.052)
Age sq.	0.004 (0.079)	0.005 (0.078)
Female (d)	-0.514 *** (0.146)	-0.506 *** (0.147)
Married (d)	0.626 *** (0.210)	0.613 *** (0.203)
Divorced/Widowed (d)	-1.228 (0.760)	-1.215 (0.766)
Years since 1 st migration	-0.058 ** (0.026)	-0.061 ** (0.026)
Years since 1 st migration sq.	0.002 ** (0.001)	0.002 ** (0.001)
Years of Education	0.165 *** (0.036)	0.165 *** (0.036)
Labour income (1000 CNY)	0.140 *** (0.041)	0.115 *** (0.039)
Constant	31.923 *** (4.082)	31.979 *** (4.036)
R ²	0.172	0.173
#Obs.	4,675	4,675

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** indicate significance at the 10%/5%/1% level. (d) refers to dummy variables. All models contain the covariates listed in Table A1.

Table 3: Income, remittances and SWB

	I	II	III	IV	V
Remittances (1000 CNY)	0.473 *** (0.136)	0.452 *** (0.130)	0.387 *** (0.118)	0.383 *** (0.116)	0.389 *** (0.119)
Years of education	0.171 *** (0.038)		0.165 *** (0.037)	0.165 *** (0.036)	
Labour income		0.146 *** (0.043)	0.119 *** (0.040)	0.115 *** (0.039)	
Other household income				0.104 (0.074)	
Per capita remittances (w.r.t. rural family)	0.961 *** (0.323)	0.898 *** (0.303)	0.805 *** (0.297)	0.771 *** (0.286)	0.761 *** (0.286)
Years of education	0.170 *** (0.038)		0.164 *** (0.037)	0.164 *** (0.036)	
Labour income		0.148 *** (0.044)	0.122 *** (0.042)	0.119 ** (0.041)	
Other household income				0.099 (0.075)	
Remittances as % of household income	0.723 ** (0.345)	0.748 ** (0.350)	0.717 ** (0.341)	0.742 ** (0.346)	0.829 ** (0.345)
Years of education	0.173 *** (0.038)		0.166 *** (0.037)	0.166 *** (0.037)	
Labour income		0.170 *** (0.045)	0.143 *** (0.041)	0.138 *** (0.040)	
Other household income				0.119 (0.076)	

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** 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 listed in Table A1.

Table 4: Migrants' socio-demographic and economic characteristics

Female (D=1)	0.506 (0.499)	Age \leq 28 (D=1)	0.498 ** (0.245)
Male (D=0)	0.373 *** (0.134)	Age $>$ 28 (D=0)	0.323 ** (0.18)
Married (D=1)	0.343 *** (0.128)	Years of education \leq 9 (D=1)	0.488 *** (0.174)
Single (D=0)	0.522 (0.330)	Years of education > 9 (D=0)	0.223 * (0.131)
Labour income \leq median (D=1)	0.659 (0.412)	GHQ-11 model (Controlling for unobservable individual characteristics)	0.243 ** (0.108)
Labour income $>$ median (D=0)	0.328 ** (0.120)		

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** 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 control variable (see text for details). All models contain the covariates listed in Table A1.

Table 5: Duration of stay, destination, and migration intentions

	Benchmark model	Migrated within province	Migrated outside province	Does not wish to stay forever	Wishes to stay forever
Remittances (1000 CNY)	0.389 *** (0.119)	0.489 * (0.258)	0.184 (0.143)	0.573 *** (0.220)	0.307 ** (0.127)
Ysm<6	-0.097 (0.202)	-0.376 (0.393)	-0.037 (0.191)	0.293 (0.206)	-0.391 (0.382)
Ysm \geq 6	0.596 *** (0.150)	0.682 ** (0.318)	0.334 (0.305)	0.711 ** (0.329)	0.574 *** (0.186)
Ysm 0-2	-0.065 (0.284)	-1.425 * (0.837)	0.389 (0.266)	0.505 (0.389)	-0.719 (0.527)
Ysm 3-5	-0.094 (0.313)	0.390 (0.479)	-0.430 (0.325)	0.138 (0.322)	-0.149 (0.415)
Ysm 6-10	0.495 *** (0.120)	0.497 (0.304)	0.401 (0.363)	0.842 *** (0.297)	0.342 * (0.184)
Ysm >10	0.697 ** (0.338)	0.857 ** (0.364)	0.254 (0.590)	0.633 (0.510)	0.914 ** (0.389)
#Obs	4,675	2,654	2,021	1,990	2,685

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** indicate significance at the 10%/5%/1% level. The results in the second and third panels are obtained by estimating the interaction model described in equation (2) with the appropriate number of indicators. Each column represents a partition of the sample. All models contain the covariates listed in Table A1.

Table 6: 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 * (0.299)	1.402 *** (0.394)	0.362 (0.355)	0.024 (0.767)	-0.131 (0.190)	0.318 (0.221)	0.116 (0.158)
(D = 0)	0.346 ** (0.137)	0.284 * (0.149)	0.357 *** (0.117)	0.404 *** (0.102)	0.486 *** (0.146)	0.471 *** (0.149)	0.661 *** (0.188)

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** 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). All models contain the covariates listed in Table A1.

Table 7: Parents and migration experience

<i>Only parent(s) in hometown</i>	All migrants	Migrated within province	Migrated outside province	Does not wish to stay forever	Wishes to stay forever
(D=1)	0.589 *** (0.167)	0.353 (0.233)	0.723 *** (0.255)	0.461 * (0.263)	0.678 *** (0.186)
(D=0)	0.297 (0.189)	0.575 (0.367)	-0.058 (0.150)	0.590 * (0.337)	0.140 (0.188)

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** 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). All models contain the covariates listed in Table A1.

Table 8: Motivations behind remittances

<i>Proxy for the income of the family left behind:</i>	Rich × remittances	Migrants' income		
		All	Above median	Below median
Unskilled daily wage in the rural village	Rich × remittances	0.320 ** (0.132)	0.255 *** (0.090)	1.500 ** (0.585)
	Poor × remittances	0.535 * (0.278)	0.554 (0.354)	0.317 (0.411)
Per capita land of family members	Rich × remittances	0.405 (0.272)	0.128 (0.201)	1.635 * (0.998)
	Poor × remittances	0.295 * (0.169)	0.422 ** (0.188)	-0.129 (0.435)
Value of the property in the village	Rich × remittances	0.530 *** (0.184)	0.294 * (0.157)	1.446 ** (0.582)
	Poor × remittances	0.341 (0.211)	0.361 (0.259)	0.416 (0.409)
Socio-economic status of migrants' parents	Rich × remittances	-0.286 (0.617)	-0.459 (0.748)	0.943 (1.855)
	Poor × remittances	0.439 *** (0.144)	0.393 *** (0.125)	0.629 (0.445)

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** 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). The indicator “Rich/Poor” is defined using the upper quartile of the proxy as cut-off, except in panel four, where the “Rich” category comprises the upper 6% of the proxy distribution, and the “Poor” the remaining portion. All models contain the covariates listed in Table A1.

Table 9: Remitting motivations and migrants' characteristics

Migrant's characteristics	Proxy for the income of the family left behind	Migrant's income			Migrant's characteristics	Proxy for the income of the family left behind	Migrant's income			
		All	Above median	Below median			All	Above median	Below median	
Female (D=1)	Rich × remitt.	1.134 ** (0.496)	1.058 *** (0.410)	1.922 (1.655)	$Ysm < 6$ (D=1)	Rich × remitt.	-0.043 (0.307)	0.075 (0.325)	0.508 (1.351)	
	Poor × remitt.	0.074 (0.676)	0.000 (0.449)	0.356 (1.240)		Poor × remitt.	-0.083 (0.223)	0.354 (0.524)	-0.784 (0.679)	
	Rich × remitt.	0.251 (0.155)	0.193 (0.125)	1.420 *** (0.549)		Rich × remitt.	0.465 *** (0.144)	0.329 *** (0.115)	1.832 *** (0.660)	
	Poor × remitt.	0.608 ** (0.270)	0.617 (0.389)	0.301 (0.344)	(D=0)	Poor × remitt.	0.824 ** (0.353)	0.639 * (0.354)	0.964 * (0.509)	
	Wishes to stay forever	Rich × remitt.	0.224 ** (0.101)	0.206 *** (0.057)		Migrated within home province	Rich × remitt.	0.246 (0.170)	0.330 (0.207)	0.351 (0.706)
	(D=1)	Poor × remitt.	0.541 * (0.316)	0.424 (0.330)		(D=1)	Poor × remitt.	0.856 ** (0.369)	1.030 ** (0.471)	0.316 (0.518)
(D=0)	Rich × remitt.	0.481 (0.345)	0.328 (0.272)	1.783 * (0.968)	(D=0)	Rich × remitt.	0.372 ** (0.162)	0.181 * (0.100)	2.255 *** (0.830)	
	Poor × remitt.	0.559 (0.423)	0.733 (0.499)	-0.043 (0.418)		Poor × remitt.	0.181 (0.306)	0.084 (0.298)	0.346 (0.797)	
	Has children back home	Rich × remitt.	-0.029 (0.136)	-0.098 (0.125)	Only parents in home village	Rich × remitt.	0.445 * (0.238)	0.407 ** (0.197)	1.875 *** (0.840)	
	(D=1)	Poor × remitt.	0.388 * (0.230)	0.325 (0.299)		Poor × remitt.	0.852 * (0.506)	0.982 (0.643)	0.373 (1.039)	
(D=0)	Rich × remitt.	0.639 ** (0.266)	0.621 *** (0.187)	1.425 * (0.786)		Rich × remitt.	0.253 * (0.151)	0.166 (0.149)	1.337 ** (0.537)	
	Poor × remitt.	0.619 (0.390)	0.909 * (0.492)	0.022 (0.585)		Poor × remitt.	0.407 (0.328)	0.386 (0.347)	0.288 (0.374)	

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** 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). The proxy for the income of the family left behind corresponds to the unskilled daily wage in the village of the migrant. The indicator "Rich/Poor" is defined using the upper quartile of the income proxy as cut-off. All models contain the covariates listed in Table A1.

Table 10: 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 (0.210)	0.447 *** (0.166)	Reason for migration: Too poor at home, want to assist with family expenditures	0.589 * (0.311)	0.315 * (0.167)
Parents assisted financially last year	0.530 (0.381)	0.368 *** (0.138)	Has a sick parent back home	0.808 *** (0.218)	0.234 (0.174)
Parents assisted psychologically	0.611 ** (0.268)	0.242 (0.157)	Migrant has a property in home village	0.417 *** (0.118)	-0.311 (1.192)
Parents assisted with daily affairs	0.739 * (0.403)	0.344 ** (0.150)	Migrant medical expenses above median	0.456 *** (0.081)	0.275 (0.188)
No help from parents	-0.317 (0.336)	0.540 *** (0.153)	Has no insurance (i.e. unemployment, injury or pension)	0.568 *** (0.173)	-0.225 (0.172)

Source: RUMiC 2008. Robust standard errors clustered at the province of residence level in parentheses. */**/** indicate significance at the 10%/5%/1% level. All results are obtained by estimating the interaction model described in equation (2). All models contain the covariates listed in Table A1.

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)		
(II) Remittance as % of household income	0.11	(0.18)	0.19	(0.21)		
#Observation	4,675		2,726		1,949	

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: $Remittances \text{ per capt.} = \frac{\text{Remittances}(1000 \text{ CYN})}{1+0.5*(\#adults)+0.3*(\#children)}$. 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.