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CENTRO STUDI LUCA D'AGLIANO  
DEVELOPMENT STUDIES WORKING PAPERS

N. 279

November 2009

**Labor Migration and Social Networks Participation:  
Evidence from Southern Mozambique**

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# Labor Migration and Social Networks Participation: Evidence from Southern Mozambique\*

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*This Version: October 2009*

## Abstract

There is a large literature pointing to community participation and social networks as salient components of household well-being in developing settings. Yet, there are few insights into whether people mobility affects incentive problems associated with social networks, or whether labor migration displaces social informal institutions in village economies at origin. This paper directly tests the role of international migration in shaping participation in groups and social networks by migrant sending households in village economies at origin. By using an original household survey from two southern regions in Mozambique, we find that households with successful migrants (i.e. those receiving either remittances or return migration) engage more in community based social networks. Our findings are robust to alternative definitions of social interaction and to endogeneity concerns suggesting that stable migration ties and higher income stability through remittances may decrease participation constraints and increase household commitment in cooperative arrangements in migrant-sending communities.

**Keywords:** International Migration, Social Capital, Networks, Group Participation, Mozambique.

**JEL classification:** O17, O15, O12

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\*We thank Giorgio Barba, Sonia Bhalotra, Guido Friebel, Paolo Garella, Valeria Groppo, Max Steinhardt and seminar participants at Toulouse School of Economics, University of Milan Bicocca, Centro Studi Luca d'Agliano in Milan, the 2009 CSAE Conference in Oxford and the 2009 ESPE Conference in Sevilla for useful comments and suggestions. We are grateful to Basilio Cubula, Elisio Mazive, Ines Raimundo and the whole fieldwork team from the Eduardo Mondlane University and the National Statistical Institute in Maputo. Financial support from Centro Studi Luca d'Agliano (LdA) is gratefully acknowledged. Juan M. Gallego thanks the Marie Curie RTN on "Transnationality of Migrants (TOM)" for financial support.

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# 1 Introduction

Social capital and networks are increasingly receiving attention from economists, on both a theoretical and an empirical ground, in that a key source of information and resources, ultimately influencing economic performance (Bala and Goyal 2000, Durlauf and Fachamps 2005). A growing body of research suggests that social interactions yield significant economic returns by facilitating cooperation and enabling individuals to benefit from trade when commitment is not possible (Ostrom, 1990; Wade, 1988; Narayan and Pritchett, 1999; Putnam, 1993). This is particularly true in developing economies where institutional or market failures make membership in community organizations and social networks crucial for exchanging goods and services, accessing to credit and sharing risk (see Besley 1995; Foster and Rosenzweig 1996; Fafchamps 2005, Fafchamps and Lund 2003; Udry, 2005). A common perception in this literature is that social capital is place-specific as it develops in essentially immobile settings and is hampered by geographic mobility and distance (Glasear et al. 2000 and 2008, Schiff, 2002).<sup>1</sup> Yet, labor migration of household members is a common livelihood strategy in many developing societies, but little is known on the extent to which people mobility and remittances affects household incentive problems associated with community participation, or whether migration displaces inter-household arrangements in village economies at origin. This paper aims at filling this gap by directly testing the role of migration in shaping household participation in social networks in source communities in Southern Mozambique, where informal social arrangements are vital and migration flows - typically to South Africa - are substantial. By analyzing a rich set of social interaction measures, including participation in groups and mutual informal cooperation between households, our findings show that successful migration and remittances may significantly reduce the potential loss of social capital and cohesion associated with labor out-flows in source communities.

There is a growing literature that documents the importance of labor migration and remittances for living conditions of households and village economies in many developing contexts. In particular migration, either on a temporary or a permanent basis, has been recognized as a familial arrangement with benefits in terms of risk-diversification, income smoothing and investment financing, whereby remittances are a central element of such household strategy (Stark, 1991, Lucas, 1987; Rozelle et al., 1999; Yang, 2006). There are different mechanisms, related to information and resource flows, through which household labor mobility may affect social networks.

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<sup>1</sup>We use the terms social networks, informal institutions, inter-household cooperation and social capital as synonymous. This is a catchall for all those social arrangements that make relatively little use of formal contractual obligations enforced through codified legal system and that operate as a 'network' in which individuals are connected to other people (Ellsworth 1989). It is worth noting that all these measures are positively correlated and, in particular, membership in community groups is always conceived as positively associated with the probability of interpersonal network formation (see for example Barr and Genicot, 2008 for empirical evidence)

On the one hand, migration is presumed to weaken social ties and cohesion by withdrawing human capital and raising the cost of establishing and maintaining social relationships in the community left behind. This is so as mobility drives down social capital returns (Glaeser, et al. 2000), impedes monitoring and enforcement (Fafchamps and Gubert 2005, Miguel et al. 2006) and, by raising income through remittances, may make social sanctions less effective (Ligon et al. 2000). This is to say that out-migration may reduce social capital formation by making migrant-sending households less dependent on community membership and social ties. On the other hand, though, while group membership and social arrangements serve many important economic functions for households' subsistence and well-being in poor settings, they also draw costs or obligations as contribution is expected from each network member (Miguel et al. 2006, La Ferrara 2000). Thus, successful migration (e.g. remittances) may decrease participation costs in the community at origin. Furthermore, households with migrant members may be more appealing partners for network relationships in the community at origin by increasing the scope of risk-diversification through informal mutual arrangements (Munshi 2003, Winters et al. 2001). This is so as, when aggregated income is risky and self-enforcing impediments (e.g. limited commitment) to informal arrangements are binding, stable remittances received from migrants may help relax such constraints and increase the probability of joining (Ligon et al. 2001). Overall, the 'social impact' of migration is theoretically ambiguous but little evidence exists in shedding light on this issue.

Based on an original household survey collected by the authors in two regions in the south of Mozambique, this paper considers this question by directly investigating the effect of family migration exposure on household incentives to join economic groups and mutual arrangements in communities at origin. In order to account for the multi-faceted nature of social capital and to better understand the role of migration in shaping the whole spectrum of community based informal cooperation, we distinguish between participation in (formal) groups that provide some shared economic benefits and (informal) mutual arrangements with important persons and neighbours in the community (see Miguel et al. 2006). Overall our findings are robust to alternative definitions of social interaction and show that, while family labor out-migration may decrease social capital in households left behind, remittance receipt, as well as return migration, plays a statistically significant and economically relevant role in increasing the household probability of joining community groups and social networks at origin. We interpret these results as evidence that stable migration ties or higher income stability through remittances may decrease participation costs and increase household commitment in informal social arrangements in migrant sending communities. Results are robust to the introduction of a number of community-level control variables and fixed effects, and to potential endogeneity or reverse causation issues, which we address with an instrumental-variable estimation strategy.

Furthermore, in order to explore the role of the institutional context on migrant household voluntary participation in community groups, we carry out a sensitivity analysis of results across socio-economic heterogeneous communities, according to observable attributes correlated with household cooperative behavior, i.e. institutional development (e.g. land market), economic inequality, ethnic and religious fragmentation. Overall, our findings suggest that migrant-sending households in Southern Mozambique are more likely to engage in social capital investment and cooperation in more economically even societies, where social sanctions may be more effective, whilst they are not unevenly responsive to the social composition of the community in terms of ethnicity or religion.

Our results contribute to the existing migration literature by providing new insights into how labor mobility, as a key component of a development process, affect social networks and institutions in the community at origin. To the best of our knowledge, this paper represents the first study that attempts to provide systematic evidence on this issue, which has important implications for future research on the degree to which migration may generate positive externalities at community level. While our analysis is tailored to the specific context of Southern Mozambique, findings have broader relevant implications if considering the growing temporary or circular nature of cross-border migration flows in different parts of the world and the enduring ties that current migrants maintain with their home communities. By exploring this issue, this paper also contributes to a burgeoning literature aiming at better understanding the determinants and mechanisms underlying the formation (or destruction) of social networks and institutions in modern societies (Barr and Genicot, 2008, Fafchamps and Gubert 2005, Fafchamps and Lund, 2005, La Ferrara 2000).

From a policy perspective, exploring migrants' contribution to social capital investment in communities at origin contributes in shedding light on one of the most important component of economic growth and development. Since Granovetter (1985), Coleman (1988) and Putnam (2000) seminal studies, social networks have long been shown to play an important role in building trust and generating efficient allocation of resources in both developed and developing economies (see also Glaeser, et al. 2000 and Guiso et al. 2004). This is even more relevant if the lack of trust and social capital deter individuals to acquire capital even when investment opportunities are strong, thereby generating inefficiency or poverty traps (Karlan et al. 2009, Glaeser, Sacerdote, and Scheinkman 2003).

The rest of the paper is organised as follows. Section 2 describes the theoretical background and institutional context. Section 3 presents the original household survey data and descriptive statistics. Section 4 describes the empirical strategy and Section 5 presents results. Section 6 concludes.

## 2 Theoretical background and context

Labor out-migration, either domestic or abroad, is an important route out of poverty for many developing societies (Adams and Page, 2005, Yang 2006, 2008 among others). There are several mechanisms through which international migration and remittances translate into important economic improvements in source communities, and much of the focus has been put on investment in physical and human capital by migrant-sending households left behind (e.g. Cox and Ureta, 2003, Mendola 2008). Yet, social capital in general, and group participation and networks more specifically, are an important component of village economies in developing countries, but little is known on the effect of household migration status in shaping inter-household exchanges in communities left behind.<sup>2</sup>

The common wisdom is that migration threatens the social structure and the organisation of the common duties in local communities at origin, by increasing information asymmetries and imperfect monitoring (Besley et al. 1993, Fafchamps and Gubert 2007, Miguel et al. 2006) and withdrawing human and labor resources from the household left behind.<sup>3</sup> Moreover, having a migrant member working abroad has been regarded as a within-family income diversification strategy so that insurance may be achieved within the family and the incentive to participate in reciprocal insurance arrangements with non-family community members may lower (see Ligon et al. 2002).<sup>4</sup>

However, group participation and social capital in low-income settings are not only a 'side social activity' but serve many functions that elsewhere (e.g. in developed countries) are served by market mechanisms and formal institutions (e.g. informal insurance, credit access, employment, production opportunities etc.) (La Ferrara, 2000, Fafchamps 2005). Differently said, joining informal social networks improves economic efficiency by reducing information and enforcement problems when markets are weak or missing<sup>5</sup>. This is also in line with the original perception of social

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<sup>2</sup>Social capital has a wide and variable definition in the literature, e.g. generalized trust; confidence in institutions, social network (social relationship and group membership), political participation, civic awareness and social norms (see Putnam et al. 1993, Alesina and La Ferrara 2000, Helliwell 2001, Sabatini 2005, and Durlauf and Fafchamps 2005, for the principal differences on the definition and measures of social capital).

<sup>3</sup>Furthermore, when migration is conceived as an individual strategy, it reduces the probability of trading with the same person in the future and reciprocity becomes less enforceable. This is to say that risk-sharing contracts become more "spot contracts", in which commitment is unfeasible (Routledge and von Amsberg, 2003).

<sup>4</sup>The insurance motives for migration have been emphasised by the New Economics of Labour Migration (NELM), according to which greater income uncertainty may encourage out migration as a risk diversification strategy (Stark and Levhari, 1982; Katz and Stark, 1986). Moreover, remittances received from migrant members represent a potential means to overcome credit constraints for source households (Lucas, 1987; Stark, 1991).

<sup>5</sup>The social capital networks we refer to (which provide mutual assistance between households) are informal in the sense that they take place outside of the market place and are made without any legal arrangement that could in any way be binding. They are not closed multilateral grouping based on well-defined formal associations that have written rules or regulations governing their operation,

capital as, recalling Putnam et al. (1993), it "refers to features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions". Hence, it may be the case that only households that are part of a connected social network will be able to experience migration and reap gains from migrants's remittances. This is to say that in a probabilistic migration framework the ex-ante incentive to join community associations may be large.<sup>6</sup> At the same time, even though social networks are open, there are frictions in participation that may arise because of convex transactions costs, imperfect commitment, asymmetric information, lack of enforceability or any other process that limits informal exchange (Fafchamps, 2002, Ligon, Thomas and Worrall, 2002). Thus, successful migration, mostly embodied by stable remittances receipt, may both relax incentive constraints and increase the likelihood that other households will want to enter cooperative arrangements with migrant-sending households, thereby increasing social networks participation (Winters et al 2001, Davis et al 2002, Munshi 2003). Indeed, households with a more stable income entry can expect to be able to commit themselves more easily to regular payments in informal exchanges. Moreover, certain informal groups may be more inclined to accept members that have a regular and secure source of income. Thus income stability, through lower risk of default, may have a positive impact on the probability to join a group.

These ideas have a long-standing theoretical foundation in the literatures on collective action and social network formation. Informal private transfers through networks and mutual arrangements between households have been modelled as self-enforcing contracts (i.e. based on voluntary participation), where current generosity is justified by expected future reciprocity (Kimball, 1988; Foster, 1988; Coate and Ravallion, 1993; Foster and Rosenzweig, 2001).<sup>7</sup> This is so as (full) informal insurance arrangements are potentially limited by the presence of various incentive constraints, with the lack of commitment receiving particular attentions (Ligon et al. 2001, Dubois et al. 2008).<sup>8</sup> Accordingly, numerous empirical studies have shown that mutual informal arrangements do not work at village level but within sub-groups in a community and even among specific individuals within a group (e.g. Udry, 1994; Townsend, 1994, Fafchamps and Lund, 2003). This is to say that households *decide*

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though. Hardship and risk are often difficult to face individually. Thus people voluntarily participate into such arrangements which are sustained over time as they offer higher expected payoff than the one in autarky.

<sup>6</sup>We further add on this by considering that if social networks has an additional effect in fostering migration, the ex ante incentive to participate in social networks may be even larger if families expect net benefits of their migration strategies. This mechanism is related to the recent contributions on the "Brain drain" vs "Brain gain" debate (see Docquier and Rapoport, 2008).

<sup>7</sup>By allowing mutual help to be history-dependent, informal insurance arrangements are consistent with models of 'quasi-credit' where enforcement constraints limit gift giving (e.g. Kokerlakota, 1996; Ligon, Thomas and Worrall, 2001; Fafchamps, 1999).

<sup>8</sup>Liquidity constraints may be thought as a 'reduced form' expression for market imperfections resulting from informational problems, such as adverse selection and moral hazard, and the lack of enforceability.

to share inputs, services, risk and more generally 'mutual help' through networks of friends and relatives, whereby some form of compensation is involved - in terms of time, money or labor contributions - against the attainment of individual and collective benefits (see also De Weerd, 2002, Dekker, 2003, Narayan, 1997).<sup>9</sup> Thus, the effect of family members' out-migration and remittances on household incentive to cooperate and join community groups that provide some shared (economic) benefits is not unambiguous *a priori*.

At the same time, it is important to note that there may be different motivations behind incentives to cooperate of migrant-sending households related to community level institutions and heterogeneity. Households' propensity to engage in informal social arrangements may, for example, be mitigated when there are other (formal) ways to exchange goods and services or if socio-economic heterogeneity (or conflicts) at community level undermines trust and cooperation (Kranton, 1996 and Alesina and La Ferrara, 2000). In particular, the economic and anthropological literature has emphasised that both extrinsic incentives, e.g. (social) sanctions that can credibly be threatened, and intrinsic motivations, such as altruism, inequality aversion and reciprocal kindness, can act as bases for commitment (Platteau, 1994, 1996; Fafchamps, 1992, 1996, Posner and Rasmusen, 1999).<sup>10</sup>

We use an original and unusually detailed survey data on household migration and social interactions from Southern Mozambique to document how these factors interplay with each other. According to the literature, we focus on one of the most important components of social capital, that is participation in different groups that provide economic benefits in terms of information sharing and the production of collective goods (La Ferrara, 2000).<sup>11</sup> Yet, owing to its comprehensive or intangible character, we also consider other forms of social capital, such as informal exchanges of goods and services with important persons or neighbours in the community.<sup>12</sup> In both cases, though, we focus on the economic benefits of group membership and informal interaction, as opposed to more intangible psychological and social benefits

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<sup>9</sup>Indeed, pure altruistic motivations behind informal insurance arrangements at network level are ruled out by various and 'sophisticated' (e.g. contingent) contractual forms that can take place within limited market opportunities for risk-sharing (e.g. grain transfers, labour assistance, land access, quasi-credit etc.) (see Fafchamps, 1992; Platteau, 1991).

<sup>10</sup>Anderson and Baland (2002) provide evidence that individuals living in Kenyan slums put money in rotating savings and credit associations (ROSCAs) to avoid claims on their resources by spouse and relatives. Ambec (1998) and Banerjee and Mullainathan (2007) take these observations as starting point to model the saving behavior of poor households.

<sup>11</sup>The character of a group is double-fold: it is a collective actor that performs in its own right, fulfils task in society and eventually provide public goods to members (Putnam et al., 1993). But it is also built on the willingness of individual actors who work together on shared objectives and norms (Coleman, 1990).

<sup>12</sup>It is worth noting that scholars agree that, even in developing and poor settings, objective and visible networks, such as group membership, are more institutionalised than informal interaction patterns. Yet both refer to the 'structural social capital', compared to the 'cognitive social capital' that includes norms, trust, attitudes and subjective beliefs (Grootaert et al, 2004, Uphoff and Wijayarathna, 2000).



of social capital.

## 2.1 The Mozambican context

Mozambique is an interesting testing ground where to study the impact of labor migration on the creation (or destruction) of social capital in village economies left behind. Compared with other countries in Southern Africa, social networks in Mozambique are unique as a result of various factors. People predominately organise their social life around their kin, which may provide social protection, as social services (e.g. health, child care, pensions) are rarely in place (Ministerio do Plano e Financas, 1998). Though, due to a low population density, settlement patterns are scattered and households do not necessarily live in 'villages' but often are long distances from each other.<sup>13</sup> In addition, social ties within the communities were largely destroyed during the armed internal war (1984-1992), which displaced about 50 per cent of the population. The massive return of refugees and displaced persons in the 1990s was even more problematic as in many cases, refugees and internally displaced people had been away from their villages for ten or fifteen years, and their dwelling and agricultural plots had been occupied by other displaced people.<sup>14</sup> Thus, many systems of informal cooperation and structure of rural society were destroyed, while new forms of reciprocal exchange and insurance arrangements arose at community level, as diversification of social relations became of growing importance. This is so as, despite the fact that Mozambique's economy has registered some positive figures with respect to economic achievements over the last 16 years (the average annual GDP growth rate increased to 7% during the 1990s), it became increasingly hard for the extended family and traditional rural society to cope with new distresses such as HIV/AIDS, orphans, natural disasters and significant out-migration flows, both rural-urban and to South Africa. The latter is Africa's economic superpower, and has been the destination of substantial regional migration flows throughout its history, with Mozambican constituting at least one third of the immigrant workforce, followed by immigrants from

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<sup>13</sup>Mozambique is a country of about 800,000 square kilometers, almost half the size of Mexico, that has to support a population of only 15 million.

<sup>14</sup>The war began shortly after independence in Mozambique in 1975 and had been going on for almost 20 years. So this was a protracted, bloody war where the Frelimo Government that came to power in independence was being pressured by its neighbors, first by Rhodesia and then by South Africa, to give up their Socialist views. It was in fact a point of contact of the superpowers during the cold war. The peace agreement that ended the war was signed on October 4, 1992 in Rome. The UNHCR reports about 5 million displaced people and refugees as a result of this war—1.5, 1.7 million refugees who were in camps in these neighboring countries (primarily Malawi, Tanzania, Zimbabwe, to a lesser extent Zambia, South Africa, and Swaziland), and 3.5 million or so internally displaced throughout the entire country. In the same period the country experienced a long dry period that resulted in people's displacement. Of those returning home after being displaced from their homelands for 10, 15, even 20 years, the UNHCR repatriated about 600,000 or 700,000. The other almost million-and-some spontaneously came back from the neighboring countries that border Mozambique, mostly found their hometowns, dwellings and neighbours vanished and resettled where possible (Raimundo, 2009).

Lesotho and Zimbabwe.<sup>15</sup> Yet, despite the strong linkages between the Mozambican and South African labor markets, very little systematic evidence exists on migration waves and consequences in the area.

According to preliminary estimates, over 200.000 Mozambicans work in South Africa (SAMP: Migration News, 01/03/2003), with a great impact on the Mozambican development pattern, especially in southern rural regions. Yet, Mozambique still remains one of the poorest countries in the world, with 35 percent of its population living below the poverty line (and 70 percent living below the extreme poverty line) (PRSP, 2006) and with social networks among community members representing key informal safety nets to cope with poverty. The main types of informal co-operation between households include *xitique* (credit and saving), *ajuda mutua* (mutual assistance in daily work) and *buscato* or *ganho-ganho* (exchange of labor, money, food, or traditional drinks) (Marsh 2003). Formal cooperation is comparatively less diffused, even though with the increased NGO and 'aid related' activities over the last two decades, a growing number of institutional groups and associations are emerging all over the country. Strengthening social capital and community-based associations is increasingly recognised as an essential relay for development assistance, and it has been identified as an important way to respond to some of the major Mozambican challenges by many donors in the development debate (G20, 2005, PRSP, 2006). Thus, given the relevance of both labor migration and community-based social networks in the Mozambican economy, it is of interest to understand how these phenomena are related, shedding light on the broader under-researched question about households' motives to join groups and nonmarket arrangements in communities with access to an external source of resources i.e. labor out-migration and remittances.

### 3 The Data

The empirical analysis is based on a household survey of 1002 households from 42 communities (both urban and rural) in 4 districts (Manhica, Magude, Chokwe', Chibuto) of 2 regions (Maputo and Gaza) in southern Mozambique, conducted by the authors in Summer 2008 (see Map in Appendix). Sample households have been selected with a probability proportional to population size estimated from the most recent 2007

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<sup>15</sup>South Africa has been the destination of substantial migration flows since the colonial period. Male labor migration to the mines and commercial farms from almost every other country in the region (especially modern-day Lesotho, Mozambique and Zimbabwe) was the most enduring form of legal cross-border labor migration. Significant poverty and unemployment rates in source countries have pushed also undocumented migrants to cross the border with South Africa. The end of the apartheid in the early 90s and the ensuing integration of South Africa in the Southern African Development Community (SADC) produced new opportunities for cross-border mobility and new incentives for temporary migration. While Lesotho's geographical land-locked position and Zimbabwe's economic and political implosion constitutes special cases of migration and displacement in the region, Mozambique offers an appropriate setting for studying characteristics and consequences of modern migration flows in the region.

General Population Census data provided by the Mozambican National Statistical Institute (INE) so that the household survey is representative at the regional level.<sup>16</sup>

The survey collected detailed information on demographic characteristics of household members, migration status, household asset endowment, farm and non-farm occupations of the household head and household social capital and network participation. With respect to the latter, information on several dimensions of social interaction outside of the family was collected, in particular (i) whether any household member participates in various types of community groups, both economic and socio-political, including characteristics of group membership (i.e. as beneficiary or promoter/decision maker), (ii) whether the household is in contact with relevant persons in the community (i.e. traditional community leader, elected village chief, school teacher, doctor/'curandeiro', agricultural agent, neighbours) and which type of exchange or 'mutual help'(if any) is in place with them. In particular information include whether households give or receive (or both) any good or services with each of their network partner.

Data on migration of household members was also gathered, including migrants' characteristics, duration and destination of migration, and whether migration involved moving costs and remittances. In addition, a community questionnaire was implemented to the community leader in order to collect information on the institutional and market organization, community infrastructure and social cohesion.

In this section some descriptive statistics from the Mozambican survey will be presented as to gain some insights into the diffusion and characteristics of household migration and social interactions in our sample (sampling population weights are always used as to provide regionally representative figures). Table 1 reports sample characteristics related to international migration experience in the household. Data show that 55 percent of households in the sample are 'migrant households', i.e. at least one household member has migrated abroad at least once (38 percent report having current migrant members, the remaining households had migrants in the past) and overall, the average number of migrants per household is 1.6. Among current migrant-sending households, 60 percent receive remittances from migrants.

-Table 1 about here-

If we look at individual level characteristics of migrant and non-migrant household members, 12 percent of our sample individuals are currently working away from

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<sup>16</sup>In each of the selected communities, the population has been canvassed prior to the beginning of the survey to identify two groups of households, i.e. those with at least one international migrant currently abroad, and those with no migrants. The target number of households has been drawn randomly from each of the two subgroups, in the same proportion as the actual migration rate. The original survey contains information on 1002 households, but some specific information about migrants are missing in some households so that we end up with a sample of 905 households in our empirical analysis. A more detailed description of the survey can be found at <http://dipeco.economia.unimib.it/persona/mendola/moza.htm>

home, whilst 6 percent are return migrants- in both cases more than 90 per cent of them migrate to South Africa. Table 2 reports individual level characteristics of past/return migrants and current international migrants (information about the latter are collected through a proxy respondent). Return migrants are predominantly men, in their working age, more married and educated than stayers. The same is true for household members currently working abroad, but differences are even more striking. Returnees migrated to work, typically to South Africa, the average duration of migration is a bit less than one year, and the reason for return has to do mainly with family, and with the end of job or vacation (indeed 58 percent of returnees report to intend to leave again in the future). Also current migrants go abroad for work, 80 per cent of migration episodes are reported to be temporary and main occupations are miner, unskilled worker, informal trader. Both current and past migrants report that help to migrate came from their own family (either in Mozambique or abroad) or from their own previous experience. Migrants also report to cover costs of migration typically through their own resources or through relatives (either in Mozambique or abroad). Households report that current migrants return mostly once per year and 45 per cent of them send remittances home. Among current migrants, 55 percent send home remittances on a regular basis, mainly in person or through friends and colleagues, and the money is reported to be spent mostly for primary consumption needs as food, clothing and housing (see Table 3).

-Table 2 about here-

-Table 3 about here-

Table 4 presents the incidence and characteristics of household participation in groups and social arrangements. In our sample 27 percent of households are member of some group whilst almost all of them are in contact, and 74 percent daily talk, with at least one important person in the community (this is true even excluding neighbours from the list of important persons). Yet, not all of them exchange something with them or expect mutual help with key persons and neighbours in the community, as only 27 percent give or receive goods or services from them.<sup>17</sup>

-Table 4 about here-

We use this information as a proxy for different forms of social networks. It has been claimed that social capital may be measured by participation in 'institutionalised' community groups or associations, which may differ from informal contacts or arrangements with neighbours or friends (Durlauf and Fafchamps, 2005, Miguel et al.

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<sup>17</sup>The actual survey questions on this are: "In the last 30 days, did you or someone in your family give any money, gift or services with [each important person]?" and "In the last 30 days, did you or someone in your family receive any money, gift or services from [each important person]?"

2006). We argue that our measures of social capital, i.e. group membership and contact with important persons in the community are good proxies for social networks participation. We also collected information on the reason why households do not join a group or get in contact with important persons (we ask this for each group and for each key person in the community). Table 5 sheds light on household's subjective perception of the costs and benefits of group participation and social networks at village level. The table lists the main reason why households chose not to join a group or to get in contact with important persons. The answers related to group participation show that the most frequent reason is the lack of money, followed by lack of time and lack of interest; as important persons are concerned, the main reason is lack of interest, followed by lack of time and lack of money. This is in line with the idea outlined above about the different degree of formality of 'institutionalised' groups and 'informal' social arrangements in the community.

-Table 5 about here-

Table 6 presents household characteristics by migration status and network type. Overall, households belonging to community groups seem to be better off with respect to some indicator of physical and human capital. This is consistent with the idea that group members tend to sort into homogeneous pool of persons with respect to some characteristics such as income, human capital, ethnicity etc. (La Ferrara, 2000). This is less true with respect to informal social networks (here measured through an indicator whether households engage in mutual help or spend in social ceremonies), which show a less systematic pattern with respect to standard socio-economic variables (Panel A). Interestingly, though, while households with international migration experience and remittances appear not to be particularly concentrated in either formal or informal social networks (Panel A), households receiving remittances or return migration engage significantly more in both networks (Panel B).<sup>18</sup>

-Table 6 about here-

Yet, given the concurrent effect of household characteristics and migration on social capital, descriptive statistics is not fully explanatory in this regard and a multivariate analysis is required.

## 4 Empirical analysis design

We start by estimating a model that relates the household decision to participate in social networks to household attributes, including migration and remittances, and

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<sup>18</sup>This is also true with respect to remittances, i.e. 41 per cent of households joining community groups (39 per cent of households with informal networks) report to receive remittances, against 23 per cent (21 per cent) of households with no group membership (social networks).

community-level characteristics. The social capital literature agrees on considering the family as the primary unit of analysis and we specify the expected net benefit from group or network participation for household  $i$  in the community  $j$  as follows:

$$B_{i,j} = \beta_1' X_{i,j} + \beta_2' H_{i,j} + \alpha_1' M_{i,j} + \alpha_2' R_{i,j} + \varepsilon_{i,j} \quad (1)$$

where  $M$  and  $R$  are respectively the number of migrants in the household and whether the household receives remittances from them<sup>19</sup>, and  $X$  and  $H$  are vectors of household and community characteristics respectively (such as demographics, education, wealth, residence).  $\varepsilon_{i,j}$  is the standar error term. The parameters of interest are  $\alpha_1$ , which captures the effect of sending one unit of household labor to work abroad and  $\alpha_2$ , representing the effect of receiving remmittances on household incentive to join a group. What we observe, though, is not the latent variable  $B$  but only the choice made by the household that takes value 1 (participation) if the expected net benefit is positive, and 0 (no participation) otherwise:

$$\begin{aligned} P_{i,j} &= 1 \text{ if } B_{i,j} > 0 \\ P_{i,j} &= 0 \text{ if } B_{i,j} < 0 \end{aligned} \quad (2)$$

We estimate the model above with both a linear and a probit model. Our main dependent variable is whether households participate in any (formal) group. Yet, we also use other cooperative outcomes such as measure of household engagment in informal networks of 'mutal benefit' or '*ganho-ganho*' and whether the household incurred in social expenses for cerimonies or funerals out of the family.

A potential concern with the above estimation strategy, though, is that migration and remittances may suffer from potential endogeneity and simultaneity bias. This is so as households are likely to self-select into sending migrants abroad based on unobserved characteristics, including ex ante social network participation. Indeed, a major finding in the migration literature is that social networks, in particular migrants established at destination and return migrants, can serve as a source of job information and help for subsequent migrants arriving from the same origin community (Massey at al. 1993, Munshi, 2003).<sup>20</sup> Thus if social networks increase the household migration prospectus, reduced form estimates could be biased upward. Moreover, re-

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<sup>19</sup>Including the level of remittances as explanatory variable would be ideal, but the quality of the information collected is not enough to include it as a continuous vairable. From other related information we are aware of the fact that remittances are mainly in-kind and sent through informal channels, like friends, relatives or returnees- quantifying them resulted a particularly difficult task for interviewed households. See Table 3 in descriptive statistics.

<sup>20</sup>Yet, as already noted above, both current and past migrants in our sample households report to receive help for migration from their own family (either in Mozambique or abroad) or from their own previous experience. Similiarly, migrant sending households report to cover costs of migration through their own resources or through relatives (either in Mozambique or abroad). Therefore it seems that family networks are more important and relevant than social networks in migration behavior.

mittances are produced by allocating family members to labor migration, and given migration, they are simultaneously shaped by many of the same characteristics that affect household social capital investment (Taylor and Martin, 2001). To account for this possibility, we estimate a recursive system of linear probability models and instrument both migration and remittances using exogenous instrumental variables. The three-stage simultaneous equation model estimated is in this case:

$$\begin{aligned}
P_{i,j} &= \beta'_1 X_{i,j} + \beta'_2 H_{i,j} + \alpha'_1 M_{i,j} + \alpha'_2 R_{i,j} + \varepsilon_{i,j} \\
M_{i,j} &= \delta' X_{i,j} + \vartheta' Z_{i,j} + \pi_{i,j} \\
R_{i,j} &= \delta' X_{i,j} + \vartheta' W_{i,j} + \theta_{i,j}
\end{aligned} \tag{3}$$

where  $Z$  and  $W$  are the instruments for migration and remittances respectively. The model above constitute a recursive system where both migration and remittances are endogenously determined with social capital. Migration,  $M$  is a function of individual and household level characteristics, especially related to human-capital variables. Given migration, motivations to remit,  $R$ , are complex. In addition to human capital variables, they may be influenced by expected norms in the source village and by household's need for insurance (see Lucas and Stark, 1985, Yang and Choi 2006). The identification of the model depends on finding instrumental variables  $Z$  and  $W$  that affect social capital solely through their impact on migration and remittances choices. The stochastic terms  $\varepsilon$ ,  $\pi$  and  $\theta$  are assumed to be normally and independently distributed with variance  $\sigma_{i,j}^2$ . However, from the set up it is likely that there is cross-equation correlation, since all three activities may be subject to the same exogenous shocks. To account for contemporaneous correlation, we estimate the model using a recursive three-stage least squares (for comparison purposes, we also use a two-stage approach).

In order to further explore the role of migration coupled with remittances as a commitment device in group participation, we address some issues related to the 'direction' of social interaction, i.e. whether migrant-sending households give or receive relatively more in inter-household exchanges. In addition, in the last part of our empirical analysis, we further estimate group participation for socio-economic homogenous and heterogenous communities separately as to check the robustness of migration and remittances' coefficients across subsample populations (i.e. institutional environments).

## 5 Regression results

Table 7 reports our baseline estimates from the reduced form linear probability model, where the dependent variable is a binary indicator equal to 1 if the household par-

ticipate in at least one group in the community (basic statistics of main independent variables are reported in Table A.1 in the Appendix). Following the existing evidence on the determinants of group and social networks participation, the variables  $X$  and  $H$  are household demographic, human- and physical-capital variables and community level controls. Household characteristics include: age, sex and education of household head, household size and demographic characteristics, ethnicity and religion, household residence and occupation. Household wealth is measured through an 'synthetic asset index' weighting the ownership of various durable goods and the dwelling conditions.<sup>21</sup> We further include community level characteristics, such as the quality of roads, school, health facilities, formal bank and market availability. We finally include community fixed effects (where the community is our primary sampling unit) as to fully focus on the within-community variation only.

-Table 7 about here-

Column 1 in Table 7 shows that the direct effect of the household number of migrants on group participation is negative, whilst access to capital through remittance receipt is significantly and positively associated with social capital investment. These results are more precisely estimated with the inclusion of a large set of household level characteristics and community attributes (column 2). Household decision to join a group significantly decreases by 5 percentage points as each family members leaves the household to work abroad. Yet, there is a significant offsetting effect of receiving remittances, that increases the probability to participate by 18 percentage points (see Probit marginal effects in Table A.2 in the Appendix). As far as controls are concerned, demographic household characteristics have the expected sign, including the negative relation between the number of women in the household and the likelihood to join groups. This is due to the strongly patriarchal structure of the mozambican society, particularly in the South of the country, and to the low 'voice' of mozambican women in many different aspects of their socio-economic life. Belonging to ethnic minorities, instead, or having traditional religious beliefs significantly increase group participation.<sup>22</sup> Moreover, higher education of the household head is positively associated with group participation while the household wealth index is positive and significant, suggesting that joining a group may be a 'normal good' (La

<sup>21</sup>The wealth index uses principal components analysis (PCA) to assign weights to the indicator. This procedure first standardizes the indicator variables (assets ownership and dwelling conditions); then the factor coefficient scores (or factor "loadings") are calculated using the first component of a PCA analysis; and finally, for each household, the indicator values (or asset ownership) are multiplied by the "loadings" and summed to produce the household's wealth index. In this process, only the first of the factors produced is used to represent the wealth index. For a complete discussion of the advantage and disadvantages of asset and wealth index under pca procedures see Filmer and Pritchett (2001).

<sup>22</sup>Basic statistics show a relative majority of Changana ethno-linguistic group in our sample followed by Ronga, Chope and other groups (see Table A.1 in the Appendix). As for religion, the majority of people are either Catholic or believe in traditional Spiritism.



Ferrara 2000). Concerning community level characteristics, many of them do not reveal to be significant with the exception of living in a community with an elementary school, which is positively and significantly associated to social capital.<sup>23</sup> In Column 3 we finally use a community fixed effects specification and results are consistent in showing that, even within communities, household migration exposure remains negatively associated to social networks whilst remittances generates a statistically significant and positive effect on group participation and social capital investment at origin.

As mentioned above, though, informal cooperation is an multifacet asset that may be defined (and measured) in different ways. Moreover, the effect of migration and remittances on group participation may be the result of a supply side effect, in that communities with more migrants (richer communities) may develop more institutionalized groups and associations (see also Miguel et al. 2006, La Ferrara 2000).<sup>24</sup> Similarly, it may be the case that migrant households may form a coalition or ‘clubs’ that exclude non-migrant members of society. Thus, in order to control for these issues, we regress the same models as above using different measures of inter-household cooperation through informal social networks.

In Table 8 we report results from the community fixed effects specification where the dependent variables are (i) a dummy variable equal to 1 if any member of the household is in contact, by daily talks, with any relevant person in the community (i.e. traditional community leader, elected village chief, school teacher, doctor/’curandeiro’, agricultural agent, friends and neighbours); (ii) a dummy variable equal to 1 if the household exchanges (i.e. give or receive) any good or service with at least one relevant person in the community, as above; and (iii) a binary variable equal to 1 if the household reports expenditure for festivals, ceremonies or funerals within its community. The latter variable is another proxy variable for informal social arrangements and underlying social connections within the community of residence. We find that migration and remittance indicators have patterns broadly similar to group membership behavior - even though the migration result is weaker - with the exception of daily contact networks. They suggest that main results (especially remittances) are robust to alternative definitions of social arrangements that provide some individual or collective economic benefit, i.e. more in terms of exchange of goods and services rather than information sharing (see marginal effects from probit model regressions in Table A.3). It is worth noting that the wealth effect in this case is not so strong and robust in increasing the household incentive to participate in informal exchanges

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<sup>23</sup>Some community characteristics are not significant but the sign is consistent with expectations. Yet, it should be noted that formal banks and financial institutions (as well as health care facilities) are very few and still largely under-developed in Mozambique, as people are not used to manage medium-large quantity of money.

<sup>24</sup>As argued in Miguel et al. (2006), community group data may capture relatively formal expressions of social networks. It is also possible that migration-driven modernization is associated with a shift toward formal forms of cooperation, but not considerable changes in underlying social networks.

with nonfamily community members.

In order to explore whether migrant-sending households give or receive more (or both, through mutual help) from the interaction with other community members, in Table 9 we report results on the 'direction' of the exchange link. Estimates show no clear dominant direction in the informal exchange pattern (a slightly bigger coefficient for the 'giving' variable) as households receiving remittances are positively associated with all directions of the exchange link. This is consistent with the idea that remittances, as a stable source of income, may allow migrant-sending households to overcome both commitment and enforcement constraints on informal contracts.<sup>25</sup>

-Table 8 about here-

-Table 9 about here

Finally, we also test whether past household migration experience has any effect on social capital investment. Table 10 reports linear probability model regressions as above where the main explanatory variable is whether there is any return migrant in the household. Findings show that the latter household status, which entails the return of both human and physical capital after international migration, has a positive effect on any form of community based social networks.

-Table 10 about here

Overall, reduced form results seem to suggest that out-migration in a poor developing setting such as Southern Mozambique is likely to contribute to inter-household informal arrangements and cooperation through remittances or by returning home, even though dispatching family labor abroad might tighten the constraint on engaging in social interactions. However, the direction of causal nexus is one of particularly difficult points of the social capital and migration literatures (Durlauf, 2002, Munshi 2003). As we mentioned above, unobservable determinants of both the household decision to join social networks and to have a migrant member – such as idiosyncratic shocks or household implicit propensity for specific types of (social) arrangement – are still unlikely to provide consistent estimates. Furthermore, and most importantly, a simultaneity bias would be present. Having more social networks at home may increase the probability to migrate, and thereby to receive remittances, and bias our reduced form estimates in a positive direction. More access to resources due to social networks could also increase household well-being, enabling family members either to send migrants abroad or to forego migration and stay put. On the other hand, families are likely to allocate more or less resources to informal social arrangements depending on the achievement of specific migrant members or may vary their

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<sup>25</sup>Migrant-sending households may improve allocative efficiency by removing or relaxing some of the impediments that limit informal exchange - i.e. they use remittances as a commitment device and make credible enforceable contracts.

resources in response to changes in their migration circumstances (e.g. remittance receipt). If international migration requires fixed up-front costs, an increase in household resources would increase the migration likelihood among initially non-migrant households, and our reduced form coefficients would be downward biased. Overall, the estimation reported so far would be biased and inconsistent in the event that migration and remittance are endogenous. Thus, to try to correct for this possibility and reveal the ‘true’ relationship between household migration exposure and social networks, using an appropriate IV strategy is required. To this we now turn.

## 5.1 IV results

In order to address the causal impact of migration and remittances on social network participation in households left behind, we estimate the system of eqs. (3) using an instrumental variable strategy. The set of variables to identify migration is whether the household had a migrant before the war (1984-1992) as well as the number of household members between 20 and 30 years old in 2005. The former variable is a proxy for family migration networks, which are related to the pre-war time and do not affect the current level social capital, unless via migration status. This is so as the armed prolonged war largely destroyed existing social networks and massively displaced refugees and returnees.<sup>26</sup> We further use the number of household members in their working/migration age (i.e. between 20 and 30 years old) in 2005, as in that year a free-visa agreement was reached between South Africa and Mozambique. Thus we argue that, given our household demographic controls, the specific age composition at the time of the exogenous migration-policy ‘shock’ occurred in South Africa is randomly assigned and does not affect networks in Mozambique beyond its influence through migration out-flows.<sup>27</sup>

In order to identify the remittance equation, we use the short-run deviation in rainfall levels, measured as rainfall in 2007 minus the average historical rainfall since 1979.<sup>28</sup> This is so as variations in rainfall may have a negative impact on households’ income (strongly dependent on rain-fed agriculture) and increase the likelihood to receive remittances. On the other hand, it is unlikely that short-run shocks to the whole community will affect household membership in social networks directly and immediately (as everybody is affected in the same way) unless making remittance receipt for migrant-sending household more likely.<sup>29</sup> We further use whether household

<sup>26</sup>See section on Mozambican context above. It should be noted that given remittances any individual characteristic of migrants before the war is orthogonal to social network participation as the latter is a property of the household (and not of the individuals who migrated).

<sup>27</sup>In 2005 Mozambique and South Africa agreed to visa-free travel for their nationals, consistently with the new, high-level political vision of South Africa as part of an integrated region. This is an exogenous migration-policy shock that, interacted with a restricted household age structure, is likely to affect networks in Mozambique only via migration outflows.

<sup>28</sup>Rainfall data source is the NASA GPCP (Global Precipitation Climatology Project) which has been used by Miguel et al. (2004) among others.

<sup>29</sup>We further use, as in Munshi 2003, recent-past rainfall levels at the community level obtaining

migrants have a permanent job-contract at destination and the number of migrants in the rest of the community sending remittances home as other instruments. The rationale for including the former variable lies in the fact that migrants' employment conditions at destination are a function of labour market characteristics abroad and thereby may be related to social networks at home only through remittances behavior; the average remittance rate at community level, instead, is very common in the literature and is a proxy for the local 'remittance norm' (see Rozelle et al.1999, Taylor et al. 2003). The F-statistics of excluded instruments and the overidentification Sargan test suggest that the instruments are not weak and valid.

Results based on the IV estimation strategy are presented in Table 11. We both use 2 stage-least-squares (sls) and 3sls estimators- where the latter applies an IV procedure to produce consistent estimates and generalised least squares to account for correlation structure in the disturbances across equations. The explanatory variables included in the equation of group participation report the expected sign. In particular, the number of household migrants has a significant negative effect on household participation in community networks. On the other hand, there is an offsetting significant effect of remittance receipt that positively influences the propensity to join groups and social networks in households left behind. The difference in coefficients' magnitude, which are higher in the IV regressions than in reduced form linear probability models, suggest that correcting for endogeneity does have an effect in revealing the causal relationship. In particular, if social networks increase the migration likelihood among initially non-migrant households, the reduced form coefficients would be downward biased.

-Table 11 about here-

We interpret these results as evidence that migration coupled with remittances is economically and statistically significant in increasing household memberships in groups at origin. This is so as remittances are a stable source of income that may decrease participation costs and increase household commitment in informal social arrangements in developing settings. Indeed, households with a more stable income entry can expect to be able to commit themselves more easily to regular payments in informal exchanges. Thus income stability, through lower risk of default, has a positive impact on the probability of joining a group. Moreover, certain informal groups will be more inclined to accept members that have a regular and secure source of income (i.e. reducing adverse selection problems). That would be an extra effect favouring a positive effect of remittances on the probability of joining.

Yet, membership in groups or informal social arrangements, and the level of enforcability, varies with the institutional and legal environment. This is why we further  


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 same results as using rainfall deviation.

explore the social impact of household migration exposure in different contexts (i.e. subsamples) where heterogeneous degrees of enforcement (e.g. social sanctions) may be at work.

## 5.2 Institutional efficiency and heterogeneous results

Labor migration from a poor to a richer destination and remittance receipt by people left behind is a key source of heterogeneity in village economies in developing settings. Yet, the role of these processes in affecting the household incentive to participate in reciprocal informal arrangements at origin may be at work through further effects, related to changes in community level institutions and socio-economic characteristics. The existing literature has pointed out the importance of the community institutional efficiency in shaping cooperative behavior. In particular, more heterogeneous societies may hamper cooperation in the provision of local public goods and informal exchange arrangements in that social sanctions are less effective (or alternatively said, trust and norms are weaker in more heterogeneous societies)<sup>30</sup>. Overall the existing findings indicate that heterogeneity along economic, religious or ethnic lines is correlated with lower contributions to public goods, higher extraction levels from common resources and poorer maintenance of common infrastructure (e.g. Baland et al. 2001, Bardhan, 2000). Thus, even though we do not tackle these mechanisms directly, we rule out confounding factors by carrying out a sensitivity analysis of our results in the Mozambican context.

Table 12 presents our estimates for a set of sub-samples defined by observable community attributes correlated with both household migration status and the level of 'cohesion' at community level. Hence, we distinguish heterogeneous communities by (i) wealth inequality (reported by the community leader and measured with the Gini coefficient), (ii) the way land is allocated (traditional vs modern law)<sup>31</sup>, (iii) ethnolinguistic and religious diversity.<sup>32</sup> As the latter is concerned we build an index of ethnic (religion) fractionalization that is the probability that two randomly selected individuals from a community will not belong to the same group (see Alesina and LaFerrara 2000, LaFerrara, 2002 and Peri and Ottaviano, 2006 among others). Specifically, we use the variable "ethnic (religious) group" to define the cultural identity of each

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<sup>30</sup>It is hypothesized that homogeneity at community level increases trust and common norms and lowers information and monitoring costs, such that it encourages social exchanges. See Alesina et al. 1999, Alesina and La Ferrara 2000, Bandiera et al. 2005.

<sup>31</sup>As other regions in Africa, Mozambique is a country of relatively low densities of population with strong cultural traditions and respected local authorities who, in the absence of official authorities, are in charge solve conflicts and allocate land -often (but not always) jointly with the community council- using indigenous knowledge and local capacity.

<sup>32</sup>Mozambique is peculiar in terms of diversity, as our data indicate a very low level of ethnic diversity and a relatively high level of religious diversity.

household. The fractionalization index is defined as:

$$I_j = 1 - \sum_{i=1}^M (\pi_j^i)^2$$

where  $\pi_j^i$  is the share of people of group  $i$  among the residents of community  $j$ . This index varies from 0 (perfect homogeneity) to 1 (highest degree of heterogeneity or fragmentation).

-Table 12 about here-

As shown in Panel A in Table 12, migration and especially the remittance effect is more precisely estimated in communities with lower level of inequality, both reported by the community leader (subjective measure) or measured with the Gini index (in the latter case we consider communities in the top two and bottom two quantiles of the Gini index distribution). When we distinguish communities where land is allocated by the leader, the government or the whole community through participatory meetings (Panel B), results show that remittances are relevant for group participation in societies with traditional land allocation rules, and even negatively associated with group participation where modern law holds (yet in the latter case variation is too low to reach stable conclusions as most of communities follow traditional patterns of land allocation). Finally, migrant-sending households do not appear to respond very differently according to the social composition of the community, when the latter is measured in terms of ethnic or religious fractionalization (also in this case we consider communities in the top two and bottom two quantiles of the fractionalization indexes distribution). In particular, migrant-sending households appear to participate in the same way in both ethnically homogeneous and heterogeneous communities, and even slightly more in communities with more religious diversity. We interpret these results as evidence that economically homogeneous societies may be more effective in devising mechanisms, related to egalitarian rules or social sanctions, that foster cooperative behavior in migrant-sending households. This is not the case, though, when communities are homogeneous in their ethnic or religious composition. The latter may be explained by the little history of religious fundamentalism or ethnic conflict in Southern Mozambique, and therefore by the little relevance of ethnicity or religion in determining heterogeneous preferences on the provision and characteristics of common goods.<sup>33</sup>

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<sup>33</sup>Mozambicans often identify primarily with the ethnic and/or linguistic group. However, the independence movement that began in the 1960s was a unifying force, causing disparate elements to join together in resisting the Portuguese. Ironically, some of the main unifying factors in the country have been remnants of the colonial system, including the Portuguese language and the Roman Catholic religion. Thus, despite ethnic and linguistic differences, there is little conflict among the various groups. The greatest cultural disparities are those which divide the north of the country from the south.

## 6 Conclusions

This paper examines the role of labor migration and remittances in shaping group participation and social networks in village economies left behind. By using an original household survey containing detailed information on family migration status, group participation and inter-household informal exchanges from two regions in the south of Mozambique, we find that households with successful migrants, i.e. those receiving remittances or return migration, engage more in community based social networks. In particular, contrary to the common presumption, we find that the probability of a family engaging in a social network is decreasing in the number of migrants but increasing in an indicator for receipt of remittances. The former result is weaker when informal social arrangements are considered, while the latter finding is robust to alternative definitions of social interaction, to the introduction of community fixed effects, and to potential endogeneity issues, which we address with an instrumental-variable estimation strategy. The same positive result holds when we look at the compound effect of return migration on social networks participation. We interpret these results as evidence that in a poor developing setting, even though social networks are open, income risk and participation constraints may limit both access to them and their effectiveness in facilitating inter-household cooperation and trade. Thus, higher income stability through remittances or strong family migration ties may decrease participation costs and increase household commitment in engaging in groups and reciprocal arrangements.

We also explore the role of the institutional and social environment in driving group participation of migrant-sending households in more homogeneous communities. We find that migrant households in Southern Mozambique are more likely to engage in social networks and cooperation in more economically even societies, where social cohesion and sanctions may be more effective, whilst they are not unevenly responsive to the social composition of the community in terms of ethnicity or religion.

Our results contribute to the existing migration literature by providing new insights into how labor mobility, as a common within-family strategy in many developing countries, affect the informal structure of village economies at origin. This is even more relevant when considering the wide literature showing the key role played by social capital and networks in shaping economic development and institutions in low income countries. Thus, labor out-migration may have a positive effect on the social structure and the organization of the common duties in local communities at origin, through the enduring ties that migrants maintain with their home country.

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## 8 Annex of Tables

**Table 1**  
**Incidence of migration and remittances (household level)**

	Mean	s.d.
N. of current migrants in the HH	1.59	(1.18)
HH with migration experience	55%	(0.5)
HH with current migrants	38%	(0.49)
HH receiving remittances (total)	24%	(0.43)
HH receiving remittances (out of migrant HHs)	60%	(0.49)
N. of return migrants in the HH	1.29	(0.68)
HH with return migrants	29%	(0.45)

**Table 2**  
**Summary statistics -Individual characteristics by migration categories**

	Current migrants	Return migrants	Never migrants
Gender (male)	82%	67%	43%
Age in years	30.64	38.41	23.34
Married/cohabit	52%	62%	38%
HH size	5.08	5.52	6.34
Literate	80%	69%	55%
Years of education	5.21	4.60	4.09
English speaker	27%	20%	5%
HH head no education	45%	34%	43%
HH head primary education	48%	54%	45%
HH head secondary or more education	7%	13%	12%
No religion	10%	10%	11%
<i>Occupation (a)</i>			
Farmer (work on own land)	2%	27%	22%
Farm worker	2%	7%	2%
Non-farm worker	39%	14%	7%
Self-employed	6%	7%	5%
Informal worker	17%	10%	4%
Student	3%	6%	34%
Domestic activities	3%	7%	11%
Unemployed	2%	5%	6%
Retired	0%	6%	1%
Other	8%	9%	5%
<i>Country of destination:</i>			
South Africa	98%	90%	-
Other African countries	2%	8%	-
Other (EU, US)	1%	1%	-
NS/NR	0%	0%	-
Migration spell from last migration	3.85	9.52	-
Migration spell from first migration	9.44	14.99	-
Migration spell from return	-	0.92	-
Wish to migrate again	-	58%	-
Send remittances	45%		-

(a) This is current occupation of return migrants at home and occupation of current migrants at destination.

**Table 3**  
**Remittance management (indiv. level- migrants)**

<i>Frequency</i>	<b>Mean</b>	<b>s.d.</b>
Weekly	2%	(0.13)
Monthly	14%	(0.35)
Trimestral	23%	(0.42)
Yearly	16%	(0.36)
Occasionally	41%	(0.49)
Ns/NR	5%	(0.22)
<i>Use</i>		
Food consumption	86%	(0.34)
Housing	3%	(0.16)
Health	3%	(0.17)
Investment in own business	1%	(0.10)
Clothing	2%	(0.13)
Other	6%	(0.06)
<i>Way to send</i>		
Personally	20%	(0.4)
Friends or colleagues	24%	(0.43)
Taxi	33%	(0.47)
Public transport/ mochibombo	7%	(0.1)
Bank account (teba)	4%	(0.19)
Postal mail	3%	(0.17)
Other	9%	(0.12)

**Table 4**  
**Social network participation (household level)**

	<b>Mean</b>	<b>s.d.</b>
<b>Community groups</b>		
Participation in any group (dummy)	27%	0.45
<i>By type</i>		
ROSCAs (rotating saving and credit groups)	6%	0.23
Farmers cooperative association	3%	0.18
Bank group	4%	0.19
Civic committees (a)	2%	0.19
Burials' association	1%	0.11
Self-help religious/church group	14%	0.34
Women group	2%	0.11
Youth group	1%	0.10
Other groups (b)	2%	0.12
<i>Type of participation</i>		
Member	25%	0.43
Beneficiary	17%	0.37
Decision maker	13%	0.33
Promotor	11%	0.31
<b>Informal social interaction</b>		
Daily talk with any important person	74%	0.43
Give or receive (any good or service)	27%	0.44
Expenses on ceremonies	14%	0.34
<i>Direction of the social exchange</i>		
Receive	18%	0.38
Give	14%	0.35
Give and Receive (mutual help)	5%	0:21

**Notes:** (a) Civic committees include both participation in meetings and voluntary labor exchange to improve community infrastructures. (b) Other groups includes: associations of "mukhero", cooperatives of producers, unions, ONG's activities, agricultural voluntary labor.

Table 5

**Reasons for not to participate in social networks (a)**

	Lack of money	Lack of time	Lack of interest/trust
<b>Formal groups</b>			
ROSCAs ( <i>xitique</i> )	31%	28%	30%
Farmers cooperative association	34%	34%	25%
Political group	35%	34%	21%
Bank group	30%	28%	30%
Civic committees (b)	33%	34%	24%
Burials' association	34%	34%	25%
Self-help religious/church group	30%	27%	26%
Women group	34%	34%	21%
Youth group	37%	35%	22%
Other groups (c)	32%	36%	23%
<b>Informal social interaction</b>			
Community leader	8%	26%	57%
Government authority	16%	15%	59%
Teacher	9%	29%	48%
Farming agent	21%	21%	41%
Priest	15%	20%	45%
Neighbours	11%	17%	63%
Health provider	20%	15%	53%
Healer	14%	10%	41%
Employer	21%	24%	38%

**Notes:** (a) The question posed in the questionnaire was: why did you or any member of your family not participate in [...] or exchange resources with [...]? The alternative answers were: (i) no need, (ii) does not work, (iii) no trust, (iv) no useful, (v) too costly, (vi) too time consuming. (b) Civic committees include bothn participation on meeting and voluntary labor to improve community infrastructure. (c) Other groups includes: associations of "mukhero", cooperatives of productors, unions, ONG's activities, agricultural voluntary labor.

**Table 6**  
**Household and community characteristics by social network categories and migration status (household level)**

	Panel A					
	Formal groups (a)		Give or receive (b)		Expenses in ceremonies (c)	
	No	Yes	No	Yes	No	Yes
HH with int.migration experience	53%	60%	52%	62%	51%	76%
HH receives remittances	23%	28%	20%	37%	22%	41%
Female HH head	40%	38%	40%	37%	39%	40%
Age of HH head	46.56	45.48	46.31	46.16	46.5	44.87
Head no education	46%	33%	42%	42%	43%	37%
HH head education- primary	47%	44%	45%	50%	46%	49%
HH head education- secondary or more	7%	22%	12%	8%	11%	14%
HH head occupation- farmer	42%	45%	42%	46%	41%	57%
Household size	4.83	5.57	5.06	4.95	4.87	6.03
N. of females in the HH	2.88	3	2.94	2.84	2.81	3.53
N. of children in the HH (<5years-old)	0.65	0.86	0.67	0.81	0.65	1.1
Residence 5 or more years (dummy)	84%	88%	84%	89%	85%	84%
Ethnicity-changana	90%	72%	86%	82%	86%	79%
Ethnicity-Ronga	8%	18%	10%	13%	11%	11%
Ethnicity-Chope	1%	3%	1%	2%	1%	4%
Ethnicity-Other minorities	1%	7%	3%	3%	2%	5%
No religion	12%	7%	11%	10%	12%	4%
Wealth index	-0.41	0.56	-0.2	0	-0.27	0.61
Urban area	17%	38%	23%	21%	20%	36%
<b>Community characteristics</b>						
Ethnic fractionalization index	0.18	0.27	0.2	0.23	0.21	0.18
Religion fractionalizaiton index	0.66	0.6	0.64	0.65	0.65	0.63
Community with pave-road	13%	20%	18%	8%	14%	22%
Community with elementary school	75%	80%	81%	65%	80%	58%
Community with a Bank	3%	12%	7%	2%	5%	7%
Community with a market	42%	43%	49%	27%	42%	46%
	Panel B					
	Current Migration		Remittances		Return Migration	
	No	Yes	No	Yes	No	Yes
Formal Group participation	29%	26%	26%	32%	22%	40%
Informal exchange (give or receive)	26%	30%	23%	41%	24%	35%
Expenses in cerimonies	13%	17%	11%	24%	10%	25%
Mutual help (give and receive)	4%	6%	3%	11%	4%	8%

Notes: (a) Formal group is a binary variable equal to 1 if any member of the household has participated in any of the following formal groups: ROSCAs, bank, farmers association, burials association, ONGs actions, self-help religious group, political group, women group, civic group, migrant's group, young group, others. (b) Give or receive a binary variable equal to 1 if the HH has given or received products or services in the last month from at least one of the following important persons in the community: traditional leader, elected leader, teacher, agricultural agent, priest, neighbours, health provider, healer, employer. (c) Expenses in ceremonies is a binary variable equal to 1 if the HH spent any money or product in community's ceremonies in the last year.

**Table 7**  
**Impact of migration and remittances on group participation**  
**Linear probability models (standard errors in brackets)**

	(1)	(2)	(3)
N. of current migrants in the HH	-0.047** (0.017)	-0.039** (0.018)	-0.035** (0.016)
HH receives remittances	0.120*** (0.043)	0.146*** (0.048)	0.153*** (0.039)
Female HH head		0.038 (0.041)	0.047 (0.031)
Age of HH head		0.003 (0.006)	0.003 (0.004)
Age of HH head squared		-0.000 (0.000)	-0.000 (0.000)
HH head education- primary		0.021 (0.036)	0.011 (0.033)
HH head education- secondary or more		0.252*** (0.064)	0.236*** (0.054)
HH head occupation- farmer		0.069* (0.039)	0.088*** (0.031)
HH operating land		0.023 (0.048)	0.015 (0.039)
HH size		0.014 (0.009)	0.007 (0.009)
N. of females in the HH		-0.039*** (0.010)	-0.036*** (0.013)
N. of children in the HH (<5years-old)		0.049* (0.026)	0.047** (0.020)
Residence 5 or more years (dummy)		0.074** (0.035)	0.068* (0.041)
Ethnicity-Ronga		0.142** (0.052)	0.155*** (0.050)
Ethnicity-Chope		0.249 (0.182)	0.183 (0.122)
Ethnicity-Other minorities		0.232*** (0.086)	0.189** (0.088)
Religion-Catholic		0.006 (0.056)	0.067 (0.055)
Religion-Presbyterian		-0.126* (0.070)	-0.028 (0.093)
Religion-Methodist		0.212** (0.104)	0.230*** (0.079)
Religion-Anglican		-0.118** (0.056)	0.035 (0.161)
Religion-Baptist		-0.064 (0.116)	0.104 (0.126)
Religion-Adventist		0.151 (0.133)	0.203* (0.118)
Religion-Islam		-0.034 (0.177)	-0.036 (0.144)
Religion-Tradition spiritsm		0.108** (0.051)	0.090* (0.047)
Religion (NS/NR)		-0.112*** (0.039)	-0.021 (0.062)
Wealth index		0.030*** (0.009)	0.020** (0.009)
Urban area (dummy)		0.167*** (0.059)	0.371 (0.333)
Community with paved-road		-0.060 (0.088)	
Community with primary school		0.116** (0.051)	
Community with a Bank		-0.009 (0.099)	
Community with a market		-0.052 (0.090)	
Community with health facility		0.058 (0.095)	
Constant	0.273*** (0.049)	-0.156 (0.120)	-0.113 (0.133)
Obs.	905	905	905
R-squared	0.012	0.220	0.127
N. of community fixed effects			42

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Notes:** (a) The dependent variable is a binary variable equal to 1 if any member of the household has participated in any of the following groups: ROSCAs, farmers' association, burials association, ONGs actions, self-help religious group, political group, women group, civic group, youth group, others. (b) Remittances variable is a dummy equal to 1 if the HH has received remittances, in money or in-kind, in the last year. (c) Wealth index is the first component of a principal component analysis, which uses dwelling conditions and assets ownership of the HH. (d) Column 3 shows estimates with fixed effects at the community level. The excluded categories are: no education, Changana, no religion.



**Table 8**  
**Impact of migration and remittances on informal social interaction (c)**

	Daily talk frequency	Give or receive (a)	Expenses on ceremonies (b)
N. of current migrants in the HH	-0.014 (0.017)	-0.026 (0.016)	-0.005 (0.013)
HH receives remittances	0.020 (0.043)	0.139*** (0.040)	0.055* (0.033)
Female HH head	-0.030 (0.033)	0.029 (0.031)	0.019 (0.026)
Age of HH head	0.001 (0.004)	-0.001 (0.004)	-0.007** (0.003)
Age of HH head squared	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
HH head education- primary	-0.074** (0.036)	0.009 (0.034)	-0.012 (0.028)
HH head education- secondary or more	-0.083 (0.059)	0.009 (0.056)	-0.064 (0.045)
HH head occupation- farmer	0.101*** (0.033)	0.036 (0.032)	0.070*** (0.026)
HH operating land	0.062 (0.042)	0.021 (0.040)	0.009 (0.033)
HHsize	-0.022** (0.010)	0.002 (0.009)	0.016** (0.007)
N. of females in the HH	0.023* (0.014)	-0.017 (0.013)	-0.026** (0.011)
N. of children in the HH (<5years-old)	0.034 (0.021)	0.024 (0.020)	0.035** (0.016)
Residence 5 or more years (dummy)	-0.032 (0.044)	0.080* (0.042)	0.004 (0.034)
Ethnicity-Ronga	0.159*** (0.055)	0.080 (0.052)	0.017 (0.042)
Ethnicity-Chope	0.295** (0.132)	0.071 (0.125)	0.194* (0.102)
Ethnicity-Other minorities	0.049 (0.095)	0.199** (0.090)	0.100 (0.074)
Religion-Catholic	-0.032 (0.060)	0.029 (0.057)	0.005 (0.046)
Religion-Presbyterian	-0.191* (0.101)	-0.019 (0.095)	-0.072 (0.077)
Religion-Methodist	-0.144* (0.086)	0.013 (0.081)	0.132** (0.066)
Religion-Anglican	-0.201 (0.174)	-0.327** (0.165)	-0.104 (0.134)
Religion-Baptist	-0.269** (0.136)	-0.186 (0.129)	-0.147 (0.105)
Religion-Adventist	-0.255** (0.128)	-0.306** (0.121)	0.269*** (0.098)
Religion-Islam	0.121 (0.156)	-0.137 (0.148)	-0.117 (0.120)
Religion-Tradition spiritism	-0.090* (0.051)	0.028 (0.049)	-0.004 (0.039)
Religion (NS/NR)	-0.157** (0.067)	0.010 (0.063)	0.012 (0.051)
Wealth index	0.000 (0.009)	-0.006 (0.009)	0.015** (0.007)
Urban area	0.056 (0.360)	-0.131 (0.341)	0.232 (0.278)
Constant	0.813*** (0.144)	0.189 (0.136)	0.205* (0.111)
Observations	905	905	905
R-squared	0.064	0.057	0.083
N. of community fixed effects	42	42	42

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Notes:** (a) Give or receive is a binary variable equal to 1 if the household exchanged (i.e. give or receive) any good or service with any important person in the community in the last month, i.e. with the traditional leader, elected leader, teacher, agricultural agent, priest, neighbors, health provider, healer, employer. (b) Expenses in ceremonies is a binary variable equal to 1 if the HH has spent money or goods on community ceremonies in the last year. (c) All regressions use fixed effects at the community level. The excluded categories are: no education, Changana, no religion.

**Table 9**  
**Impact on the Direction of informal social inrections**

<b>Linear probability models (standard errors in brackets)</b>			
	<b>Give</b>	<b>Receive</b>	<b>Give &amp; receive (mutual help)</b>
N. of current migrants in the HH	-0.032** (0.014)	-0.015 (0.012)	-0.021** (0.008)
HH receives remittances	0.127*** (0.035)	0.092*** (0.031)	0.080*** (0.021)
HH and community Controls	no	yes	yes
Community fixed effects (42)	no	no	yes
Obs.	905	905	905

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Notes:** (a) Give (receive) is a binary variable equal to 1 if the HH gave without receiving (received without giving) any good or service to any important person in the community in the last month, i.e. with the traditional leader, elected leader, teacher, agricultural agent, priest, neighbors, health provider, healer, employer. (b) Give&Received (mutual help) is a binary variable equal to 1 if the HH exchanged something (gave&received) with any important person in the community. (c) All regressions use fixed effects at the community level. The excluded categories are: no education, Changana, no religion.

**Table 10**  
**Impact of return migration on group participation and informal social interactions (c) (d)**  
**Linear probability models (standard errors in brackets)**

	Group particip. (a)	Daily talk frequency	Give or receive (b)	Expenses on ceremonies (b)	Give	Receive	Give & receive (mutual help) (b)
Return migration (c)	0.058*** (0.021)	-0.023 (0.022)	0.064*** (0.021)	0.073*** (0.017)	0.088*** (0.018)	0.020 (0.016)	0.044*** (0.011)
Female HH head	0.062** (0.031)	-0.030 (0.033)	0.043 (0.031)	0.009 (0.025)	0.049* (0.027)	-0.005 (0.024)	0.001 (0.016)
Age of HH head	0.002 (0.004)	0.001 (0.004)	-0.001 (0.004)	0.001 (0.003)	-0.002 (0.003)	0.000 (0.003)	-0.000 (0.002)
Age of HH head squared	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
HH head education- primary	0.016 (0.033)	-0.072** (0.036)	0.012 (0.034)	-0.042 (0.027)	0.051* (0.029)	-0.017 (0.026)	0.021 (0.017)
HH head education- secondary or more	0.248*** (0.054)	-0.081 (0.058)	0.019 (0.055)	-0.007 (0.045)	0.011 (0.048)	-0.023 (0.043)	-0.031 (0.028)
HH head occupation- farmer	0.080*** (0.031)	0.102*** (0.033)	0.028 (0.032)	0.086*** (0.025)	0.027 (0.027)	0.020 (0.024)	0.019 (0.016)
HH operating land	0.020 (0.039)	0.065 (0.042)	0.025 (0.040)	0.012 (0.032)	0.030 (0.034)	0.005 (0.031)	0.010 (0.021)
HHsize	0.006 (0.009)	-0.021** (0.009)	0.000 (0.009)	0.008 (0.007)	-0.003 (0.008)	0.001 (0.007)	-0.002 (0.004)
N. of females in the HH	-0.036*** (0.012)	0.020 (0.013)	-0.016 (0.012)	-0.011 (0.010)	-0.016 (0.010)	-0.007 (0.009)	-0.006 (0.006)
N. of children in the HH (<5years-old)	0.056*** (0.019)	0.035* (0.021)	0.033* (0.020)	0.049*** (0.016)	0.014 (0.017)	0.022 (0.015)	0.003 (0.010)
Residence 5 or more years (dummy)	0.086** (0.041)	-0.035 (0.044)	0.100** (0.042)	0.018 (0.033)	0.076** (0.036)	0.044 (0.032)	0.021 (0.021)
Ethnicity-Ronga	0.145*** (0.051)	0.161*** (0.055)	0.070 (0.052)	0.041 (0.042)	-0.022 (0.044)	0.130*** (0.040)	0.037 (0.026)
Ethnicity-Chope	0.235* (0.123)	0.283** (0.132)	0.127 (0.125)	0.268*** (0.101)	0.269** (0.107)	0.062 (0.096)	0.204*** (0.064)
Ethnicity-Other minorities	0.227** (0.089)	0.040 (0.096)	0.239*** (0.091)	0.151** (0.073)	0.142* (0.078)	0.180** (0.070)	0.083* (0.047)
Religion-Catholic	0.061 (0.056)	-0.032 (0.060)	0.023 (0.057)	-0.035 (0.046)	0.012 (0.049)	0.040 (0.044)	0.029 (0.029)
Religion-Presbyterian	-0.042 (0.093)	-0.195* (0.100)	-0.032 (0.095)	0.060 (0.076)	-0.156* (0.081)	0.138* (0.073)	0.014 (0.049)
Religion-Methodist	0.197** (0.079)	-0.135 (0.085)	-0.022 (0.081)	0.128** (0.065)	-0.039 (0.069)	0.030 (0.062)	0.013 (0.041)
Religion-Anglican	0.008 (0.161)	-0.207 (0.174)	-0.351** (0.165)	-0.088 (0.133)	-0.042 (0.141)	-0.284** (0.127)	0.025 (0.084)
Religion-Baptist	0.075 (0.126)	-0.290** (0.135)	-0.205 (0.128)	-0.146 (0.103)	-0.108 (0.110)	-0.048 (0.099)	0.049 (0.066)
Religion-Adventist	0.150 (0.119)	-0.244* (0.128)	-0.362*** (0.121)	0.262*** (0.098)	-0.110 (0.104)	-0.264*** (0.093)	-0.012 (0.062)
Religion-Islam	-0.065 (0.145)	0.121 (0.156)	-0.165 (0.148)	-0.087 (0.119)	-0.185 (0.127)	-0.053 (0.114)	-0.073 (0.076)
Religion-Tradition spirism	0.069 (0.047)	-0.090* (0.051)	0.008 (0.049)	-0.007 (0.039)	-0.001 (0.042)	0.025 (0.037)	0.016 (0.025)
Religion (NS/NR)	-0.029 (0.062)	-0.158** (0.067)	0.003 (0.063)	-0.009 (0.051)	-0.042 (0.054)	0.049 (0.049)	0.004 (0.032)
Wealth index	0.019** (0.009)	0.001 (0.009)	-0.006 (0.009)	0.018** (0.007)	-0.001 (0.007)	-0.006 (0.007)	-0.000 (0.004)
Urban area	0.386 (0.334)	0.057 (0.360)	-0.119 (0.342)	0.038 (0.275)	-0.048 (0.293)	-0.142 (0.263)	-0.072 (0.174)
Constant	-0.101 (0.133)	0.819*** (0.144)	0.198 (0.136)	0.018 (0.110)	0.112 (0.117)	0.113 (0.105)	0.027 (0.070)
Observations	905	905	905	905	905	905	905
R-squared	0.119	0.065	0.055	0.118	0.067	0.052	0.051
N. of community fixed effects	42	42	42	42	42	42	42

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Notes: (a) Formal group is defined as in table 7. (b) Give and receive (mutual help), give or receive and expenses on ceremonies are defined as in table 8 and 9. (c) Return migration is the N. of HH members, currently at home, that have migrated at least once in the past. (d) All regressions use fixed effects at the community level.

Table 11

## IV regression estimates of the impact of migration and remittances on group participation

	(1)	(2)	(3)	(3)
	2SLS <sup>(a)</sup>	3SLS <sup>(b)</sup>	2SLS <sup>(a)</sup>	3SLS <sup>(b)</sup>
Number of current migrants in the HH	-0.231** (0.099)	-0.272*** (0.098)	-0.219*** (0.070)	-0.293*** (0.085)
HH receives remittances	0.785** (0.398)	0.771** (0.375)	0.954*** (0.282)	1.324*** (0.357)
HH and community Controls	yes	yes	yes	yes
Observations	905	905	905	905
Overid. Sargan test (Chi-sq.)		4.402		1.627
P-value		0.111		0.443
<b>First stage results of 3sls</b>				
	<b>Dep. Variable</b>			
	<b>Migration</b>	<b>Remittances</b>	<b>Migration</b>	<b>Remittances</b>
Relatives migrated before the war	0.216*** (0.066)		0.216*** (0.066)	1.505 (1.309)
IV_home2005	0.352*** (0.032)		0.352*** (0.032)	
Short-run rainfall deviation		2.907* (1.468)		
Permanent job contract of migrants		0.119** (0.045)		
Community remittances rate				0.006*** (0.002)
Joint F-test	73.31	4.31	73.31	5.43
P-value	0.00	0.02	0.00	0.00
Joint F-test on all instr. (2sls results)	49.04	20.67	36.2	9.75
P-value	0.00	0.02	0.00	0.00

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Notes:** (1) and (2) Instruments include migration experience before war, the number of household members between 20 and 30 years old in 2005, short-run rainfall deviation (measured as rainfall in 2007 minus the average historical rainfall since 1979) and whether household migrant members have a permanent job contract at destination. (3) and (4) replace the latter instrument with the remittances rate in the community of residence. (a) All instruments for each endogenous variable are excluded. (b) Two different instruments for each endogenous variable are excluded.

**Table 12**

**Impact of migration and remittances on group participation by heterogeneous communities**

**Linear probability models (standard errors in brackets)**

	<b>Panel A: Inequality</b>			
	<b>Gini Inequality (b)</b>		<b>Subjective Inequality (a)</b>	
	<b>Low</b>	<b>High</b>	<b>Low</b>	<b>High</b>
N. of current migrants in the HH	0.004 (0.027)	-0.026 (0.030)	-0.047** (0.019)	-0.019 (0.030)
HH receives remittances	0.158*** (0.061)	0.070 (0.064)	0.184*** (0.053)	0.095 (0.062)
Fixed effects				
Observations	398	333	465	440
R-squared	0.186	0.193	0.189	0.144
N. of communities	18	16	23	19
<b>Panel B: The way land is allocated (c)</b>				
	<b>Community (leader)</b>		<b>Government</b>	
N. of current migrants in the HH		-0.041** (0.017)		0.099 (0.100)
HH receives remittances		0.174*** (0.041)		-0.536* (0.278)
Fixed effects		yes		yes
Observations		752		85
R-squared		0.132		0.421
N. of communities		35		4
<b>Panel C: Ethnicity and religion</b>				
	<b>Ethnic fractionalization index (d)</b>		<b>Religion fractionalization index (d)</b>	
	<b>Low</b>	<b>High</b>	<b>Low</b>	<b>High</b>
N. of current migrants in the HH	-0.023 (0.023)	-0.051 (0.034)	-0.037 (0.026)	-0.053** (0.022)
HH receives remittances	0.136** (0.057)	0.146* (0.083)	0.105 (0.076)	0.096** (0.039)
Controls included	yes	yes	yes	yes
Fixed effects	yes	yes	yes	yes
Observations	342	365	368	351
R-squared	0.185	0.148	0.184	0.230
N. of communities	17	16	16	18

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Notes:** (a) Objective Inequality is measured with the Gini coefficient of the wealth index at the community level- we use the two first quantiles of the wealth distribution for equal communities and the last two quantiles for inequal ones (b) Subjective Inequality is a binary variable equal to 1 if the community leader reports that almost all community members have the same living standards (equal) and 0 if he reports large differences among people (inequality). (c) Dummy vars. how the land is allocated in the community, reported in the community questionnaire: either by the community leader or community councils (traditional law) or by the government (modern law). (d) Ethnic and religion fractionalization indexes measuring community diversity (when equal to 1 the community is completely heterogenous). In this sense equal communities are represented by the two first quantiles of each index distribution and inequal communities are in the top two quantiles.

# Appendix

**Table A.1.**  
**Summary statistics at household level**

	<b>Mean</b>	<b>s.d.</b>
Number of current migrants in the HH	1.59	(1.18)
HH receives remittances	24%	(0.43)
Female HH head	39%	(0.49)
Age of HH head	46.27	(17.5)
HH head education- primary	46%	(0.5)
HH head education- secondary or more	11%	(0.31)
HH head occupation- farmer	43%	(0.5)
HH operating land	79%	(0.41)
HHsize	5.03	(2.87)
Number of females in the HH	2.91	(1.89)
Number of children in the HH (<5years-old)	0.71	(0.88)
Residence 5 or more years (dummy)	85%	(0.36)
Ethnicity-Ronga	11%	(0.31)
Ethnicity-Chope	1%	(0.11)
Ethnicity-Other minorities	3%	(0.17)
Religion-Catholic	17%	(0.38)
Religion-Presbyterian	3%	(0.17)
Religion-Methodist	5%	(0.22)
Religion-Anglican	1%	(0.08)
Religion-Baptist	1%	(0.11)
Religion-Adventist	2%	(0.12)
Religion-Islam	1%	(0.1)
Religion-Tradition spiritsm	48%	(0.5)
Religion (NS/NR)	12%	(0.32)
Wealth index	-0.14	(2.13)
Urban area	22%	(0.42)
Community with paved-road	15%	(0.36)
Community with primary school	77%	(0.42)
Community with a Bank	6%	(0.23)
Community with a market	43%	(0.49)
Health service provider	27%	(0.45)

**Table A.2**  
**Impact of migration and remittances on group participation (a)**  
**Probit Marginal effects (standard errors in brackets)**

	1	2	3 (b)
N. of current migrants in the HH	-0.056** (0.024)	-0.048** (0.024)	-0.040* (0.021)
HH receives remittances	0.135*** (0.048)	0.178*** (0.065)	0.193*** (0.062)
Female HH head		0.052 (0.044)	0.058 (0.039)
Age of HH head		0.004 (0.007)	0.005 (0.006)
Age of HH head squared		-0.000 (0.000)	-0.000 (0.000)
HH head education- primary		0.030 (0.039)	0.016 (0.042)
HH head education- secondary or more		0.300*** (0.081)	0.276*** (0.093)
HH head occupation- farmer		0.075* (0.043)	0.096** (0.040)
HH operating land		0.028 (0.053)	0.023 (0.047)
HHsize		0.016 (0.010)	0.010 (0.011)
N. of females in the HH		-0.042*** (0.010)	-0.044*** (0.015)
N. of children in the HH (<5years-old)		0.049* (0.027)	0.050** (0.025)
Residence 5 or more years (dummy)		0.086** (0.039)	0.072* (0.042)
Ethnicity-Ronga		0.151** (0.062)	0.188** (0.091)
Ethnicity-Chope		0.270 (0.224)	0.173 (0.198)
Ethnicity-Other minorities		0.271*** (0.102)	0.205 (0.129)
Religion-Catholic		0.023 (0.067)	0.117 (0.087)
Religion-Presbyterian		-0.120* (0.072)	-0.007 (0.116)
Religion-Methodist		0.270** (0.129)	0.310* (0.163)
Religion-Baptist		-0.082 (0.145)	0.171 (0.205)
Religion-Adventist		0.192 (0.183)	0.299* (0.165)
Religion-Islam		-0.002 (0.180)	0.005 (0.158)
Religion-Tradition spiritism		0.132** (0.064)	0.116* (0.059)
Religion (NS/NR)		-0.139*** (0.049)	-0.048 (0.076)
Wealth index		0.035*** (0.009)	0.023** (0.010)
Urban area		0.192*** (0.065)	0.001 (0.113)
Community with paved-road		-0.067 (0.094)	
Community with primary school		0.123** (0.052)	
Community with a Bank		-0.039 (0.093)	
Community with a market		-0.065 (0.104)	
Health service provider		0.065 (0.124)	
Observations	905	905	905
N. of communities			42

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Notes: (a)** The dependent variable of all regressions is a binary variable equal to 1 if any member of the household has

participated in any community group. **(b)** Column 3 shows estimates with fixed effects at the community level.

**Table A.3**  
**Impact of migration and remittances on informal social interactions**

<b>Probit Marginal effects (standard errors in brackets)</b>						
	<b>Daily talk frequency</b>	<b>Give or receive</b>	<b>Expenses on ceremonies</b>	<b>Give</b>	<b>Receive</b>	<b>Give &amp; receive (mutual help)</b>
Number of current migrants in the HH	-0.021 (0.019)	-0.017 (0.021)	0.001 (0.014)	-0.039** (0.016)	-0.003 (0.015)	-0.010** (0.005)
HH receives remittances	0.038 (0.046)	0.177*** (0.055)	0.072* (0.040)	0.157*** (0.052)	0.124*** (0.044)	0.074*** (0.027)
HH controls included	yes	yes	yes	yes	yes	yes
Community controls included	yes	yes	yes	yes	yes	yes
Observations	905	905	905	905	905	905

Robust standard errors clustered at community level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Notes: (a) All dependent variables are defined as in table 7 and directions. (b) By using probit regressions, some community fixed effects perfectly predict failures, requiring us to drop many observations from probit regressions. Adjusting the sample for each different regression specification would make it difficult to compare results across specifications, so that in this table we present probit regressions using our baseline set of community controls instead of fixed effects.