



Some Micro-level Evidence from Madrid

The final decade of the twentieth century witnessed the largest economic experiment of recent times as former communist countries implemented economic reform programmes designed to expedite transformation to a market-based system. The transformation process has influenced the direction of economic policies and shaped social policies,

remittances are used primarily to cover basic needs but are also used for the purchase of durable and investment goods. The scale of these remittances raises important questions on the potential impact they exert in Bulgaria and whether the gain through remittances counterbalances the 'brain-drain' the country initially experiences through permanent emigration. A recent study on the effects of migrant remittances on the Bulgarian economy emphasizes their increased use for the purchase of real estate, which often are purchased as part of an investment. Research by the Institute for Market Economics on the real estate market showed that over the period 2002 to 2004, about 10% of real estate purchases within the big cities of Bulgaria were financed from migrant remittances (Kostadinova, 2005).

The primary motivation for this paper is an examination of the remittance behaviour of a sample of Bulgarian migrants based on interviews conducted in Madrid in late 2003 and in early 2004.

residing and working in a host country and there is always a great degree of uncertainty about the appropriate sampling frame to use in conducting such a survey. The sample design by necessity tends to be *ad hoc* and sometimes combines elements of 'snowballing' and/or 'purposive' sampling. This unavoidable constraint renders broad generalisations to the population of Bulgarian migrants in Madrid difficult but does not vitiate the exercise. The information acquired can inform on the nature of important empirical relationships for the interviewed sample but inferences need to be couched within the conditional nature of the sample used.⁵

In order to ensure worthwhile and informative responses, the primary concern of the interviewer was to build trust and understanding with potential interviewees. This was ensured by the fact that the interviewer is a native Bulgarian who initially knew a small number of migrants resident in the southern suburbs of Madrid. These contacts facilitated initial access to locations where Bulgarians gathered, usually in Bulgarian-owned businesses ('phone and money houses' called '*locutorios*'), coffee-shops, restaurants or private houses. Several immigrants were approached through their acquaintances. Further access was gained through personal contacts with influential people among the Bulgarian emigré community.

The interviews were conducted entirely in Bulgarian and the questionnaire was available in this language. It is acknowledged, as noted earlier, that the foregoing sampling is unlikely to generate a random sample of responses. However, it could be argued that this is counter-balanced by the quality and detail of the information obtained. This was assessed by the interviewer as relatively reliable given that a considerable amount of time was devoted to completing each questionnaire with individual respondents.

An extensive array of information was collected through the interviews, a sub-set of which is exploited in the analysis undertaken here. Table 1 contains a description of the variables to be used in our empirical analysis and also reports some summary statistics. Our sample comprises responses from 188 Bulgarian nationals who resided in Madrid in the reference month prior to interview and for whom usable information was obtained. The responses for only ten individuals were

excluded, as these were not currently working. Almost half of the usable sample was male and half again were married. The sample mean age is close to 37 and the average respondent had spent, up to the interview date, about 2.5 years in Spain. Almost three-quarters of the sample remitted money to Bulgaria in the reference year and the unconditional annual sample average was almost 1,100 Euros.⁶ The average number of family members residing in Spain was 2.2 compared to 1.6 in Bulgaria. The differential in the point estimates between these two measures is statistically significant at a conventional level with a computed z-score of 4.5. Just over one-third of the respondents were legally entitled to work in Spain.

In modelling the determinants of migrant income transfers, it is important to consider the censored nature of the dependent variable. As noted in the previous section, not all individuals remit positive amounts in a given year and, given the scale of non-remittance, the use of ordinary least squares (OLS) procedure is invalidated. Our approach is to assume that the decision to remit and the level of remittances are made simultaneously. A censored tobit model that uses data on both remitters and

⁵ Further details on this survey are contained in Markova (2006).

$$L = \prod_{i=1}^n [Remit_i \log_e \frac{[(R_i - x_i')/\sigma]}{\sigma} + (1 - Remit_i) \log_e [1 - \frac{x_i'}{\sigma}]] \quad [3]$$

where $Remit_i = 1$ if the individual remits and 0 otherwise (as defined in table 1), $\Phi(\cdot)$ and $\phi(\cdot)$ denote the cumulative distribution function and probability density function operators respectively, and $\log_e$ denotes the natural logarithmic operator.⁷

The tobit estimates for the first set of remittance equations are reported in table 2. Two models are reported here, one with interactions between time spent in Spain and legal status and a second without these interactions. The goodness-of-fit measures are satisfactory by the standards of cross-sectional models. The reported effects are all well determined at a conventional level of statistical significance using two-tailed tests. The volume of remittances was found to rise with age in a linear fashion. A quadratic specification of the age term was experimented with but fitted the data less well than the linear form. Remittances were also found to be higher, on average and *ceteris paribus*, for both males and those married. The legal status of an individual dramatically reduces the scale of annual remittances to Bulgaria and monthly labour market earnings are a positive determinant of remittances as anticipated.

The number of family members remaining in Bulgaria exerts a positive impact on annual remittances but the number located in Spain exerts the opposite effect. The null hypothesis that these coefficients sum to zero produces a chi-squared value of 3.54 implying a rejection of the null at the 0.06 significance level. This suggests that remittance behaviour is more sensitive to the number of family members that are Spanish rather than Bulgarian-based. This is intuitive as, given competition for a migrant's finite resources, the primary concern is likely to focus on those family members in closest proximity and these are less likely to belong to the extended family in Bulgaria. The larger the number of family members based in

Spain the weaker is the relationship with the Bulgarian-based household.

The computation of the marginal and impact effects provide for a more transparent interpretation of the foregoing and these are reported in the second column of table 2. The impact effect for the gender control suggests that, on average and *ceteris paribus*, a male remitted about 588 more in Euros annually to Bulgaria than a female migrant. A married individual remitted over 420 more Euros in the reference year than those in other marital status categories. If the number of family members in Bulgaria (Spain) rose by one, the volume of annual remittances would rise (fall) by 135 (402) Euros. A one month increase in the time an average Bulgarian migrant spends in Spain increases the annual remittances home to Bulgaria by about 25 Euros.

The strongest effect reported is reserved for the legal status of the respondent. The impact effect for this measure suggests that, on average and *ceteris paribus*, a Bulgarian migrant with legal status to remain and work in Spain remits almost 1,220 less in Euros per year than someone without this status – sizeable given the sample mean value for the dependent variable. This finding is resonant of that reported by Marmdi TD0 suJTJ0 –nr(r)7Rei0.34aand 4

⁷ The parameter values for the γ vector and the ancillary parameter σ are chosen to maximise L using conventional Newton-Raphson non-linear iterative methods.

asymptotic standard error of 0.19. The estimated elasticity is not statistically significant from one and suggests a unitary elastic response of annual remittances to labour market earnings in Madrid. In other words, a 1% rise (fall) in monthly earnings yields a 1% rise (fall) in annual migrant remittances.

The estimates for the linear and quadratic terms in time spent in Spain suggest an inverse U-shaped relationship between remittances and time. The turning point is computed at approximately 9.6 years. This is broadly consistent with the remittance decay hypothesis (see Brown, 1997) but the turning point is somewhat later than generally found in the literature (see Liu and Reilly, 2004). This issue is interrogated in more detail by introducing a variable that interacts legal status with the time spent in Spain. The estimates for this exercise are reported in column three of table 2 and it should be noted that the estimated effect for 'LEGAL' cannot be interpreted in isolation of the interaction terms in this model. Although the quadratic term in the non-interacted time measure is less well determined than in the earlier specification, a potential asymmetry emerges in regard to the nature of the relationship between those with and without legal status. The relationship between remittances and time spent in Spain for those without legal status is close to being an inverted U-shaped given the point estimates and their corresponding statistical significance.⁸ The reverse is the case for those with such status. The turning point for the former is now computed at a peak of 3.9 years (though given the marginal result in regard to the quadratic term some caution is required here), while for the latter the trough point is computed at 4.1 years.

These findings demonstrate the rather complex nature of the relationship between remittances and time spent in the host country. The data that are available to us allow this issue to be investigated a little further by decomposing the time spent in Spain into its legal and illegal components. The coefficients for this re-specified model are reported separately in table 3.⁹ The estimated effect for the

quadratic term in the illegal time spent in Spain is again poorly determined but the estimated effects for the legal variant are well determined. The turning point suggests a trough at about 3.5 years.

It is clear from the foregoing that the remitting

⁸ The absolute value for the asymptotic t-ratio is 1.5 and suggests statistical significance at the 0.132 level using a two-tailed test. We acknowledge that a stringent interpretation would suggest linearity in the empirical relationship of interest here but we do not believe that our claim in the text is unduly extravagant.

⁹ The LEGAL variable is excluded from the specification in table 3 as it failed to achieve statistical significance at a

the economic cycle and if Bulgarian households are heavily reliant on such remittances, the sensitivity of remittances to labour market earnings may expose such households to a high degree of income variability. On the other hand, if households are less reliant on migrant transfers, the sensitivity of remittances to labour market earnings is likely to be of less import to the sending household. We stress that this issue is not something on which our analysis can provide a definitive insight given data constraints.

Migrant remittances have assumed increased significance over the last decade for many transitional economies and in Bulgaria now account for close to 4% of officially measured GDP. Private transfers from abroad have the potential to play an important role in preventing households from falling into poverty and in stimulating economic development through investment. In spite of the importance of migrant remittances for Bulgaria at the macroeconomic level, there is little understanding regarding their determinants at the micro-level. This paper attempts to fill the gap in our understanding of the factors that influence the size of migrant remittances to Bulgaria and focuses on the role that a migrant's legal status plays in the process. This paper exploited a unique survey conducted among legal and illegal Bulgarian immigrants in the city of Madrid in late 2003 and in the early months of 2004.

The substantive findings of this paper are that gender, age and marital status exert predictable effects on migrant remittances. The elasticity capturing the sensitivity of remittances to labour market earnings suggests a unitary relationship and is found to be in comport with evidence reported in the existing international literature. The presence of family members in the host country of Spain exerted a strong and sizeable negative influence on remittances in contrast to a rather weak positive one detected for the number of family members based in Bulgaria. Family ties are clearly important for the Bulgarian migrant but effects are strongest the nearer physically family members are to the migrant.

An important feature of the paper was an emphasis on the legal status of the migrant. This was found to strongly influence the volume of remittances with

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SOPEMI (1999)

Table 2: Maximum Likelihood Estimates for Remittance Function Tobit Model

Notes to table 2:

- (a) ***, ** and * denote statistical significance at the 0.01, 0.05 and 0.10 level respectively using two-tailed tests.
- (b) † denotes not applicable.
- (c) See table 1 for a description of the variables used in the regression model.
- (d) The scale factor used for the computation of the impact/marginal effects is 0.6710.

	(0.588)	
σ	1629.007*** (98.551)	†
– ANOVA	0.137	†
– Decomposition		