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## Identifying the motives of migrant philanthropy

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## Working Papers

Kiel Institute  
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### Identifying the Motives of Migrant Philanthropy

Matthias Luecke  
Toman Omar Mahmoud  
Christian Peuker

**No. 1790** | August 2012

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## Identifying the Motives of Migrant Philanthropy\*

Matthias Luecke, Toman Omar Mahmoud, Christian Peuker

Donations by migrants to community projects in their home countries (“collective remittances”) help to provide local public goods and may promote economic development. We draw on the literatures on migrant remittances and on philanthropy in general to identify possible motives for collective remittances. We test the empirical relevance of these motives using micro-level data from Eastern Europe. Our results suggest a mix of motives including altruism, exchange, and concern about future membership rights in the community of origin. We also find that communities with a high degree of ethnic fragmentation and a wide dispersion of migrants across destination countries are less likely to receive collective remittances.

Keywords: international migration, development, diaspora, collective remittances, philanthropy

JEL classification: F22, F24, H41, O12

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## 1 Introduction

More than 215 million people currently live outside their country of birth. In 2010 alone, they sent remittances worth US\$ 325 billion, equivalent to three times the amount of official development assistance, to their families in their home countries (World Bank, 2011). With international migration and remittances on the rise, migrant-sending countries are increasingly recognizing the development potential of their diasporas. Many developing countries are trying to actively engage their emigrants in the development of their home country. Recent efforts have focused on encouraging migrants to contribute to the provision of local public goods such as infrastructure in their home communities (Newland et al., 2010). Donations from migrants are often channeled to community investment projects through home town associations based in host countries, with the active support of governments and NGOs both in the host country and the country of origin. Such donations by migrants have been termed “collective remittances” (Goldring, 2004), as opposed to “family remittances” (sent by migrants directly to family members or friends for their private benefit).

While collective remittances have attracted considerable interest from policy-makers and development donors, there exists little substantive research to guide possible policy interventions. The few existing studies focus on the role of migrant associations in improving public services and infrastructure. Beauchemin and Schoumaker (2009) find that migrant associations in rural Burkina Faso helped to provide schools, health centers, and all-season roads, but had no significant impact on agricultural productivity or access to basic infrastructure. Adida and Girod (2011) caution that the perceived positive correlation between access to water services and the incidence of emigration across localities in Mexico may reflect private, rather than collective remittances as households link up to existing fresh water pipes and install septic tanks on their own grounds. Aparicio and Meseguer (2012) study the determinants of the use of the Mexican 3x1 program, a public fund that matches migrant contributions to community projects with public resources amounting to three times the migrant contribution. They find that poorer communities are less likely to participate and that the program is politically biased.

Very little is known about why migrants engage in collective remittances. It is not clear a priori whether economic theories that explain the motives of family remittances or philanthropic behavior in general also apply to collective remittances. This is a serious gap in knowledge because migrants are, after all, a highly heterogeneous group with respect to the time horizon of the migration decision (permanent vs. temporary migration) as well as the level of attachment to their home communities (migration with vs. without family members). It seems likely that the willingness to contribute to the provision of public goods at home depends on an individual’s migration pattern. Therefore, a better understanding of the linkage between migration patterns and migrants’ willingness to donate will permit a more realistic assessment of the size and possible development impact of collective remittances and help to design and target appropriate policy interventions.

To the best of our knowledge, this is the first paper to analyze the motives for collective remittances. We draw on the literature both on migrant remittances and philanthropy in general to identify possible motives. Altruism is an obvious starting point – both pure altruism where an individual’s utility function includes the wellbeing of a person close to her, and impure altruism where an individual derives utility from the act of giving itself. Other possible motives are related to the migration situation. Collective remittances may be part of an exchange between the migrant and the community. In this case, migrants would donate to compensate members of their community of origin for services provided directly or indirectly to household members left behind (e.g., additional support for migrants’ children through teachers and other community members). Donations may also allow migrants to remain in good standing with their community of origin and to preserve implicit or explicit membership rights, in case they ever decide to return home for good.

After developing a theoretical framework, we analyze the philanthropic behavior of an individual migrant empirically. Specifically, we relate the migrant’s decision to donate to a community project to a set of migrant, household, and community variables that we interpret as indicative of particular motives. Our analysis is based on a nationally representative household survey conducted in 2008 from Moldova with a special focus on migration and remittances. Moldova, a South-East European country with a high prevalence of emigration, is a highly suitable case for our study. First, Moldovan migrants are heterogeneous along several dimensions: They are widely dispersed across different destination countries, ranging from Russia to Western Europe, Turkey and other countries. Within individual destination countries, migration patterns also vary widely with respect to legal status, seasonality of migration, and return intention. We exploit this variation to test for the existence of several motives for collective remittances. Second, although the Moldovan government has recently begun to develop diaspora policies, no such efforts existed in 2008, the year in which the survey was conducted. Therefore, migrants’ preferences and behavior as measured in the survey were not yet affected by policies to promote migrant philanthropy. In other words, our data are likely to reflect migrants’ undistorted preferences to contribute to the development of their home communities.

In addition to analyzing the motives of donations by migrants, we also analyze donations to community projects by domestic members of the migrant’s household of origin. We do so to account for the fact that the migrant and her domestic household members may still belong to the same household, sharing a budget and a decision-making process on financial matters. Therefore, a donation by the migrant, or more generally, a donation financed from the additional income earned by the migrant, may well be channeled through domestic household members.

Finally, we investigate whether households with a migrant abroad are more likely to contribute to community projects than households without a migrant. On the one hand, migrant households tend to be richer while relying more than others on support from community members. If they are also more likely to donate than non-migrant households, this would represent one channel through which migration and remittances benefit the community at large, rather than only migrant households. On the other hand, migrant

households may be less involved in community affairs because their higher income allows them to purchase services privately and makes them more self-sufficient (Abdih et al., forthcoming).

We find that migrants are more likely to donate if (i) their income is higher, (ii) they frequently communicate with household members left behind, (iii) they expect ultimately to return to their home country, (iv) their status in the destination country is insecure, (v) more dependent children and elderly live in their household of origin, (vi) their local community is more ethnically homogeneous, and (vii) migration flows from their community are concentrated on few destination countries. These findings suggest that collective remittances are driven by a mix of motives, including altruism, exchange, and concern about future membership rights in the community of origin. We find the same motives to be relevant for donations of migrant households. We do not find that households with a migrant abroad are significantly more likely to donate to community projects than households without migrants.

## 2 Theoretical Framework

We define collective remittances as donations by migrants to community projects in their home communities. Community projects are characterized as not only benefiting the domestic members of migrants' households, but potentially all community members. Therefore, collective remittances are best conceptualized as migrants' private contributions towards the provision of local public goods.

### 2.1 Motives for Collective Remittances

To understand possible motives for collective remittances, we build on insights from the literatures on migrant remittances and on philanthropic behavior in general (see Rapoport and Docquier, 2006, and Bekkers and Wiepking, 2011, or Andreoni, 2006, for an overview). The two strands of literature capture different subsets of the potentially relevant features of collective remittances. The literature on the motives for migrant remittances is instructive on the behavior of migrants, but focuses on private transfers to family members, not donations to community projects. By contrast, the general literature on philanthropy is instructive on the motives for donations, but has little to say on how migration affects the decision to donate. From these diverse literatures, altruism, exchange, and securing membership rights in home communities emerge as key potential motives for collective remittances. In addition, community diversity, which arises from ethnic diversity in the home communities and the dispersion of migrants across destination countries, may affect the level of collective remittances.

**Altruism.** Pure altruism implies that an individual cares about the well-being of others; more technically, the well-being of others becomes part of her utility function. If the "others" are worse off, utility maximization typically leads to a transfer of income. Collective remittances to provide public goods are one way in which (better-off) migrants can improve the welfare of (worse-off) individuals in their home communities. The related

notion of impure altruism suggests that a philanthropist may also derive utility from the act of giving itself, e.g. by being able to look upon herself as a “giving” person who conforms to a certain standard of ethical behavior. The fact that migrants typically experience enormous income gains from moving abroad (Clemens et al., 2008; McKenzie et al., 2010) suggests a potentially strong role of altruism as a motive for collective remittances. Numerous empirical studies on migrant remittances and private transfers reviewed by Rapoport and Docquier (2006) conclude that altruism matters because important empirical regularities can only be understood if donors care about the welfare of recipients. Similarly, empirical studies of charitable giving reviewed by Bekkers and Wiepking (2011) find that donors are concerned about the welfare of the recipients of charity-provided services.

**Exchange.** Like private remittances, collective remittances may be part of a direct or indirect exchange between the migrant and the community. For example, migrants may leave behind children or elderly dependents who rely disproportionately on support from other community members such as neighbors or teachers. Collective remittances may compensate these community members for their extra efforts either directly or indirectly, depending on the nature of the community project. An example for exchange as a motive for private remittances is described in the study by Lucas and Stark (1985). They document for Botswana that migrant sons typically leave their cattle with the household of origin and compensate family members for looking after the cattle with remittances. Studies on charitable giving also find that giving may be influenced by exchange motives, such as when donors benefit from the services of the charities they support (see Bekkers and Wiepking, 2011).

**Securing community membership rights.** Migrants may also send collective remittances to secure membership rights in their home communities. For example, by supporting a community project, migrants may seek to remain in good standing with their peers and maintain social capital that will facilitate their eventual return. In this sense, collective remittances may be viewed as enhancing the migrant’s (or her household’s) reputation within the community. In a study on housing investments by Nigerian migrants in their home towns, Osili (2004) finds that migrants invest in housing in order to safeguard membership in their communities of origin. Membership rights are particularly important, if migrants ever decide to return home for good. Similarly, Dustmann and Mestres (2010) find that temporary migrants are more likely to remit than permanent migrants. Delpierre and Verheyden (2010) develop a theory of migrants’ decisions to remit and save under uncertainty regarding their future location. They find that insecure legal status (with respect to residence or work) will result in higher remittances because it makes the option to return home particularly valuable. Relatedly, the literature on the motives for private remittances has suggested a role for securing inheritance rights. In their famous study on Botswana, Lucas and Stark (1985) show that sons (who generally inherit) remit more to parents with large cattle herds than daughters (who generally do not inherit). While sons and daughters presumably both care about the welfare of their parents, the difference in behavior is best explained by sons’ concern to secure their inheritance rights. Similarly, empirical studies of

charitable giving document that reputation is an important motive for donations (Bekkers and Wiepking, 2011).

**Community diversity.** Collective remittances are likely to be affected by community characteristics that determine the homogeneity of community members' preferences towards public goods, transaction costs for agreeing upon and implementing collective action, or the degree of trust among community members. Alesina and La Ferrara (2000) find that participation in social activities is significantly lower in more unequal and in more racially or ethnically fragmented localities. Okten and Osili (2004) document that ethnic diversity in Indonesia is negatively correlated with monetary and time contributions to community organizations as well as with the prevalence of community organizations. Similarly, Andreoni et al. (2011) conclude from Canadian tax records that ethnic and religious diversity significantly reduce charitable contributions, though not the likelihood of donating at all.

The emerging role of migrant diasporas in promoting migrant philanthropy (Newland et al., 2010) suggests that collective remittances may be affected not only by diversity in the communities of origin, but also by the strength of migrant networks from a given community. One determinant of network strength is the degree of concentration of migrants across destination countries. The concentration of migrants from a given community in one destination country (possibly even in one destination city) is likely to facilitate communication and agreement among the diaspora on financing public goods at home.

## 2.2 Predicted Effects of Migrant, Household, and Community Characteristics

Our empirical analysis uses variables at the migrant, household and community level to identify the motives for collective remittances. Some variables are closely related to one particular motive. Other variables may reflect more than one motive because the different motives are not mutually exclusive. Table 1 lists important migrant, household, and community characteristics along with their expected effect (*ceteris paribus*) on the donation decision, distinguishing between the main motives for collective remittances: altruism, exchange, and membership rights, along with community diversity as an intervening factor.

If **altruism** is an important motive, we firmly expect collective remittances to increase with a migrant's income and decrease with the level of development of her community of origin. Collective remittances should also rise if the migrant's domestic household members are better off or if the migrant is in frequent contact with family or other community members, suggesting greater emotional attachment. Conversely, a more diverse community may be characterized by less trust and, hence, less emotional attachment and lower collective remittances.

We expect **exchange** motives for collective remittances to be related, above all else, to the presence and number of children and elderly members in the migrant's household at home. On the one hand, dependent household members may benefit particularly from the public



goods financed from collective remittances. On the other hand, children and elderly left behind may receive various forms of support from community members. By helping to provide public goods, the migrant may show appreciation and offer compensation. A community's demand for compensation and the migrant's ability to meet it increase with the migrant's economic success abroad. Hence, collective remittances should increase with the migrant's income. Communities with high rates of emigration may particularly benefit from exchange arrangements with their migrants. We therefore expect them to see higher inflows of collective remittances.

If **securing membership rights** in the home community is an important motive, we firmly expect to find collective remittances to be correlated with the migrant's probability of return. Likewise, closer links with family and community members, the presence of dependent family members, greater household wealth, and a higher level of economic development may all increase the value of membership rights in the community and hence render collective remittances more likely. By contrast, ethnic fragmentation and the resulting lack of trust may make it less attractive for the migrant to invest in securing membership rights through collective remittances. The effect of higher migrant income is ambiguous: On the one hand, better-off migrants have more resources to invest in securing membership rights; on the other hand, higher income in the destination country decreases the value of the return option.

If **community diversity** matters, we firmly expect a negative effect on collective remittances from ethnic fragmentation of community members (through heterogeneous preferences, higher transaction costs, or less trust). Similarly, for a given level of migration, more fractionalized migration flows may be associated with weaker migrant networks and make collective remittances less likely. Likewise, for a given level of diversity, more migrants may strengthen the network and encourage diaspora activities. Therefore, the community-level prevalence of migration should be positively correlated with collective remittances.

### 3 Empirical Strategy

#### 3.1 Data

Our analysis of the motives for collective remittances requires data at the migrant, household and community level. We draw on a unique combination of data sets for Moldova. Our main source is the IOM-CBSAXA household survey from 2008 that was specifically designed to analyze patterns of migration and remittances. The survey is particularly well-suited to study the motives for migrant donations because it includes migrant- and household-level information on monetary contributions to community projects as well as a wide range of socio-economic characteristics. With a total sample size of almost 4,000 households, the survey was designed to be representative for Moldova as a whole (excluding the secessionist region of Transnistria), for each major geographic region (North, Center, South, and the region around the capital of Chisinau), and for different locality sizes (large cities: Chisinau and Balti, other towns, and villages). Interviews were

generally conducted with the household head who provided information on the household and all its individual members including any migrant members abroad.

The survey not only inquired about migrants who were still members of the household at the time of the interview, but also about any former members who no longer belonged to the household because they had permanently settled abroad. This feature in combination with the fact that the emigration of whole households is still a rare phenomenon in Moldova limits the possibility that the survey misses migrants who move, but do not have households left to report on them. Therefore, the survey covers a wide range of diaspora groups and renders our analysis more representative of the diaspora as a whole. The survey defines a migrant as an individual who was abroad at the time of the interview or for at least three months during the 12 months preceding the interview (see Luecke et al., 2007 and 2009 for more information on the survey).

We restrict our sample to localities with fewer than 30,000 inhabitants. Moldova is a largely rural country, with only four cities or towns exceeding 30,000 inhabitants. By focusing on rural areas and small towns, we ensure that we do not compare migrants and households across localities of very different size because these may also differ in important unobservable dimensions. In addition, small localities are more likely to adequately capture the boundaries of communities that share and contribute to local public goods. The resulting sample consists of 1,281 migrants and 2,736 households.

In the remainder of this section, we describe the main variables suggested by our theoretical framework and also introduce the other data sets that we combine with the household survey. Appendix Tables A1 to A3 provide an overview and summary statistics of all variables used in our analysis.

**Donations to community projects.** Our main outcome of interest is whether or not a migrant has made a monetary contribution to a community project. For every migrant, the survey asks whether she has previously donated money to a community project and if so, for what type of community project. The survey does not contain information on the amount donated. Similar information is available for donations to community projects by domestic household members in Moldova.

One possible concern is that the interviewed household member may not be fully informed about the community donations of household members abroad. However, migrants are unlikely to keep their collective remittances secret from their relatives in Moldova. In small communities, the source of contributions to common projects is likely to be well-known in any case; a migrant may even face strong incentives to publicize her contribution if it is meant to compensate community members for services rendered or to protect community membership rights. In addition, labor migration is a relatively recent phenomenon in Moldova and few households have more than one member abroad. As a result, family ties are still strong and domestic household members should know about a migrant's donation.

Table 2 gives an overview over the donation patterns of migrants and domestic household members in households with a migrant abroad. Seven percent of the migrants as well as 43 percent of migrant households (33 percent in non-migrant households) have donated to a

community project. Migrants abroad and households in Moldova share similar preferences regarding the type of community projects they support. Most donations go to projects that are targeted at children (schools, kindergarten, orphanages). Infrastructure projects (water/sanitation, gas, roads) constitute the second most common category. Other types of donations are less important.

**Migrant variables.** A migrant's likelihood to return to Moldova is captured by two dummy variables. The first takes the value of one if the migrant expressly intends to *return home* in the future, rather than to settle abroad. The second indicates whether a *migrant's status abroad is insecure*, which is expected to increase the probability of an eventual return. It takes the value of one if the migrant has experienced a severe problem abroad, e.g. with local authorities or criminals or non-payment of wages. The low correlation between both variables (correlation coefficient of 0.08) indicates that they measure two different components of a migrants' return intention. We expect both variables to increase the probability that a migrant will donate to a community project.

We proxy the strength of a *migrant's family and community ties* by the frequency of communication. This dummy variable takes the value of one if the migrant communicates with the household of origin more often than once a week. In the absence of a direct measure of the *migrant's income* earned abroad, we use the number of years spent abroad as a proxy. We expect migration duration to be positively correlated with disposable income. Over the years, a migrant will have repaid her migration costs and can increasingly reap the benefits of economic assimilation in terms of job search and wages. Since we control for the frequency of communication, the duration variable should not capture loosening ties with the household of origin. This assertion can be tested empirically as our theoretical framework predicts a negative effect for weak family and community ties and a positive effect for income earned abroad (proxied by the number of years since departure).

In addition to these migrant variables, we control for migrant heterogeneity in terms of age, sex, education level, and marital status.

**Household variables.** Several motives suggest that with more *children and elderly* in the household of origin, a migrant will be more likely to contribute to a community project. Indeed, as shown above, most donations go to child-related projects (Table 2). We therefore construct two variables that count the number of individuals in the household aged 16 or younger and the number of individuals aged 65 or older. Another important household variable is the *household's living standard*. We use per-capita consumption expenditures as a proxy for income and an asset index as a proxy for wealth. The asset index is the first principal component of a set of household assets which discriminate between rich and poor households. This set comprises ownership of a car, a washing machine, and a mobile phone as well as household-level access to cable or satellite television.

**Community variables.** We draw on several datasets for community variables. At the municipality level, no direct measures of *community-level economic development* such as income, output or tax revenues are available. We therefore turn to high-resolution satellite data on

night-time light intensity from the Defense Meteorological Satellite Program's Operational Linescan System. Recent studies (Doll et al., 2006; Sutton et al., 2007 and Henderson et al., 2012) have shown that light intensity as captured by satellites at night is a meaningful measure of local economic activity. These studies document a strong positive within-country correlation between light intensity and GDP levels and growth rates. For Moldova, Omar Mahmoud et al. (2012) illustrate that light intensity is strongly correlated with indicators of economic activity on the ground. We follow them and calculate average light intensity for each Moldovan locality for every year since 1992, the first year for which satellite images are available.

We include two light-based variables. The first measures community light intensity in 1992 and thus captures local economic conditions just after independence in 1991. The second variable measures the change in light intensity for the period 1992-1999 during which Moldova's reported GDP fell by 40%. We expect this variable to capture the size of the economic shock suffered by each community during the transition period.

We do not include measures of light intensity after 1999. Since mass migration from Moldova started in 1998/1999, it is likely that migration and the resulting inflow of remittances have affected local economic development and light intensity after 1999. Donations to community projects may be one channel through which migration affects community development. Therefore, measures of light intensity after 1999 are potentially endogenous.

Moldova is one of very few countries that have collected detailed information on emigration in their population census. In addition to covering the resident population that was present at the time of the interview, the 2004 census also inquired about temporarily absent persons and their whereabouts. Temporarily absent persons are defined broadly to include individuals who may have lived abroad for several years as long as they maintain family relations with the household of origin. Typically, in Moldova, only one household member emigrates to earn additional income for the family. It is relatively rare even now for whole households to leave the country. Therefore, the 2004 census should quite accurately reflect the pattern of emigration.

Since existing migrant networks largely determine the size and destination of future migrant flows (see Munshi, 2003 on Mexico and Goerlich and Trebesch, 2008 on Moldova), migration patterns found in 2004 are likely to be highly persistent and representative even of the situation in 2008 (the year in which the IOM-CBSAXA household survey was conducted). Therefore, we use 2004 census information to compute the prevalence of migration and the fractionalization of migration flows for each community. The *community prevalence of migration* is defined as the percentage of migrants among the total population (including migrants) in each community.

In contrast to most other migrant-sending countries, Moldova has migrants in many different destinations. According to the 2004 census, 56 percent of the migrants were in Russia and 19 percent in Italy, with the rest elsewhere in the European Union (including Romania, Portugal, Greece, Spain, France, Germany) as well as in Ukraine, Turkey, and

Israel. We exploit this information to capture the *fractionalization of community migration flows*. For this purpose we construct the following migration fractionalization index (MFI) for each community:

$$MFI_c = 1 - \sum_d \left[ \frac{\text{migrants of community } c \text{ in destination } d}{\text{total number of migrants in community } c} \right]^2 \quad (1)$$

with  $c$  indexing communities and  $d$  destinations.

The index takes values between zero and one and indicates the probability that two migrants drawn at random from the same community of origin are located in different destinations. Probabilities close to one signal that individuals from a given community have migrated to many different countries, i.e. migration flows are very fragmented. This type of index has been widely used as a measure of ethnic diversity (e.g. Easterly and Levine, 1997; Alesina and La Ferrara, 2000).

We use the same type of index to measure the *ethnic fractionalization of the community of origin*. Moldova is a multi-ethnic country. Although three fourths of the population are Moldovan, there are sizeable minorities of ethnic Ukrainians (8%), Russians (6%), Gagauz (4%), Bulgarians (2%) and others. We use information from the 2004 census on the ethnic composition of each community to construct the following ethnic fractionalization index (EFI):

$$EFI_c = 1 - \sum_e \left[ \frac{\text{individuals of ethnicity } e \text{ in community } c}{\text{total number of individuals in community } c} \right]^2 \quad (2)$$

with  $c$  indexing communities and  $e$  ethnicities.

Similar to the MFI, the EFI measures the probability that two individuals drawn randomly from the same community belong to a different ethnicity. Again, values close to one correspond to a high degree of fractionalization. Both the MFI and the EFI are intended to capture the effect of community diversity on a migrant's probability to contribute to community projects.

Finally, we introduce a measure of *public transfers to the community*. It is defined as per-capita government expenditures, including those financed from the central government budget. Data come from the first available round of the Village Deprivation Index in 2006. We control for this variable because public transfers may crowd out private contributions to the provision of local public goods.

To reduce heterogeneity across communities, we also control for population size and inequality as proxied by the ratio of high-skilled over low-skilled individuals. Both variables are based on the 2004 census.

## 3.2 Econometric Framework

### 3.2.1 Migrant Donations

The focus of this paper is on the determinants of migrant donations to community projects. Following our theoretical framework, we model a migrant's decision to donate as a function of migrant ( $i$ ), household ( $h$ ), and community ( $c$ ) variables, allowing for district-level ( $j$ ) fixed effects. Using a simple probit model, we estimate the following empirical specification for migrants:

$$D_i = \alpha + M_i'\beta + H_h'\gamma + C_c'\delta + \mu_j + \varepsilon_i \quad (3)$$

$D$  is a dummy variable that indicates whether a migrant has made a monetary contribution to a community project. The vectors  $M$ ,  $H$  and  $C$  represent migrant, household and community variables as described above. We add district-level fixed effects to address potential unobserved heterogeneity across communities and ensure that we only evaluate the determinants of migrant donations in neighboring communities. Moldova's 35 districts partition the country into relatively small areas (covering 866 square kilometers and containing 26 local communities on average). They follow the same administrative boundaries as in Soviet times and have traditionally played an important role in Moldova's political and economic organization. We therefore expect district-level fixed effects to eliminate large parts of unobserved heterogeneity that might exist across local communities.

### 3.2.2 Donations by Domestic Household Members

To fully assess how migration and donations to community projects are associated, we also analyze the determinants of donations by domestic household members, using two different approaches. First, we focus on migrant households because donations might be financed from the migrant's income but channeled to the community project through the domestic members of the household of origin. The possible motives for donations presented in our theoretical framework, particularly exchange and community membership rights, are perfectly compatible with domestic household members, rather than the migrant, making the donation. This may be especially so if a migrant and her household of origin still maintain a close relationship and take joint financial decisions. We classify migrant households according to migrant characteristics, such as whether the migrant plans to return, has an insecure status abroad, or communicates several times per week, and add the corresponding dummy variables to the vector of household characteristics  $H$ , along with the number of years since the departure of the (first) migrant. The resulting empirical model takes the following form:

$$D_m = \alpha + H_m'\gamma + C_c'\delta + \mu_j + \varepsilon_m \quad (4)$$

with  $m$  indexing migrant households.  $D$  is a dummy variable that indicates whether domestic members of the migrant household have made a monetary contribution to a community project. The vector  $C$  represents the same set of community variables as in Equation 3.

Second, we examine whether domestic members of households with migrants are more likely to donate than households without migrants. The resulting sample contains all migrant and non-migrant households in the IOM-CBSAXA survey that reside in localities with fewer than 30,000 inhabitants. Our empirical model takes the following form:

$$D_h = \alpha + \beta mighh_h + H'_h \gamma + C'_c \delta + \mu_j + \varepsilon_h \quad (5)$$

The vectors  $H$  and  $C$  represent the same set of household and community variables as in Equation 3. The main variable of interest is the migrant household dummy  $mighh$  that indicates whether a household includes at least one migrant.

### 3.2.3 Identifying the Impact of Migration

We control for important dimensions of heterogeneity across migrants, households and communities to minimize the chance that an unobserved confounding factor might affect both the pattern of migration and the probability to donate. Nevertheless, in a study like ours that simultaneously investigates the association of many variables with one specific outcome, causal identification is difficult. In theory, randomization would overcome the problem of self-selection into migration. However, one would need to randomly assign not only migration, but also migration patterns including the probability to return, the strength of family ties, and the level of income earned abroad. Randomization across all these dimensions is neither practically nor ethically feasible.

Given these constraints, we recognize that our empirical strategy does not necessarily identify causal effects. However, the reported associations are still useful to test the predictions of our theoretical framework. Most importantly, they can provide guidance to policymakers who seek to reach out to those parts of the diaspora that are most likely to donate. Migrant attributes that are robustly correlated with the probability to donate provide a useful starting point for targeting such groups effectively.

In line with recent literature (e.g. McKenzie and Rapoport, 2010), we use an instrumental variable strategy to account for the fact that individuals self-select into migration and that the unobserved determinants of migration may also affect household donations. In particular, communities with a high prevalence of migration may well differ in some unobserved dimension from communities with a low prevalence of migration. Likewise, there may be unobserved heterogeneity between migrant and non-migrant households. Thus, any observed differences between “treatment” and control groups (with migration being the treatment) may in fact not be attributable to migration. To address this potential endogeneity problem, we use an instrumental variable strategy.

A valid instrument must have a direct impact on the probability to migrate, but must affect donations only indirectly through its impact on migration. The push and pull factors of migration are a natural starting point to identify a suitable instrument. Push factors relate to adverse conditions at home, including at the community level (e.g. economic hardship). Therefore, push factors may potentially have a direct impact on both migration and community donations. For instance, an adverse economic shock in the community of origin may simultaneously alter the willingness to migrate and engage in a community

project. Hence, push factors may not satisfy the exclusion restriction for a valid instrument. By contrast, pull factors refer to favorable conditions abroad (e.g. high wages). In principle, one would expect pull factors at the (potential) destination to be uncorrelated with the probability to make a donation at the origin. This is because Moldovan migrants are located in destinations that are far from their communities of origin. Thus, pull factors may offer a pool of potentially valid instruments.

The problem remains, however, that pull factors – economic conditions abroad – do not vary across communities of origin. To address this problem, we use the fact that the “pull” exerted by economic conditions abroad is mediated through migrant networks which do differ across communities in Moldova. Thus our instrumental variable strategy combines information on destination-specific economic conditions with information on community-specific migrant networks in different destinations. The central idea is that economic conditions abroad determine job opportunities for new migrants, while migrants already abroad channel these opportunities to their communities of origin. Since initial migrant networks vary across communities, communities are differentially exposed to economic conditions abroad.

Migrant networks have been shown to play a key role in shaping migration flows by providing information on jobs abroad and lowering migration costs for subsequent migrants (Munshi, 2003). This observation also applies to Moldova, where local migrant networks are among the principal determinants of migration (Goerlich and Trebesch, 2008). The degree of exposure to economic conditions abroad depends on the size of an initial migrant network as well as its location. For a given network size, a community with an initial migrant network at a destination with a booming economy will experience more emigration than a community with a migrant network of the same size at a destination with a stagnating economy. Over time, economic conditions abroad would exogenously determine the growth of a given migration network and thus drive a community’s migration flows.

We use information from the 2004 census on past migration patterns to construct each community’s initial migrant networks across all potential destination countries. Initial destination-specific networks are defined as the community prevalence of migration to the respective destination in 1999. At that time, emigration from Moldova had just started and was still a very minor phenomenon in Moldova. Therefore, these initial networks have probably had an important impact on the size of subsequent migration flows, depending on the change of economic conditions in the destination countries. To capture the change in economic conditions abroad, we calculate the difference in unemployment rates between 1999 and 2003 for each potential destination country. These years were decisive for building up of the migrant networks that shaped Moldova’s migration flows for the rest of the 2000s. We limit the period to 2003, so we can crosscheck with the 2004 census whether economic conditions abroad indeed had an impact on the level of migration.

We expect decreasing unemployment rates to increase demand for migrant labor. We make the non-critical assumption that migration flows from each individual Moldovan



community are too small to affect the unemployment rate in the destination countries. A community's exposure to economic conditions abroad  $E$  is then given by the weighted sum of changes in unemployment abroad, where the weight for each destination  $d$  is given by a community's initial migrant network in the corresponding destination:

$$E_c = \sum_d \left[ \frac{\text{migrants of community } c \text{ in destination } d_{1999}}{\text{population size of community } c} * (\text{unemployment}_{d2003} - \text{unemployment}_{d1999}) \right] \quad (6)$$

We then use community exposure  $E$  as an instrument for the community prevalence of migration in Equations (3) and for the migrant household dummy in Equation (5).

A hypothetical example helps to illustrate how the instrument works. Suppose there are two communities  $A$  and  $B$  and three potential destinations: Russia, Italy and Turkey. In 1999, community  $A$  had 1% of its population in Russia, 2% in Italy and 1% in Turkey. Community  $B$  had 4% of its population in Russia and no migrants in Italy or Turkey. Note that both communities only differ in the composition, but not in the size of their initial migrant network (both communities had 4% of their population abroad). Now suppose that the unemployment rates of Russia, Italy and Turkey changed by -10%, +2% and -3% over the period 1999-2003. Communities  $A$  and  $B$  would then have experienced the following exposure to economic conditions abroad:

$$E_A = 0.01*(-0.1)+0.02*0.02+0.01*(-0.03)=-0.0009$$

$$E_B = 0.04*(-0.1)+0*0.02+0*(-0.03)=-0.004$$

Community  $B$  is exposed to a more favorable change in unemployment abroad than community  $A$  because its initial migrant network happened to be located at the subsequently booming destination (Russia). Thus, we expect community  $B$  to see higher subsequent emigration than community  $A$ .

It turns out that economic conditions varied widely across Moldova's ten most important destination countries. Between 1999 and 2003, unemployment rates in Russia, Italy, Ukraine, Greece, Spain and France fell by 2 to 5 percentage points, whereas unemployment rose by 1 to 3 percentage points in Romania, Portugal, Turkey and Israel. Hence, Moldovan communities with different initial migrant networks were exposed to very different economic conditions abroad.

A possible concern regarding the validity of our instrument is that the size and destination of initial migrant networks may be endogenously determined. If initial migrant networks are the outcome of community-specific push factors, the exclusion restriction of the instrument may be called into question. We address this problem by controlling for initial migrant networks at different destinations as separate regressors in both the first and the second stage of the IV estimation.

The first stage regression to instrument for community prevalence of migration in Equation (3) then becomes:

$$\text{migration}_c = \alpha + \varphi E_c + \text{network}'_{cd1999}\theta + M'_i\beta + H'_h\gamma + C'_c\delta + \mu_j + \varepsilon_c \quad (7)$$

where  $network_{cd1999}$  is a vector of a community's initial migrant network in different destinations  $d$ .

This specification ensures that migration is driven by economic conditions from abroad and not by unobserved factors that correlate with the size of an initial network at a given destination. Our identifying assumption is that the *combination* of initial migrant networks at different destinations and the resulting exposure to economic conditions abroad does not affect the probability to donate directly, but only indirectly through its impact on the probability of migration.

Figure A1 in the appendix demonstrates that our instrument is strongly correlated with migration prevalence across communities as measured by the census. Communities that had been exposed to larger reductions in unemployment abroad reported substantially higher migration prevalence rates in 2004. The F-statistic for the instrument in the corresponding first-stage regression with all controls is 22, far above the critical value for a strong instrument.

## 4 Results

### 4.1 Migrant Donations

Table 3 summarizes our results on the determinants of migrant donations. It shows the marginal effect of each variable on the probability to make a donation to a community project. Most of the variables show the predicted sign and are significant. In general, we find support for the notion that altruism, exchange and securing community membership rights are important motives for donations, with an added role for community diversity.

Column 1 presents our baseline specification with district-level fixed effects. As regards migrant characteristics, the number of years abroad and the frequency of communication have a significant and positive marginal effect. The probability to make a donation increases by 0.3 percentage point for every additional year spent abroad and by 5.3 percentage points if the migrant frequently communicates with her family. These findings suggest that higher income and more intense emotional attachment make a donation more likely, which is consistent with the altruism motive. The large marginal effects for return intention and insecure status abroad indicate an important role for concerns about securing membership rights in the community of origin as a motive for donations. Those who intend to return are 5.2 percentage points more likely to donate. Likewise, an insecure status abroad is associated with a three percentage point increase in the probability to donate.

As regards household characteristics, the number of dependents left behind is significantly and positively related with the migrant's decision to donate. An additional child in the household of origin increases the probability of collective remittances by 1.8 percentage points, an additional elderly person by 2.5 percentage points. These results are suggestive of the exchange motive. The household's living standard as proxied by household expenditures and assets is not significantly associated with migrant donations.

As regards community variables, a larger decline in night-time light during the 1990s (reflecting a particularly bad transition shock) makes a migrant donation more likely, consistent with altruism. At the same time, ethnic fractionalization in the community of origin discourages migrant philanthropy. If ethnic fractionalization increases by one standard deviation (about 0.18), a donation becomes about three percentage points less likely. Fractionalization matters not only at the level of the population of the community of origin, but also with respect to the destination countries of migrants (column 2). A one standard deviation increase in the fractionalization of migration flows (about 0.18) is associated with a decrease in the probability to donate by about 2.3 percentage points. Finally, migration prevalence at the community level has no significant impact – neither in the ordinary probit regression (column 3) nor when instrumented with exposure to economic conditions abroad (column 4; see Table 5, column 1 for detailed IV regression results).

The remaining columns check the robustness of our baseline specification. Excluding district-level fixed effects does not change our main results, suggesting that there is little unobserved heterogeneity at the district level (column 5). Our results are also robust to controlling for the amount of private remittances a migrant sends to her household (column 6) and her destination country (column 7).

## 4.2 Donations by Domestic Household Members

First, we focus on households with migrants only and analyze the impact of different migration patterns (Table 4). Column 1 presents the baseline specification. Wealthier households and those with children are significantly more likely to donate, indicating a relevant role for altruistic and exchange motives. As regards migration characteristics, having a migrant who plans to return to Moldova increases the likelihood of a household donation by about ten percentage points. The large marginal effect may reflect concerns about the household's reputation at present and community membership rights in the future. Other migration-related variables such as the frequency of communication with the migrant, the number of years spent abroad, or remittances received by the household (column 2) are not significantly associated with donations by domestic household members.

As regards community variables, we do not find a significant relationship between ethnic fractionalization and the domestic household members' probability to donate, which contrasts with our earlier finding regarding donations by migrants. Perhaps household members in Moldova have better possibilities to directly observe and monitor how their donations are being used, even in an ethnically diverse environment. By contrast, migrants abroad may have to rely on trust to a larger extent, which may be more difficult with greater ethnic diversity. Similarly, there is no evidence that the fractionalization of migration flows across destinations affects donations by domestic household members (column 3). However, a higher overall prevalence of migration in the community makes a donation by a migrant household significantly more likely, but only when migration prevalence is instrumented (Columns 4 and 5; see Table 5, Column 2 for detailed IV

results). On the one hand, high emigration rates may burden the social structure of communities, suggesting an exchange motive for the donation. On the other hand, preferences regarding the provision of public goods in high-emigration communities may be more homogeneous because many households share the experience of having a family member abroad.

Second, we compare households with and without migrants and do not find robust evidence that domestic members of households with migrants abroad are more likely to donate than households without migrants. The estimated coefficient for the migrant household dummy variable suggests a marginal effect of 4.4 percentage points under the simple probit model (Column 6). However, when using an IV approach to take into that migrant and non-migrant households are likely to differ in unobserved dimensions, the marginal effect is no longer significant at usual significance levels (Column 7; see Table 5, Column 3 for detailed IV results). In this case, the IV estimate is based on a bivariate probit model as both migration and donation are discrete outcomes (see Table 5, Column 3 for detailed IV results). An alternative IV approach based on the linear probability model delivers the same results.

## 5 Conclusion

Our analysis suggests that community donations by migrants and by domestic members of their households are driven by a mix of motives. Altruism plays a role as more established migrants and richer households are more likely to donate. The link between donations and the number of children and elderly in the household suggests that donations may compensate the community for migrant households' greater reliance on local public services and other support from community members. The large association between return intentions and donations, both by migrants and their domestic household members, suggests that donations also serve to remain in good standing with the local community and to secure membership rights in case the migrant eventually returns for good. Community diversity is also associated with the donation decision. Donations by migrants, but not by domestic household members, are negatively related to ethnic fractionalization in the community of origin. Similarly, if migrants from a given community are more dispersed across different host countries, they are also less likely to donate.

Our findings provide guidance for diaspora policies that want to engage migrants in the provision of public goods in their communities of origin. Policies that generate incentives for collective remittances, for instance through matching funds, appear particularly promising when targeted towards migrants who do not plan to settle abroad permanently. This group has a high propensity to donate as they seek to preserve membership rights and compensate community members for extra support to left-behind family members. By contrast, once migrants leave permanently and are able to take their families with them, they become much less likely to donate to community projects at home. In these permanent diasporas, altruism will become the main motive for migrant donations; policy interventions may usefully focus on encouraging frequent contact with any friends and

relatives still in the country of origin, along with strengthening professional links. Promoting good inter-ethnic relations, apart from providing other benefits, may also increase migrants' inclination to donate.

In the specific case of Moldova, many migrants work in Russia where living and working conditions are often difficult. Therefore, few choose to remain in Russia indefinitely. For these migrants, incentives for donations are likely to fall on fertile ground. At the same time, high-income destination countries in the EU and elsewhere have become more prominent, especially among young, well-educated Moldovans. These migrants rarely plan to return to Moldova but typically seek to establish permanent legal status abroad and to take their families along. For this group, a diaspora strategy that appeals to migrants' altruism seems most promising.

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## Tables

TABLE 1: THEORETICAL PREDICTIONS

	Altruism	Exchange	Community membership rights	Community diversity
Migrant variables				
Migrant's links to family/community	+		+	
Migrant's income abroad	++	+	-/+	
Migrant's return intention/insecure status abroad			++	
Household variables				
Children/elderly left behind in migrant's family		++	+	
Income/wealth of migrant's family left behind	+		+	
Community variables				
Community development	—		+	
Community prevalence of migration		+		+
Community fractionalization of migration flows				—
Community ethnic fractionalization	-		-	—

Note: “++” and “—” indicate a firm prediction.



TABLE 2: DISTRIBUTION OF MIGRANT AND HOUSEHOLD DONATIONS ACROSS DIFFERENT TYPES OF COMMUNITY PROJECTS

	Migrants	Migrant households	Non-migrant households
School	30%	25%	21%
Kindergarten	20%	19%	17%
Water/sanitation	15%	14%	13%
Gas	12%	14%	12%
Road	8%	10%	13%
Health center/hospital	5%	5%	5%
Orphanages	4%	5%	5%
Other	5%	8%	14%
Total	100%	100%	100%

Notes: Based on 135 migrant and 2328 household donations. In addition, 154 migrant and 671 household donations to the church were recorded. 7 percent of migrants, 43 percent of migrant households and 33 percent of non-migrant households donated to a community project.

TABLE 3: MIGRANT DONATIONS, MARGINAL EFFECTS (ROBUST S.E. IN PARENTHESES)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	baseline	community fractionalization of migration flows	community migration prevalence (probit)	community migration prevalence (IV probit)	without district fixed effects	controlling for family remittances	controlling for migrant destination
age	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)	0.003** (0.001)	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)
male	0.005 (0.014)	0.002 (0.013)	0.004 (0.014)	0.019 (0.020)	0.010 (0.012)	-0.002 (0.017)	-0.001 (0.014)
higher education	0.022 (0.018)	0.019 (0.018)	0.022 (0.018)	0.044 (0.029)	0.013 (0.016)	0.031 (0.022)	0.024 (0.019)
married	-0.028 (0.018)	-0.031* (0.018)	-0.029 (0.018)	-0.056** (0.028)	-0.025 (0.017)	-0.039* (0.023)	-0.030 (0.018)
plans to return	0.052*** (0.011)	0.051*** (0.011)	0.051*** (0.012)	0.090** (0.037)	0.048*** (0.011)	0.054*** (0.013)	0.050*** (0.011)
problems abroad	0.030** (0.012)	0.029** (0.012)	0.029** (0.012)	0.018 (0.022)	0.022* (0.012)	0.029** (0.014)	0.028** (0.012)
communicates several times per week	0.053*** (0.018)	0.051*** (0.017)	0.052*** (0.018)	0.076*** (0.028)	0.036** (0.015)	0.056*** (0.021)	0.054*** (0.018)
years abroad	0.003** (0.001)	0.003** (0.001)	0.003** (0.001)	0.002 (0.002)	0.003** (0.001)	0.003 (0.002)	0.003** (0.001)
number of children 0-16 years in hh	0.018*** (0.006)	0.017*** (0.006)	0.018*** (0.006)	0.018** (0.008)	0.015*** (0.006)	0.021*** (0.007)	0.017*** (0.006)
number of elderly 65- years in hh	0.025** (0.012)	0.022* (0.011)	0.026** (0.012)	0.004 (0.027)	0.015 (0.010)	0.028** (0.014)	0.026** (0.012)
hh per-capita expenditures (in 10000 MDL)	-0.024 (0.057)	-0.014 (0.055)	-0.008 (0.056)	-0.002 (0.091)	0.025 (0.051)	-0.010 (0.065)	-0.015 (0.059)
hh wealth index	0.007 (0.005)	0.005 (0.005)	0.007 (0.006)	0.005 (0.008)	0.003 (0.005)	0.005 (0.007)	0.007 (0.005)
community night-time light 1992	-0.002 (0.002)	-0.003 (0.002)	-0.002 (0.002)	-0.009* (0.005)	0.000 (0.001)	-0.003 (0.002)	-0.002 (0.002)
change night-time light 1992-1999	-0.126*** (0.046)	-0.120*** (0.045)	-0.120*** (0.045)	-0.177*** (0.064)	-0.066* (0.035)	-0.143*** (0.053)	-0.121*** (0.045)
community ethnic fractionalization	-0.175*** (0.056)	-0.193*** (0.057)	-0.169*** (0.054)	-0.080 (0.096)	-0.135*** (0.049)	-0.176*** (0.061)	-0.180*** (0.055)
community per-capita social expenditures (MDL)	-0.033 (0.040)	-0.028 (0.039)	-0.037 (0.040)	0.012 (0.068)	-0.064* (0.034)	-0.024 (0.047)	-0.036 (0.040)
community population size (in 10000)	0.038* (0.022)	0.052** (0.023)	0.035 (0.022)	0.122* (0.067)	0.002 (0.015)	0.029 (0.027)	0.040* (0.022)
community ratio high-skilled/low-skilled individuals	0.041 (0.057)	0.047 (0.055)	0.049 (0.056)	0.141* (0.085)	0.038 (0.036)	0.052 (0.071)	0.042 (0.056)
community fractionalization of migration flows		-0.130** (0.058)					
community prevalence of migration (%)			-0.003 (0.002)	0.056 (0.039)			
remittances sent by migrant (in 1000 USD)						0.006** (0.003)	
migrant to Europe, US or Canada							0.012 (0.029)
migrant to Russia							0.028 (0.022)
district fixed effects	yes	yes	yes	yes	no	yes	yes
observations	994	994	994	994	1,281	815	994

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

TABLE 4: HOUSEHOLD DONATIONS, MARGINAL EFFECTS (ROBUST S.E. IN PARENTHESES)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	migrant households only					all households	
	baseline	controlling for family remittances	community fractionalization of migration flows	community migration prevalence (probit)	community migration prevalence (IV probit)	Probit	IV (bivariate probit)
age hh head	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.000 (0.002)	-0.001 (0.001)	-0.001 (0.001)
male hh head	0.014 (0.069)	0.015 (0.069)	0.009 (0.070)	0.014 (0.069)	0.010 (0.067)	0.009 (0.036)	-0.014 (0.018)
higher education hh head	0.053 (0.047)	0.055 (0.047)	0.058 (0.047)	0.054 (0.047)	0.065 (0.046)	0.047* (0.025)	0.007 (0.012)
married hh head	0.066 (0.066)	0.063 (0.066)	0.072 (0.066)	0.066 (0.066)	0.076 (0.063)	0.107*** (0.033)	0.068*** (0.025)
number of children 0-16 years in hh	0.047** (0.020)	0.046** (0.020)	0.049** (0.021)	0.047** (0.020)	0.037* (0.021)	0.038*** (0.012)	0.029*** (0.009)
number of elderly 65- years in hh	-0.001 (0.040)	-0.001 (0.040)	0.002 (0.040)	-0.003 (0.040)	-0.038 (0.043)	-0.032 (0.020)	-0.045*** (0.017)
hh per-capita expenditures (in 10000 MDL)	0.214 (0.251)	0.167 (0.253)	0.217 (0.251)	0.205 (0.251)	0.174 (0.243)	0.208 (0.154)	0.070 (0.059)
hh wealth index	0.031** (0.015)	0.029* (0.016)	0.032** (0.015)	0.031** (0.015)	0.020 (0.017)	0.039*** (0.008)	0.014*** (0.004)
community night-time light 1992	-0.002 (0.006)	-0.001 (0.006)	-0.001 (0.006)	-0.002 (0.006)	-0.009 (0.006)	-0.007** (0.003)	-0.004*** (0.002)
change night-time light 1992-1999	0.083 (0.115)	0.080 (0.115)	0.077 (0.116)	0.080 (0.115)	0.043 (0.115)	0.002 (0.070)	0.020 (0.034)
community ethnic fractionalization	0.023 (0.145)	0.026 (0.146)	0.063 (0.148)	0.020 (0.145)	0.007 (0.144)	-0.017 (0.073)	-0.066 (0.043)
community per-capita social expenditures (MDL)	0.077 (0.107)	0.083 (0.107)	0.085 (0.108)	0.087 (0.108)	0.238* (0.124)	0.065 (0.060)	-0.025 (0.032)
community population size (in 10000)	-0.088 (0.054)	-0.092* (0.054)	-0.104* (0.055)	-0.084 (0.054)	0.028 (0.078)	-0.037 (0.029)	-0.011 (0.014)
community ratio high-skilled/low-skilled individuals	0.009 (0.113)	0.012 (0.113)	-0.024 (0.116)	0.001 (0.112)	-0.019 (0.106)	0.037 (0.055)	0.011 (0.028)
hh with migrant who plans to return	0.102* (0.054)	0.102* (0.054)	0.106** (0.054)	0.104* (0.054)	0.121** (0.052)		
hh with migrant who has had problems abroad	0.034 (0.040)	0.035 (0.040)	0.030 (0.040)	0.033 (0.040)	0.007 (0.043)		
hh with migrant who communicates often	-0.004 (0.041)	-0.005 (0.041)	-0.006 (0.041)	-0.003 (0.041)	0.013 (0.042)		
years since departure of first migrant member	0.004 (0.004)	0.004 (0.004)	0.005 (0.004)	0.004 (0.004)	0.003 (0.004)		
remittances received by hh (in 1000 USD)		0.008 (0.007)					
community fractionalization of migration flows			0.216 (0.162)				
community prevalence of migration (%)				0.004 (0.006)	0.069** (0.035)		
migrant household						0.044** (0.021)	0.069 (0.090)
district fixed effects	yes	yes	yes	yes	yes	yes	yes
observations	915	915	915	915	915	2,736	2,736

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

TABLE 5: 1<sup>ST</sup> AND 2<sup>ND</sup> STAGE IV REGRESSIONS, COEFFICIENTS (ROBUST S.E. IN PARENTHESES)

<i>dependent variable</i>	(1)		(2)		(3)	
	migrants		migrant households		all households	
	IV probit		IV probit		Bivariate probit	
	Table 3, Column 4		Table 4, Column 5		Table 4, Column 7	
	<i>second stage</i>	<i>first stage</i>	<i>second stage</i>	<i>first stage</i>	<i>second stage</i>	<i>first stage</i>
	migrant	community	migrant	community	household	migrant
	donation	prevalence	household	prevalence	donation	household
		of migration	donation	of migration		
age	0.017** (0.007)	-0.013 (0.009)	-0.001 (0.005)	-0.004 (0.009)	-0.003 (0.003)	-0.003 (0.003)
male	0.103 (0.110)	-0.188 (0.160)	0.026 (0.170)	0.004 (0.316)	0.048 (0.103)	-0.150 (0.095)
higher education	0.222* (0.124)	-0.349* (0.187)	0.164 (0.116)	-0.259 (0.207)	0.132* (0.068)	-0.085 (0.063)
married	-0.282** (0.137)	0.267 (0.190)	0.195 (0.164)	-0.130 (0.300)	0.248** (0.125)	0.248*** (0.092)
plans to return	0.622*** (0.193)	-0.441** (0.218)				
problems abroad	0.097 (0.144)	0.382** (0.167)				
communicates several times per week	0.372*** (0.126)	-0.186 (0.185)				
years abroad	0.011 (0.015)	0.034* (0.020)				
number of children 0-16 years in hh	0.093 (0.064)	0.118 (0.078)	0.093* (0.053)	0.085 (0.086)	0.078 (0.053)	0.133*** (0.030)
number of elderly 65- years in hh	0.023 (0.148)	0.549*** (0.148)	-0.097 (0.108)	0.464** (0.190)	-0.049 (0.091)	-0.281*** (0.053)
hh per-capita expenditures (in 10000 MDL)	-0.012 (0.482)	0.663 (0.811)	0.441 (0.615)	0.107 (1.010)	0.504 (0.409)	
hh wealth index	0.024 (0.044)	0.063 (0.070)	0.052 (0.042)	0.101 (0.074)	0.103*** (0.023)	
community night-time light 1992	-0.050*** (0.017)	0.117*** (0.027)	-0.024 (0.016)	0.102*** (0.029)	-0.019** (0.009)	-0.009 (0.008)
change night-time light 1992-1999	-0.944** (0.470)	0.139 (0.492)	0.108 (0.291)	0.702 (0.576)	0.006 (0.191)	0.138 (0.183)
community ethnic fractionalization	-0.425 (0.629)	-1.986** (0.784)	0.019 (0.364)	-0.553 (0.841)	-0.167 (0.227)	-0.311 (0.199)
community per-capita social expenditures (MDL)	0.063 (0.349)	-1.030** (0.509)	0.603* (0.312)	-2.404*** (0.507)	0.245 (0.191)	-0.431*** (0.163)
community population size (in 10000)	0.648*** (0.217)	-1.286*** (0.283)	0.070 (0.198)	-1.582*** (0.269)	-0.086 (0.079)	0.010 (0.075)
community ratio high-skilled/low-skilled individuals	0.750 (0.512)	-0.439 (0.512)	-0.047 (0.269)	0.041 (0.419)	0.039 (0.151)	0.042 (0.142)
community prevalence of migration (%)	0.298*** (0.087)		0.176** (0.089)			
community prevalence of migration to Russia in 1999 (%)	-2.689*** (0.718)	1.100 (0.981)	-0.469 (0.490)	0.282 (1.037)	0.317** (0.144)	-1.685*** (0.626)
community prevalence of migration to Italy in 1999 (%)	-1.187 (0.859)	3.214*** (0.949)	-1.528** (0.759)	4.043*** (1.066)	-0.346 (0.281)	-0.781* (0.450)
community prevalence of migration to other countries in 1999 (%)	-3.325*** (0.562)	6.997*** (0.696)	-1.078 (0.749)	6.607*** (0.793)	0.408* (0.221)	-0.637*** (0.219)
community exposure to employment opportunities abroad		2.358*** (0.480)		2.465*** (0.522)		0.351*** (0.127)

hh with migrant who plans to return		0.314**	-0.467*		
		(0.139)	(0.252)		
hh with migrant who has had problems abroad		0.017	0.459***		
		(0.110)	(0.178)		
hh with migrant who communicates often		0.032	-0.215		
		(0.106)	(0.195)		
years since departure of first migrant member		0.008	0.004		
		(0.011)	(0.020)		
migrant household				0.496	
				(0.720)	
/athrho	-0.885**	-0.450*	-0.234		
	(0.400)	(0.258)	(0.470)		
/lnsigma	0.863***	0.864***			
	(0.022)	(0.023)			
F-statistic of instrument	22.19	20.99	12.22		
district fixed effects	yes	yes	yes	yes	yes
observations	994	915	2,736		

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Appendix

TABLE A1: SUMMARY STATISTICS MIGRANT SAMPLE BY DONATION

	donation=0		donation=1	
	mean	std. dev.	mean	std. dev.
age	34.88	9.94	38.38	10.99
male	0.62	0.49	0.68	0.47
higher education	0.26	0.44	0.24	0.43
married	0.64	0.48	0.73	0.44
plans to return	0.82	0.38	0.96	0.21
problems abroad	0.65	0.48	0.77	0.43
communicates several times per week	0.31	0.46	0.48	0.50
years abroad	4.54	4.10	5.94	4.58
number of children 0-16 years in hh	0.90	1.02	1.33	1.39
number of elderly 65- years in hh	0.23	0.52	0.28	0.62
hh per-capita expenditures (in 10000 MDL)	0.10	0.10	0.10	0.08
hh wealth index	-0.10	1.28	0.08	1.24
community night-time light 1992	6.39	5.31	6.36	5.97
change night-time light 1992-1999	-0.77	0.21	-0.82	0.16
community prevalence of migration (%)	9.86	3.86	9.08	2.87
community fractionalization of migrant flows	0.51	0.18	0.48	0.17
community ethnic fractionalization	0.14	0.18	0.08	0.12
community per-capita social expenditures (MDL)	0.61	0.20	0.53	0.24
community population size (in 10000)	0.49	0.52	0.46	0.51
community ratio high-skilled/low-skilled	0.26	0.28	0.22	0.24
remittances sent by migrant (in 1000 USD)	0.90	1.92	1.52	3.90
migrant to Europe, US or Canada	0.30	0.46	0.20	0.40
migrant to Russia	0.62	0.49	0.72	0.45

TABLE A2: SUMMARY STATISTICS MIGRANT HOUSEHOLD SAMPLE BY DONATION

	donation=0		donation=1	
	mean	std. dev.	mean	std. dev.
age hh head	52.83	13.51	49.41	11.86
male hh head	0.78	0.42	0.85	0.36
higher education hh head	0.18	0.38	0.23	0.42
married hh head	0.74	0.44	0.83	0.37
number of children 0-16 years in hh	0.77	1.04	1.01	0.99
number of elderly 65- years in hh	0.32	0.60	0.21	0.49
hh per-capita expenditures (in 10000 MDL)	0.09	0.08	0.10	0.09
hh wealth index	-0.32	1.31	-0.06	1.26
community night-time light 1992	7.09	5.93	6.33	5.28
change night-time light 1992-1999	-0.77	0.18	-0.79	0.20
community prevalence of migration (%)	9.86	3.86	9.70	3.74
community fractionalization of migrant flows	0.52	0.18	0.51	0.17
community ethnic fractionalization	0.16	0.19	0.13	0.18
community per-capita social expenditures (MDL)	0.61	0.20	0.58	0.20
community population size (in 10000)	0.54	0.58	0.45	0.48
community ratio high-skilled/low-skilled	0.28	0.29	0.24	0.26
hh with migrant who plans to return	0.81	0.39	0.88	0.33
hh with migrant who has had problems abroad	0.66	0.47	0.64	0.48
hh with migrant who communicates often	0.25	0.43	0.34	0.47
years since departure of first migrant member	4.97	4.15	5.31	4.35
remittances received by hh (in 1000 USD)	0.92	1.91	1.10	2.67

TABLE A3: SUMMARY STATISTICS HOUSEHOLD SAMPLE BY DONATION

	donation=0		donation=1	
	mean	std. dev.	mean	std. dev.
age hh head	56.21	14.42	51.08	12.93
male hh head	0.74	0.44	0.84	0.36
higher education hh head	0.19	0.40	0.25	0.43
married hh head	0.68	0.47	0.81	0.39
number of children 0-16 years in hh	0.58	0.95	0.87	0.98
number of elderly 65- years in hh	0.48	0.69	0.29	0.58
hh per-capita expenditures (in 10000 MDL)	0.08	0.07	0.09	0.07
hh wealth index	-0.68	1.40	-0.20	1.34
migrant household	0.39	0.49	0.50	0.50
community night-time light 1992	7.81	6.09	6.89	5.72
change night-time light 1992-1999	-0.77	0.17	-0.78	0.19
community prevalence of migration (%)	9.56	3.83	9.61	3.71
community fractionalization of migrant flows	0.51	0.19	0.51	0.18
community ethnic fractionalization	0.18	0.20	0.15	0.19
community per-capita social expenditures (MDL)	0.62	0.21	0.60	0.19
community population size (in 10000)	0.58	0.61	0.51	0.54
community ratio high-skilled/low-skilled	0.32	0.34	0.28	0.30

FIGURE A1: COMMUNITY-LEVEL EXPOSURE TO CHANGES IN UNEMPLOYMENT RATES ABROAD (1999-2003) AND MIGRATION PREVALENCE IN 2004

