MAFE Migrations between Africa and Europe

MAFE Working Paper 12

The role of international migration experience for investment at home: The case of Senegal

MEZGER Cora, University of Sussex/INED

BEAUCHEMIN Cris, Institut national d'études démographiques (INED)

April 2010

ined INSTITUT NATIONAL D'ÉTUDES DÉMOGRAPHIQUES

Agence Nationale de la Recherche ANR

îledeFrance

Funded under the Socio-economic Sciences & Humanities Theme

SEVENTH FRAMEWORK PROGRAMME

The MAFE project is coordinated by INED (C. Beauchemin) and is formed, additionally by the Université catholique de Louvain (B. Schoumaker), Maastricht University (V. Mazzucato), the Université Cheikh Anta Diop (P. Sakho), the Université de Kinshasa (J. Mangalu), the University of Ghana (P. Quartey), the Universitat Pompeu Fabra (P. Baizan), the Consejo Superior de Investigaciones Científicas (A. González-Ferrer), the Forum Internazionale ed Europeo di Ricerche sull'Immigrazione (E. Castagnone), and the University of Sussex (R. Black). The MAFE project received funding from the European Community's Seventh Framework Programme under grant agreement 217206. The MAFE-Senegal survey was conducted with the financial support of INED, the Agence Nationale de la Recherche (France), the Région Ile de France and the FSP programme 'International Migrations, territorial reorganizations and development of the countries of the South'. For more details, see: http://www.mafeproject.com

Abstract

In line with policy concerns, this paper investigates the impact of international migration on investments in origin countries in the African context. Using life-history data from the MAFE survey (Migration between AFrica and Europe), which collected data both at origin (Senegal) and in European destination countries (France, Spain, and Italy), the direct effect of migration experience on personal investments in land, housing and businesses as well as the indirect effect of access to migrant networks on non-migrants investment behaviour are studied. The discrete-time event history analyses suggest that direct experience of migration stimulates personal investment, with current migrants targeting real estate assets and returnees business activities. Moreover, international migration appears as a way to overcome social disadvantages of females and low educated in terms of access to property. On the other hand, non-migrants with access to migrant networks are no more likely to invest than non-migrants without any migrant network.

Résumé

En échos aux politiques de co-développement, cet article étudie l'impact des migrations internationales sur les investissements au pays d'origine, dans le contexte africain. Deux effets sont étudiés : l'effet direct de l'expérience personnelle de la migration sur les probabilités d'acquérir une « affaire », un bien foncier ou immobilier ; et l'effet indirect par lequel les non-migrants pourraient avoir des chances accrues d'investir lorsqu'ils ont des migrants internationaux dans leur entourage. Les données du projet MAFE-Sénégal, collectées à la fois au pays d'origine (Sénégal) et dans trois pays de destination (France, Espagne, Italie), sont utilisées pour mener des analyses biographiques en temps discret. Les résultats montrent que l'expérience personnelle de la migration stimule les investissements à l'origine, les migrants encore à destination se concentrant sur les biens fonciers et immobiliers, et les migrants de retour investissant davantage dans des « affaires ». Par ailleurs, les non-migrants qui ont des migrants internationaux dans leur cercle social n'investissent ni plus ni moins que les non-migrants qui n'ont pas de liens directs avec des migrants.

1 Introduction and Objectives

Nowadays, public institutions at international, national and regional levels tend to consider migration as a possible driver of development. International organisations disseminate the idea of a migration-development link in their recent research publications (e.g. UNDP, 2009; IOM, 2005; World Bank, 2005). Regional organisations are also in line with this view. On the one hand, receiving regions, such as the European Union, see the potential positive impact of international migration on development at the origin as a means to reduce immigration flows (Kabbanji, 2010). And, on the other hand, sending regions, such as ECOWAS, explicitly call on their migrants to be actors in development (ECOWAS, 2008). Finally, national governments in development countries have similar expectations and some have developed schemes aimed at facilitating migrants' investments in their origin country (IOM, 2009). There is thus an extraordinary policy consensus on the expected effect of migration on development. Yet, while there is a growing body of empirical literature on the effects of remittance inflows at the economy-level, as well as on the role of transfers for household income and expenditures at the micro-level, other channels, such as the role of migration for individual investment behaviour in terms of investment in business activities, but also in real estate as an alternative target, remain less explored. Moreover, the existing literature focuses largely on remittance-receiving households at origin, and empirical studies comparing the investment behaviour of non-migrants, current migrants and return migrants remain scarce.

The goal of our paper is to provide a quantitative assessment of the impact of international migration on investments in origin countries. More specifically, and in line with policy expectations, we want to test the hypothesis that international migration is a factor determining personal investment in Senegal, a country where the interaction between migration and development is of crucial importance.

Senegal is a Sahelian country located in West Africa. As most of its neighbours, it pertains to the group of the poorest countries in the world according to international indicators. It is also highly affected by international emigration. The Senegalese Ministry in charge of migration estimates that about two million of its nationals live abroad, implying there is one expatriate for every five people living within the country (IMF et al., 2006). Another source, based on census data in destination countries, indicates that there are eleven Senegalese people in OECD countries for every one thousand individuals in Senegal, against a ratio of 4.5 for the whole of sub-Saharan Africa (Lucas, 2006). In the late 1990s, the remittances transferred through official channels amounted to almost 3% of Senegalese GDP, and informal remittances are believed to represent an equivalent amount. Various qualitative studies have shown the impact of collective remittances systems in Senegal, especially in the rural region of the Senegal River Valley (Lavigne-Delville, 2000). Research has also shown the surge of investments in urban areas, and especially in the housing sector in Dakar, the capital city of the country (Tall, 1994). To the authors' knowledge, no complementary study indicates whether migrants are directly involved in the development of economic activities and the housing sector.

Given this context, our objective is to study the investments of Senegalese migrants, returnees and non-migrants in their origin country in three sectors that are commonly described as migrants' investment targets: land, housing and businesses. More specifically, our analyses will allow for an assessment of the extent to which current migrants and return migrants

exhibit specific behaviour, compared to non-migrants, regarding their investment choices. Do they invest more or less? Do they invest more in economic "productive" activities and less in housing, as is anticipated by public authorities both in sending and receiving countries? Or do they, on the contrary, invest more in the real estate sector, as qualitative evidence on Senegal suggests (Tall, 1994)?

More specifically, we will test three hypotheses. The first is that international migration has a direct effect on investment: living abroad or being back in the origin country may increase the odds of investing for various reasons (financial resources acquired abroad, strong social ties at origin, public incentives, etc.). In other terms, the personal experience of migration would be a driver of investment. The second hypothesis is that – in addition to its direct effect - migration can help individuals overcome social disadvantages in the access to asset ownership. Migration experience may, for instance, close the gender gap in access to assets, or facilitate individual investments by individuals with low levels of education. The third hypothesis is that international migration has an indirect effect: it is possible that people who are not migrants themselves but have migrants in their social network are more likely to invest because, for instance, they may receive material support.

2 Migration and investment: A brief review of the literature

2.1 Theoretical framework

2.1.1 Migration-investment linkages

The early neoclassical migration literature does not provide a theoretical framework for studying the effect of migration on investments at origin (Harris and Todaro, 1979; Taylor, 1999; Rapoport and Docquier, 2005). Since migration was considered to be motivated primarily by individual life-time income maximisation objectives, and to take place in a context of perfect credit and insurance markets, there was no reason why individuals should return to the origin country to invest, or send remittances and other types of transfers home. Investment in the neoclassical context would only be envisaged if returns to investments in the home country exceed those in other countries, contributing thus to an increase in life-time earnings.

The discussion of the migration-investment link effectively emerged within the framework of the New Economics of Labour Migration (NELM) literature (e.g. Stark and Bloom, 1985; Stark, 1991), which shifts the focus from the individual to households/groups as the unit of analysis, and introduces market imperfections and failures in the analysis of departure, remittance transfers and return. Migration can impact investment through its influence on financial, human and social capital constraints, both for the individual with migration experience (current migrants and return migrants) and for the household at origin if material or immaterial resources are transferred back home in the form of remittances or repatriated savings (financial capital), know-how (human capital) or business contacts (social capital).

Financial and risk constraints (imperfect credit and insurance markets at origin)

One important contribution of the NELM theoretical literature consists in the introduction of imperfect markets in migration theory. If credit markets are absent or imperfect, migration may represent a strategy for the individual or household to obtain informal credit in the form of remittances or savings to finance a minimum investment or, if the banking sector is to some extent developed, serve as collateral (Katz and Stark, 1986). This type of investment

can be productive in the case of a business activity, but can also serve to acquire expensive assets, such as housing and land.

Several authors have proposed formalised theoretical models investigating the role of credit constraints for investment decisions of migrants or migrant households. Mesnard (2004), for instance, introduces credit constraints and investment thresholds in a life-cycle maximisation model of temporary migration, in which individuals decide simultaneously on migration duration and occupation after return. According to the model predictions, migration duration is determined by the time needed to reach a specific savings target if migrants aim to start a business after their return. Migration duration may be shortened, for example, if foreign wages rise. De Brauw and Rozelle (2008), on the other hand, formulate a theoretical model from the perspective of the household at origin. Households are assumed to maximize utility by choosing the extent of their participation in migration as well as the share of remittances they will invest in capital goods. The model predicts that migration will be positively linked to productive household investment in poorer areas, where households tend to be credit-constrained, but will not affect households' investment behaviour in wealthier areas. Moreover, Osili (2004) suggests that migrants' investment in housing in the origin community, though not directly productive, may serve as a signalling device regarding the migrant's wealth. It may this affect other types of investment indirectly by improving the family's social standing and access to formal credit markets in the origin country.

Remaining in the context of missing or imperfect markets, the NELM literature proposes that migration can serve as a co-insurance and risk diversification mechanism if insurance markets at the origin are imperfect. Migration may allow for riskier and more profitable investments at the origin, such as the opening of a new business by the remaining household members (Stark, 1991). A potential negative corollary of the insurance function of migration is that in the context of information asymmetries between the migrant and his or her household, remittances may lead to moral hazard by family members at home. Moral hazard would imply that non-migrant household members keep their work effort below optimal levels, leading to negative effects on productive investment (see, e.g. Azam and Gubert, 2006; Chami et al., 2003).[1]

Human capital constraints

The "brain gain" literature stipulates that migration may help overcome human capital constraints, if new knowledge and know-how is acquired abroad through education, training, or work experiences, which are not available or not accessible in the origin country. Transferred back home, knowledge and know-how can improve the conditions for investment, also for individuals who did not migrate themselves (Dos-Santos and Postel-Vinay, 2003).[2] Moreover, the human capital model of migration (Sjaastad, 1962; Becker, 1964) predicts that individuals move to where their skills and knowledge can be most productively employed. Human capital accumulated abroad, which achieves higher relative returns in self-employment at home than in other occupations or abroad, will provide migrants with an incentive to invest at home. Similarly to financial resources, migration may also have limited or negative effects on human capital. This is the case of a "brain-waste" situation, in which migrants are not able to accumulate new skills and know-how abroad, especially if the

[1] The implicit insurance contract between migrants and family members at origin does not only insure non-migrants in the case of a shock, but also migrants, in particular in the beginning of their stay abroad (Mazzucato, 2009).

skill-level of a migrant's occupation at destination remains below the education and capacity (e.g. Mattoo et al., 2008).

Social capital constraints

Moreover, migrants and returnees' may see their social capital weakened due to the prolonged distance to social networks during the stay abroad. This loss may partly offset the gains in financial or human capital through foreign work experience. Wahba and Zenou (2009) formalise this disruptive effect of migration in a theoretical model, which predicts that returnees may be less likely to become entrepreneurs if they have weaker ties (friends, acquaintances) at home than non-migrants and do not access a high-quality social network through their strong ties (family). On the other hand, returnees may be able to take advantage of ties maintained with the destination country, for instance in starting and sustaining a business activity (Cassarino, 2004).

The role of the context at destination and origin

Given that international migration is a costly and risky undertaking, the potential positive effects may, however, be reduced or eliminated entirely, if the economic and labour market situation at destination does not allow for the accumulation and transfer or repatriation of savings, of human and social capital. Also exchange rate fluctuations can increase (in the case of a depreciation of the origin currency) or decrease (in the case of an appreciation of the origin currency) the financial effect of transfers to origin households (Yang, 2008). Moreover, even if productive investment was utility-maximising for the individual migrant or the migrant household, the economic conditions and institutional structures at origin may discourage business investment as they require functioning and stable credit, labour, input and output markets to obtain additional capital, hire trained employees, purchase inputs locally, and sell the output (Massey and Parrado, 1998). In such a context, investment into housing may seem more attractive as it may provide returns in the form of rental payments at lower risk, facing lower administrative hurdles as well as financial, human and social capital requirements, and providing additional utility from social prestige and housing benefits to the family (Osili, 2004).

2.1.2 Do gains from migration remain with the migrant or are they transferred home?

So far, no distinction is made with regard to who invests gains from migration: the individual with migration experience, still abroad or returned to the home country, or kinship and friends. If one thinks of migration as a household decision, with the gains from migration shared within the household, there is no "a priori" indication whether the ownership stays with the migrant or whether the investment is made by a non-migrant at origin. This question can be placed in the framework of the remittance literature (anchored primarily in the New Economics of Labour Migration theories, e.g. Stark, 1995, and Hoddinott, 1994), which explores motives for and uses of remittances (see, for instance, Rapoport and Docquier, 2005 for a review). These include altruism or emotional ties, but also family loan arrangements, in particular involving the payback of the migration costs pre-financed by the household, as well as various types of implicit contracts. Remittances may be exchanged against future inheritances or constitute the "payment" for services performed by the network at origin while the migrant is abroad, e.g. caring for the migrant's children. As migration may constitute an

informal insurance mechanism in the context of imperfect insurance markets, remittances may be sent in the response to shocks to family members or friends at home. If remittances "replace" savings, the migrant may be less likely to accumulate sufficient capital for own investment projects. In addition to responses to demands coming from the origin household (e.g. Blanchard, 2008), social networks at destination may exert social pressure on migrants to redistribute a larger share of their incomes, hampering individual aspirations, such as entrepreneurship (Platteau, 2006).

The question can also be examined drawing on the literature on "la solidarité africaine" (e.g. Marie, 1997; Vidal, 1994; Calvès and Marcoux, 2007). The notion of "African solidarity" has been developed in sociological and anthropological studies of the role of solidarity among members of the extended family in African societies (e.g. Marie, 1997; Vidal, 1994; Calvès and Marcoux, 2007). Solidarity is described as a social norm and insurance mechanism, which stands in contrast with the Western value system centred to a larger extent upon the individual. Different works have discussed the evolution of this society based on solidarity in the context of economic, political, demographic and social changes, pointing out a possible trend towards individualisation, or, alternatively, towards the emergence of new forms of solidarity (e.g. directed more towards friends, external network than relatives, sustained support of the young by the old due to precarious living conditions among the younger generation (Dimé, 2007). One would expect that these changes in the solidarity patterns induce more individualistic investment behaviours.

2.2 Insights from the empirical literature

As the relevant quantitative literature on Senegal is scarce, qualitative evidence on Senegalese migrants' involvement in business formation and housing investments is summarized, followed by a review of empirical studies from other geographical contexts.

2.2.1 Evidence from Senegal

As state-regulated housing plans have failed to satisfy the rising demand for housing in urban areas, research has emphasized the role of migrants in the development of the Senegalese housing sector. According to Tall (1994, 2002), housing constitutes the main investment target for Senegalese migrants, and is to a large extent financed through savings accumulated abroad. It is considered to be a relatively safe investment and faces fewer bureaucratic hurdles than business investment. The investments tend to target larger cities (Dakar, Touba), even if migrants originated from elsewhere. In Dakar, migrants invest primarily in the periphery, and contribute in this way to revitalising districts previously neglected in urban planning.

The motives of housing investments are varied: investments occur in the context of an intended return, but migrants also invest while abroad to obtain income from rents or house family members. It is also common that a two-storey house is built in order to rent out one floor and house family members in the remaining rooms, or to anticipate use as a room for a business activity (Robin, 1996). Moreover, the ownership of a dwelling is considered to be a sign of social status and success, which facilitates both maintaining social ties while abroad and the reintegration after return. Overall, the studies portray the migrant as the investor, rather than the non-migrant family.

Concerning the capacity of Senegalese migrants to undertake and develop business investments, most authors share a rather pessimistic view. Firstly, migrants appear to be

unable to accumulate sufficient savings while abroad (Bruzzone et al., 2006; Fall et al., 2006). While expenditures are kept at a minimum-level, income levels are generally too low to allow for savings in addition to remittance transfers. Secondly, migrants and their contacts at the origin seem to lack the necessary human capital to start and maintain a productive venture (Fall et al., 2006). Even if migration leads to gains in know-how, the employment experience acquired abroad would not be easily transferrable, as entry into the formal sector is restricted and leaves as an option the reinsertion in the already saturated informal trading or service sector (Tall, 2002). Given these financial and human capital constraints, there would be a need for pooling capital and know-how among migrants, but migrants seem to pursue individual rather than joint projects (Sakho, 2006; Fall et al., 2006; Cissé et al., 2006). The lack of a trustworthy and motivated social network at home constitutes a further obstacle to investment (Bruzzone et al., 2006; Fall et al., 2006). If the migrant is otherwise in the position to invest, this lack of trust tends to delay investments until after the return. The legal status of a migrant also appears to play a role, as documented migrants have better possibilities to circulate, and to make use of their migration experience in building up businesses involving "transnational" activities. In addition, disposing of the starting capital is often not synonymous with a successful investment, making remigration abroad necessary to keep business projects going. Another factor influencing investment (in both housing and businesses) is the location of the family. As family reunification procedures are complex, cultural habits such as polygamy usually not accepted, and the maintenance of a family in Europe costly, migrants still tend to follow a strategy whereby the family is segmented. However, family reunifications seem to be on the increase, for instance in Italy, which may reduce incentives to invest at home if ties are weakened (Fall et al., 2006).

Cissé et al. (2006) present a slightly more positive picture of the Senegalese migrants' investment capacity, based on interviews with 19 migrants who started a business in the Dakar region. Most of the entrepreneurs interviewed benefitted from training received in Europe and managed to stay in touch with other migrants, but the main determinant was personal or family members' previous entrepreneurial experience.

2.2.2 Review of quantitative empirical studies

The relevant quantitative empirical literature uses predominantly cross-sectional data to study direct effects of migration experience on the migrant's or returnee's behaviour, as well as indirect effects on households at the origin. From the migrant's or returnee's perspective, studies focus on the determinants of migrants' remittance and spending patterns (*during the stay abroad*), the odds of investing in assets (*before and after return*) and the effect on entrepreneurship at the origin using information on occupational status (*after the return*). Other studies take the perspective of the household at origin comparing households with/without migrants or with/without remittance receipts to examine remittance-use, differentials in household expenditures, as well as the odds of business formation.

Migration experience effect on migrants and returnees' investments

Massey and Parrado's (1998) paper on Mexico is closest to the research proposed in this paper. The authors use spells at risk data to estimate the hazard of business formation in Mexican communities. Using data from the Mexican migration project (MMP) on household heads with and without migration experience, they are able to identify all three migrant experiences: individuals with migration experience are captured through a variable on

cumulative years abroad; moreover, a dummy variable controls for the household head being a current migrant in spell t-1. Current migrants are less likely to become entrepreneurs than household heads back in Mexico, indicating that migration has a disruptive effect. The effect of the cumulative number of years spent abroad, a variable which could proxy the effect of experience gained during migration as well as capital accumulation, is found to be statistically insignificant. Also the amount of remittances received in a given year does not affect business investments. However, cumulative remittances both at household and community level do increase the odds of investing, what suggests that, at least in rural contexts, gains from migration may spill-over to households without any migration experience, for example through increases in demand for goods and services.

Osili (2004) uses a matched data set on Nigerian migrants in the US and their households in Nigeria to analyse determinants of housing investments. While migrant as well as non-migrant data are used, the investment event is studied from the migrant's perspective, and is modelled as a function of individual, family and home town characteristics. The results support the theoretical motivations regarding the importance of securing membership in the household and home community as older migrants closer to return are more likely to invest. In addition to the probability model asking whether a migrant invests or not, the time to investment is examined in a duration model framework. The findings suggest a positive relation between migration duration and the hazard to invest, and highlight the role of the macroeconomic context (changes in the exchange rate and the real interest rate) for housing investments. However, no comparison is made with housing investments by individuals without migration experience or back in Nigeria after a stay abroad.

Another body of empirical literature concentrates on the occupational choice of return migrants, in particular the odds of becoming an entrepreneur as compared to individuals without migration experience. The general consensus from descriptive and multivariate analyses is that return migrants are more likely to become entrepreneurs than non-migrants (McCormick and Wahba, 2001; Mesnard, 2004; Ilahi, 1999; Wahba and Zenou, 2009). Migration experience thus appears to contribute to the accumulation of financial and human capital which can be employed in an entrepreneurial activity after return to the origin country.

Regarding the hypothesis that know-how accumulated abroad stimulates productive investment, Ilahi (1999) finds for Pakistan that having skilled employment abroad reduces the probability of urban self-employment after return, whereas a study by Tani and Mahuteau (2008) on the Maghreb suggests that self-employment abroad has a positive effect on being self-employed after return. A recent paper by Black and Castaldo (2009) on return migrants' involvement in entrepreneurship in Ghana and Cote d'Ivoire finds that foreign work experience and hence know-how, but also networks and contacts gained abroad have a positive effect on investing in businesses. All three papers study entrepreneurial activities of returnees using exclusively data on return migrants, and do thus not provide a comparison with non-migrants or current migrants as counterfactual.

Migrant network effect on investments by individuals and households at origin

Household survey evidence on remittance-use generally suggests that only a small share is spent on productive investment (see review by Taylor et al., 1996), which corresponds to findings on the regions of Dakar and Touba, where three per cent of remittances are reported to be invested productively (Ndione and Lalou, 2005). However, the remittance-use approach,

based on answers asking households on what remittances have been spent, has several weaknesses: the period over which remittance use is recorded differs by survey, and money is fungible and remittances difficult to separate from other income sources, if they are not earmarked for a specific use. Moreover, remittances may affect investment through loosened capital constraints or insurance provisions as suggested by the NELM, and descriptive results cannot take account of the possible endogeneity of remittances (Taylor, 1999; McKenzie and Sasin, 2007).

Amuedo-Dorantes and Pozo (2006) study for the Dominican Republic the effect of remittances on the probability of household business ownership in a system of simultaneous probit models, in order to take account of the possible simultaneity between remittances and business ownership. Their results suggest that households receiving remittances have a lower probability of owning a business, but households owning a business are more likely to attract remittances.

A second type of study examines differences in marginal spending patterns between migrant and non-migrant households by estimating a system of household demand equations and adding remittances as an explanatory variable. Adams (2005) applies this method in the context of Guatemala and finds that households receiving remittances spend, at the margin, less on food and more on housing and education. Since gains from migration may extend beyond remittances, several authors propose to investigate the overall effect of migration rather than the specific effect of remittance flows to avoid omitted variable bias (McKenzie and Sasin, 2007; Kilic et al., 2007). Taylor and Mora (2006) use thus an indicator for migrants in the household instead of remittances and instrument migration with migration networks, as migration may be endogenous if unobserved factors that explain households' selection into migration also affect expenditure patterns. Their conclusions are nonetheless similar, indicating that households with international migrants spend at the margin more on investment (education, health, and housing) and less on consumption.

All in all, the empirical literature leaves us with rather conflicting results on the impact of migration on different types of investment. Results highlight that even if the major share of migrant savings is spent on consumption, migrant savings and remittances appear to increase significantly the odds of productive investment, change marginal expenditure shares towards less consumption and more investment, and even more so if economic conditions at the origin were more favourable. Moreover, return migrants are found to be more likely to become entrepreneurs, a result which is generally interpreted in terms of the role played by migration in overcoming credit constraints. Being currently a migrant, on the other hand, appears to lower the odds of investment in business activities.

However, there are still limitations in the literature on migration and investment. Research integrating non-migrants, current migrants and return migrants in the analysis, allowing for a joint assessment of the direct effects of migration, whatever the location of the migrant, and the indirect effects of migration experience on non-migrants, is very scarce. Most studies either concentrate on a single perspective (only non-migrants, returnees, current migrants) or compare two groups (especially return migrants and non-migrants). The lack of evidence may be explained by a lack of data, as surveys are generally implemented either at origin or at destination. Similarly, the timing of investment has not been sufficiently studied either, as migrants and returnees are rarely analysed together. Timing of investments may however be important if investment is linked to the migration or return motive, if investment follows a

"basic needs" ladder, placing housing before productive investment, or if different investment types are interdependent.

Another limitation is that research has so far focused primarily on business investments, which are of special interest given their potential "productive" nature. However, studies of the role of migration for investment should extend to "alternative" assets. These are other assets which require relatively lumpy investments, in particular housing/land investments, which appear to be a privileged investment target for Senegalese migrants.

3 Data

The analyses performed in this paper use new survey data collected in 2008 in the framework of the MAFE-Senegal project (Migration between Africa and Europe).[3] This project aims at filling the gap in data availability on African international migration highlighted in the literature (Lucas, 2006; Hatton, 2004), and at generating quantitative evidence on migration between Africa and Europe. The design of the MAFE survey builds on several previous surveys on international migration in the world. First, the design of the "Mexican Migration Project" (MMP), a major longitudinal dataset that provided numerous insights into patterns, causes and consequences of Mexican migration to the United States (Massey 1987), was adapted to ensure its applicability to African migration. Second, recent experience with biographic surveys in Europe and in Africa has provided inspiration for the design of the MAFE project questionnaires (GRAB 1999; Poirier et al. 2001; Schoumaker 2006). Moreover, the MAFE research design and the sampling strategies draw on experiences from the project "Push and Pull Factors of International Migration", a large Eurostat-funded project in the mid-1990's collecting data from selected countries in West Africa, the Mediterranean region and Europe (Groenewold et al. 2004).

3.1 Survey characteristics

The MAFE survey design rests on two principles:

(1) **Longitudinal data**. Among other objectives, the MAFE survey was built to study the consequences of international migration. To do so, there is a need for information not only at the time of the survey but at the time of migration and at the time of the possible subsequent changes (Bilsborrow et al. 1997). For instance, to study whether migration has an impact on investment, it is essential to know whether an individual has invested before or after migration, and also to control for individual characteristics, household-level factors and contextual factors at the time of the outcome of interest, in this case the first investment made.

Through the individual questionnaire, the MAFE survey collected therefore annual retrospective information on a broad range of life histories (family formation, education and employment, housing histories etc), covering the time from the respondent's birth till the survey date. One module is specifically dedicated to asset ownership and investments (in land, housing and business activities) and provides detailed information on the outcome variable of this paper, the timing and type of investment made by the respondent. The two

[3] The Migration between Africa and Europe (MAFE-Senegal) survey is a project coordinated by INED (France), in association with the Institut de Population, Développement et Santé de la Reproduction of the University of Dakar (IPDSR, Senegal). It also involves the Pompeu Fabra university (UPF, Spain) and the Forum Internazionale ed Europero di Ricerche sull' imigrazione (FIERI, Italy). The survey was conducted with the support of the Agence nationale de la rercherche (ANR, France), the Ile de France Region, the Institut de recherche pour le développement (IRD, France), the Centre population et développement (CEPED, France) and the FSP programme entitled 'International Migrations, territorial reorganizations and development of the countries of the South. The MAFE-Senegal project is now being enlarged to Ghanaian and Congolese Migrations thanks to the financial support of the European Commission under the FP7 programme.

main independent variables of interest – personal migration experience and migrant networks – are constructed on the basis of migration and housing histories of the interviewee and of his/her social circle (parents, brothers, sisters, partners, children and other relatives or close friends he/she could rely on or could have relied on in the context of a migration project).

(2) **A transnational sample**. Our contention, in line with recognized recommendations (Bilsborrow et al., 1997; Massey, 1987), is that data collected only at the place of origin or at the destination are not sufficient to study the impact of migration. On the one hand, surveys carried out only in sending countries tend to collect poor information on the migrants themselves, either through proxy respondents (since migrants are absent by definition) or from a potentially selective sample of those who use to return at particular times of the year. In either case, the information on migration is unlikely to provide an accurate or representative picture of the migration experience. On the other hand, surveys carried out in receiving countries can collect information on the current migrants' investments but they do not allow for a comparison of migrants with non-migrants, which is essential to determine the impact of migration on investment decisions. We thus collected data both at origin (among non-migrants and return migrants in Senegal, at household and individual level) and in destination places (among migrants in the main European destination countries, France, Italy and Spain).

3.2 Sampling strategies and their impact on analyses

For cost reasons, the sample in Senegal was limited to the region of Dakar with its four administrative departments of Dakar, Pikine, Guédiawaye and Rufisque. The region accounts for approximately a quarter of the national population. The three-stage probabilistic sampling design oversamples households with migration experience. In a first step, National Census data from 2002 was used as a sampling frame to group census districts into 10 strata of equal size based on the migration prevalence (number of households with at least one migrant) in the district. Six districts were randomly drawn out of each stratum, and a micro-census was conducted in the sampled districts to update the list of households. Within the sampled districts, households were further stratified into two strata (migrant households and non-migrant households, definition based on information collected during the micro-census). Twenty-two households were randomly sampled in each selected census district, with migrant households representing a maximum proportion of 50 per cent. Finally, individuals were sampled within households for the individual survey. All return migrants and partners of current migrants identified in the household survey were sampled for the individual survey, and in addition one non-migrant per household was sampled randomly. The Senegalese sample is representative of the Dakar region, and inference to the population characteristics is thus only valid at the regional and not at the national level.

The original survey design anticipated matched samples by tracking down migrants in Europe whose contact details were obtained during the household survey in Senegal. Although a relatively large number of contacts were collected, only a small share could be used due to problems of non-eligibility (age, regional criteria) or because the person could not be traced (i.e. individuals had moved, phone number were not assigned, phone calls were left unanswered) (Beauchemin and Gonzalez, 2009). Therefore, complementary sampling strategies were applied to achieve the set sample of 200 migrants per country (without links to the households interviewed in Senegal). Respondents in France and Italy were sampled through varied non-probabilistic methods (e.g. snowballing, intercept points, contacts

obtained from migrant associations) in order to fill pre-established quotas (women and older migrants were over-represented). The municipal register in Spain (padrón) offered a national sampling frame from which documented and undocumented migrants could be randomly sampled (stratifying by gender and age and adhering to the same eligibility criteria as in France and Italy)[4].

In all countries, the eligibility criteria for the individual questionnaire established that individuals had to be between 25 and 75 years of age (to have long enough life histories), born in Senegal (to exclude second generation in Europe) and of present or past Senegalese nationality (to exclude immigrants in Senegal). In Europe, another criterion was added to exclude 1.5 generation migrants (who are often "passive" migrants)[5] and insure more homogeneity within the samples: migrants had to have emigrated out of Africa at age 18 or later, for a stay of at least one year.

In Senegal, 1,067 individuals were interviewed, including 195 return migrants, while 200 migrants were interviewed in each of the three destination countries.

Since samples were collected both at origin and destination, one disposes of rich information to analyse simultaneously the behaviour of current migrants, returnees and non-migrants. In this regard, the MAFE project offers a dataset which is similar to the MMP, LAMP or Push-Pull projects, as all of them contain information collected both at origin and destination (Massey, 1987, Groenewold et al., 2004). However, while these projects focus predominantly on one destination country for each origin group[6], the MAFE project includes several destination countries to capture more varied migrant characteristics and selection patterns. In order to be representative of the entire Senegalese community scattered around the world, the ideal survey should cover all countries in which Senegalese people live. For cost and logistic reasons, our sample at destination is thus limited to three countries in Europe, even though they account for about 42 per cent of the Senegalese people who had migrated from Senegal (and 54 per cent from the region of Dakar) according to the population census from 2002. Moreover, the region of Dakar constitutes the main departure region, at least in absolute terms (26 per cent of all departures in the five years preceding the census).[7]

This sampling design implies potential biases in the analyses. First, no information is available on the investment behaviour of the Senegalese residing, *at the time of the survey,* in other destination countries, in particular in the West African region or the United States. The retrospective survey does, however, provide some information about *past* migration experiences in countries other than France, Spain and Italy. These migration experiences are recorded for migrants interviewed in Europe, who previously lived in other countries, as well as for returnees sampled in the region of Dakar, who may have lived anywhere in the world. In particular, 9 per cent of the European sample lived in Africa (outside of Senegal) and 32 per cent of return migrants interviewed in the region of Dakar had spent at least one year in Europe, while the majority of return migrants (62 per cent) have migrated only within Africa. This difference in the percentages shows that there is a sort of "sample mismatch" between

[4] For a detailed presentation of the Padrón, see Ródenas Calatayud and Martí Sempere (2009).

[5] "1.5 generation" migrants are individuals who migrate as children or in their early teens.

[6] Recently Canada was included as a destination country in the MMP, but the sample in this country is still very limited.

[7] Source: Senegalese Census, 2002. Figures computed by the authors: this figure takes into account the individuals that were declared by the Senegalese households as having migrating out of Senegal within the 5 years preceding the Census. In total, 176 095 persons have left the country to go to various destinations: 43% to other countries in Africa, 42% to France, Spain and Italy, 15% to other countries (including 7% to the United States).

the migrants interviewed in Europe and the return migrants interviewed in Senegal: the first ones have almost no experience of migration in Africa, while the latter came mainly back from African countries. Moreover, the more one approaches the survey time, the more the composition is biased towards the three European destinations.

Another "sample mismatch" is due to the limitation of the Senegalese sample to the region of Dakar, since 35 per cent of the current migrants interviewed in Europe have never lived there for more than a year.[8]

What are the consequences of these "sample mismatches" for our analyses? There is very little information on the potential differences in matter of investment behaviour between those migrants that have lived at least one year in Europe and those who have not. Some studies conducted in other African contexts (Burkina Faso, South Africa, Morocco) suggest that migrants who stay in Africa may invest less than those who move to Europe: their earnings at destination are in general lower; they tend to originate from less wealthy households for which reason their migration could be primarily seen as a way to ensure the livelihood security of the origin family rather than as a way to accumulate capital to promote investments.[9] The absence in the sample of those migrants living in other African countries could lead thus to an overestimation of the effect of migration on investment in our analyses if this behaviour was equally valid for Senegalese migrants. Moreover, differences in results for current migrants and return migrants may be due to differential selection by destination rather than the timing with the migration process or selective patterns into return migration. There is even less information on behaviour differentials between those who have lived at least one year in Dakar and other migrants.

In any case, it must be clear that the groups of current migrants and of return migrants are not strictly comparable. Despite this limitation, we attempt to capture to some extent the effect from selective migration by destination by distinguishing in the analyses the migration status by destination, with migration in Africa/outside of Africa for individuals abroad in a given year and migration experience only in Africa/beyond the African continent for return migrants. The "out of Africa" categories include predominantly migrations to Europe, and few spells in North America and the Middle East. The trade-off of the finer distinction comes in the form of small cell frequencies. Descriptive analyses are therefore not always possible using the more detailed migrant status categories, and regression coefficients are estimated less precisely. Bearing in mind the various selection biases we mentioned, it is clear that our results will not provide a perfect estimation of the impact of personal migration on investment and that caution is required in the interpretation of the results. This analysis will, however, bring new evidence in a scientific field where there is no perfect approach so far. As showed above in the conclusion of the literature review, earlier studies are equally hampered by selection biases since some migrant groups are excluded from the analysis. Albeit imperfect, ours will be the first one to analyse jointly data on return migrants, non-migrants and migrants living in several destination countries. In this sense, it consists in a new exploratory step towards a better understanding of the direct effect of international migration on investments.

[8] However, this sample mismatch may be less problematic in terms of selection bias. On the subjective question "Is there a place which you would consider to be your village or your town of origin in Senegal?", 37 per cent of the migrants interviewed in Europe report Dakar or its surrounding towns in the region, while this is the case of only 23 per cent among non-migrants and return migrants respectively.

[9] Wouterse, F. S. (2006); Hampshire, K. (2002); de Haas, H. (2006); Dodson, B. et al (2008); Pendleton, W. et al (2006), Cited in: Bakewell, O. (2009), "South-South Migration and Human Development: Reflections on African Experiences", Human development research paper n°7, UNDP, 80 p.

The question of the indirect effect of migration on investment, i.e. the fact that non-migrants in the Dakar region could be "encouraged" to invest by migrants, is not affected by the sampling issues discussed.

Table 1: Samples in the MAFE-Senegal survey

Place of residence at the time of the survey	Stratum	Number	Peculiarities regarding migration history
Senegal	Non-migrants	720	- Reside only in Dakar Region at the time of the survey, but 55% used to live at least one year out of Dakar in Senegal - Never lived more than one year out of Senegal
	Non-migrants and migrants' spouses	152	
	Return migrants	195	- Reside only in Dakar Region, but 55% lived at least one year out of Dakar in Senegal - Used to live at least one year out of Senegal, whatever the country (only 32% lived at least one year in Europe) and whatever the age of first migration
Europe	Current migrants in France	200	- 35% never lived in Dakar Region - Reside in Europe at the time of the survey, even though 9% have lived in other countries - First arrived in Europe at age 18 or later
	Current migrants in Spain	200	
	Current migrants in Italy	203	

4 Methods

Previous analyses of the migration-investment link have mainly reverted to cross-sectional analyses (except the studies using data from the Mexican Migration Project), and focus to a large extent on either the group of non-migrants, of migrants or of return migrants, since data on all three migrant statuses is rarely available. The MAFE survey data allows us to perform analyses which compare the investment behaviour of these three groups and to use retrospective information for longitudinal analyses. In line with policy concerns, the theoretical framework and findings from the existing empirical analyses, the aim of this paper is to test the following hypotheses:

- **H1**. Individual migration experience stimulates personal investments in Senegal.
    - **H1A**. The effect of individual migration experience varies depending on the type of asset and the individuals' location (abroad or back in Senegal). Current migrants are expected to exhibit higher propensities to invest in the real estate sector (land, housing), returnees in entrepreneurial activities.
- **H2**. In addition to having a direct effect through its role in overcoming capital constraints, migration experience can attenuate or offset the effect of other individual characteristics (fixed or determined early in life) on the access to asset ownership, such as sex and education;
    - **H2A**. The equalizing effect of migration is heterogeneous across asset types.
- **H3**. There is an indirect effect of international migration. Non-migrants with access to a migrant network are more likely to invest than non-migrants without any migrant network.
    - **H3A**. The indirect effect of migration varies according to the characteristics of the migrant network (e.g. strong vs. weak ties).

- **H3B**. The indirect effect of migration varies according to the type of asset (land, housing, or business activities).

To test these hypotheses, we combine descriptive statistics from a cross-section perspective and event-history models with a longitudinal approach.

4.1 Descriptive statistics from a cross-section perspective

The first analyses interrogate descriptive statistics to assess the associations between (1) the individual's migrant status (current migrant, return migrant (migration experience exclusively in Africa/at least one year of migration experience outside Africa, non-migrant) and asset ownership, and (2) non-migrants' access to a migrant network and asset ownership, at the time of the survey (2008).

Since our research question concerns personal investments at origin, the descriptive analysis, is performed on a subsample including: (i) individuals owning in 2008 at least one asset in Senegal they acquired personally; (ii) individuals who never owned any asset. Some surveyed individuals are thus excluded from the data-set used for descriptive statistics. These people are those who inherited assets, but did not invest themselves; those who invested abroad but not in Senegal; those who only owned assets in the past, but not at the time of the survey. By excluding them, we ensure that the reference category of "non-investors" remains more homogenous. Table 2 shows the resulting sample of 1,458 individuals, with 523 migrants in Europe, and 172 return migrants and 763 non-migrants in Senegal.

Table 2: Sample characteristics – descriptive analysis

	Europe			Senegal			
	Spain	**France**	**Italy**	**Return migrant (only AF)**	**Return migrant (1 year+ outside AF)**	**Non-migrant**	**Total**
No asset	103	89	138	72	25	641	1,068
At least 1 asset in SN & not inherited in 2008	59	83	51	31	44	122	390
Total	162	172	189	103	69	763	1,458

Most descriptive results consist in the comparison of property rates, i.e. the ratio of people owning an asset over the total population of each group (current migrant in Europe, return migrant with distinction by destination, non-migrant, when cell frequencies allow for a distinction). All statistics are adjusted for the respective sampling design.[10] Sampling weights are applied in the case of the Senegalese sample, while the weighting represents an adjustment for the over-representation of certain population groups (in particular female and elderly migrants) in the European quota samples. Tables providing absolute and relative frequencies without weights are included in the Annex.

4.2 Discrete-time Event-history models: a longitudinal perspective

[10] Weights used for this paper are still provisory and results might be adjusted in the future.

To go beyond statistical association and provide an assessment of the causal effects of migrant status and migrant networks on individual investment decisions, we estimate binary discrete-time duration models. Person-year datasets are constructed from the retrospective histories, and individuals are followed from age eighteen to the date of their first investment or the survey date, whatever date occurs first. The definition of the dependent variable follows the same criteria set out in the descriptive analysis (i.e. inherited assets and assets abroad are not included). However, all individuals are considered to be "at risk of a first investment" and their person-years are included in the analysis, even if they already own an inherited asset or an asset abroad.

Given the discrete data structure, the discrete-time hazard for interval t is the probability of investing during interval t, given that no investment has occurred in a previous interval:

$$h_{it} = prob(y_{it} = 1 | y_{is} = 0, s<t)$$

As this corresponds to the response probability for a binary dependent variable, a straightforward estimation approach proposed by Allison (1982) is to use a logit model, specified as:

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \alpha(t) + \beta M_{it-1} + \gamma NET_{it-1} + X'_{it-1}\delta$$

where p_{it} is the conditional probability that an individual i invests at period t, given that the event has not yet occurred. The variable M_{it} indicates the individual's migrant status in year t, and NET_{it} captures the existence of a migrant network in any spell at risk. The baseline hazard is represented by $\alpha(t)$ and X_{it}' is a vector of both time-invariant and time-varying individual and family-level covariates. The time-varying variables, including migrant status, are lagged by one year to make sure that characteristics are measured prior to the investment event. If two events occur in the same year, the sequencing is not observable in the data, since information is collected on yearly spells. While the establishment of a time order of changes in covariates and the first investment strengthens a causal interpretation of the results, individuals may take decisions based on expectations about future events well in advance, in which case timing does not ensure causality.[11]

In order to control for unobserved heterogeneity, the models are estimated including random effects (u_i), which are assumed to vary across individuals and remain constant over time.

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \alpha(t) + \beta M_{it-1} + \gamma NET_{it-1} + X'_{it-1}\delta + u_i$$

We start by estimating a model which groups all types of property and only distinguishes between investing and not investing as outcomes (Models 1). In a second step, separate models for investment in different property types (land, housing, business) are estimated (Models 2a to 2c).[12] In a third step, we estimate two separate series of models in order to explore if covariate effects vary depending on the migrant status at the time of investment (any type of investment). One series of models contains only non-migrant person-year spells

[11] The regression models are estimated without sampling weights.

[12] If the asset is a dwelling, the questionnaire asks if the plot on which the dwelling is built was owned previously, and if yes, from which year. If the date of land investment takes place at least a year before the construction of the dwelling, both the land and the dwelling are considered as separate investments, and can appear as dependent variable in the land equation as well as the housing equation.

before the observation period ends, either because the individual invests or because of censoring at the time of the survey (Models 3a to 3d). The other series contain migration and return spells of individuals who spent years abroad before investment or before censoring at the time of the survey (Models 4a to 4d). The separate models allow us to examine whether, and by how much, the effect of covariates on investments depends on the individual's migration experience. They provide insights into the role of migration in compensating for potential differential access to assets due to individual characteristics such as gender or the educational status. They also provide refined results on the impact of migrant networks on the odds to invest by exploring various definitions of the network variable. Finally, the two last series of models (5 and 6) are used to assess whether migrants and non-migrants show differential behaviour depending in the type of asset. Table 3 summarises the model specifications.

Table 3 : Model parameters

	Model 1	Models 2a, 2b, 2c	Model 3a, 3b, 3c, 3d	Model 4a, 4b, 4c, 4d	Model 5a, 5b, 5c	Model 6a, 6b, 6c
Tested hypothesis	H1: There is a direct effect of migration on investment	H1A: The direct effect of migration varies according to the type of asset and the location (current migrant, returnee)	H2: Migration experience compensates for usual social disadvantages (offset effect) H3 : There is a network effect on non-migrants investments H3A: The network effect depends on the network composition and location		H2A: The equalizing effect varies according to the type of asset H3B : The network effect on non-migrants investments varies according to the type of asset	
Event studied	Time of first personal investment into any type of asset (land, housing or business)	Time of first personal investment into land (Model 2a), housing (Model 2b), a business activity (Model 2c)	Time of first personal investment into any type of asset (land, housing or business)		Time of first personal investment into land (Models a), housing (Models b), a business activity (Models c)	
Population (migrant status in year t)	- Non-migrants - Migrants - Return migrants		- Non-migrants	- Migrants - Return migrants	- Non-migrants	- Migrants - Return migrants
Left truncation (time origin)	Each individual enters the risk set at age 18			Each individual enters the risk set - at the date of migration, - at age 18 if first departure took place before the age of 18	Each individual enters the risk set at age 18	Each individual enters the risk set - at the date of migration, - at age 18 if first departure took place before the age of 18
Right censoring	Each individual leaves the risk set: - at first investment (event under study) - In 2008 (survey date)	Each individual leaves the risk set: - at first investment in land (Model 2a), housing (Model 2b), a business activity (Model 2c) (event under study) - In 2008 (survey date)	Each individual leaves the risk set: - at first investment (event under study) - at first departure abroad - In 2008 (survey date)	Each individual leaves the risk set: - at first investment (event under study) - In 2008 (survey date)	Each individual leaves the risk set: - at first investment (event under study) - at first departure abroad - In 2008 (survey date)	Each individual leaves the risk set: - at first investment in land (Models a), housing (Models b), a business activity (Models c) - In 2008 (survey date)

4.3 Construction of variables

The outcome variable – **investment** into an asset – is constructed based on yearly dated retrospective information on assets owned by the respondent, at the time of the survey or in the past. Types of assets captured are land (agricultural and for construction purposes), dwellings (traditional house, single-storey house, multi-storey house, apartment, apartment block), and business activities (owning the business premises or business/venture without walls).[13] Since we are interested in investment behaviour, we use information on the acquisition mode to exclude inheritances from the analysis. Similarly, we rely on information on the location of the asset in order to limit our investigation to investments in Senegal.

[13] There is no restriction on business activities reported by individuals, and they are likely to be rather small-scaled (no employees or family labour) and set up with relatively small amounts of initial capital (less than housing and land investments) in the informal sector. A list of activities reported can be found in the Annex.

The retrospective housing and **migration** histories enable us to identify individuals as non-migrants, current migrants and return migrants in a given year. To be classified as migration (for the individual as well as network members), the stay abroad must have lasted for at least one year. Similarly, to be counted as return migrant, the individual must have spent at least one year back in Senegal after an international migration experience. We further distinguish between migration experiences in Africa and outside of Africa, based on the location in any given year for current migrants and on the fact of having spent at least one year outside of Africa for return spells.

Moreover, the location and composition of the respondent's social network is recorded in a "migration network" history, and allows us to construct variables indicating access to a **migrant network** at any time during the respondent's life. Since family structures in Senegal are characterised by large and extended families and households, a relatively broad definition of "migrant network" has been adopted. Apart from the close family (partner, children, parents, and siblings), other relatives as well as close friends are recorded, under the condition that these would have provided a significant support to the respondent in case of migration. Moreover, the questionnaire does not only capture migration episodes abroad, but records also return migrations of network members. The broad migrant network variable includes therefore close family and extended family members, current migrants and return migrants. We test for the significance of the specification of the network variable by using variables distinguishing the relationship link, the location of the network and the presence of women in the network in addition to the broad network variable which only compares individuals with and without migrant network.

Control variables included in the discrete-time event-history models comprise relevant individual characteristics, family factors, information about previous asset ownership, and contextual factors. Individual variables capture the life-cycle effect of age contained in the baseline hazard, the role of gender, the effects of educational attainment and occupational status, income stability and the place of birth. Family factors measure the number of children aged below 16, as well as the marital status. The marital status variable distinguishes, on the one hand, singles from individuals in a relationship. For the latter, we further differentiate those who live in the same country as their partner and those who live in different countries. To control for existing wealth, we also include controls for previously owned assets. In Models 1, 3, and 4, which have as outcome variable the first investment into any asset, a dummy for previous inheritances is used as a covariate. When modelling the first investment into land (Model 2a), houses and business assets which have been acquired previously – via inheritance or investment - are used as explanatory variables. Similarly, land and business assets are included when the outcome is the first investment into a dwelling (Model 2b), and land and dwellings are used to explain first investment into a business activity (Model 2c). To account for period effects, dummies for the respective time period (before 1980, 1980-1994, 1995-1999, after 2000) are also included. A problem attached to the retrospective nature of the data is that, by definition, there are fewer investments recorded for earlier periods than for later periods, since there are relatively few older respondents. The first investment in the data set occurred in 1960, the last ones in 2008. All variables used in the regression analysis are listed below (Table 4), including an indication of the sample proportions at the time of the first investment or at the survey if the observation is censored.

Table 4 : List of variables used in discrete-time event-history analyses

Variables	Categories/description	% of sample at the event or date of survey (exceptions in brackets)
Time		-
Time squared		-
Migrant network	*No migrant network (ref)*	22.69
Broad definition	Any migrant network	77.31
By relationship link	Children or siblings	52.32
	Other relationship	24.98
By location	In Senegal	20.10
	Abroad (not Senegal)	57.21
By presence of women	At least one woman	38.50
	No women in network	38.81
Migrant status	*Non-migrant (ref)*	56.25
	Current migrant outside Africa	33.92
	Current migrant in Africa	0.66
	Return migrant 1 year+ outside of Africa	2.96
	Return migrant, only Africa	5.85
Gender	*Male (ref)*	47.68
	Female	52.32
Occupational status	*No wage earner (ref)*	31.14
	Manager/employer	5.20
	Skilled worker	16.14
	Unskilled worker	19.38
	Self-employed	27.63
Education	*No education (Ref)*	24.7
	Primary education	29.51
	Secondary education	32.56
	Tertiary education+	13.23
Income stability	*Sufficient resources (Ref)*	76.17
	Insufficient resource	6.34
	Unstable	17.49
Children	Number of children 0-16	1.5 (mean value)
Marital situation	*Single (ref)*	28.67
	In partnership and the same country	53.17
	In partnership and different countries	18.17
Previous wealth	*No inherited asset (ref)*	89.26
	Owns inherited asset	10.74
	No land owned (ref)	-
	Owns land	-
	No dwelling owned	-
	Owns dwelling	-
	No business owned	-
	Owns business	-

Variables	Categories/description	% of sample at the event or date of survey (exceptions in brackets)
Place of birth	*Born elsewhere in SN (ref)*	49.3
	Born in Dakar	50.70
Period	*before 1980 (ref)*	9.61 (at time of first investment)
	1980-1994	24.38 (at time of first investment)
	1995-1999	16.26 (at time of first investment)
	after 2000	49.75 (at time of first investment)

Most variables are constructed as varying over time (e.g. migrant status, networks, occupation, income stability etc.). Variables which are time-invariant are fixed individual characteristics, such as gender and place of birth, or are considered to be fixed at age 18, such as education. However, for the descriptive analysis presented in section 5.1, all characteristics are measured as of the time of the survey (year 2008). The descriptive findings provide thus a "cross-section" perspective and a reference point for subsequent longitudinal analyses.

5 Descriptive Results

5.1 Is there a correlation between personal migratory experience and investment?

A comparison of the overall property rates of current migrants, return migrants and non-migrants at the time of the survey suggests a positive association between personal migration experience and access to property in Senegal, as long as migration experience was gained outside of Africa (Table 5). While less than one out of five non-migrants declares ownership of at least one land plot, dwelling or a business in Senegal in 2008, this share increases to 41 per cent for individuals living abroad in 2008. Return migrants who spent at least one year in a non-African country show the highest property rates: they may have invested while abroad, similar to the current migrants, but have seized further investment opportunities after their return. Return migrants, however, who have migrated to other countries on the African continent, are no different from non-migrants regarding their asset ownership. This suggests that there may be indeed an initial selection by destination, and that international migration experience in other African countries does not stimulate personal investments into the assets examined, and may rather follow a strategy of securing .

Table 5: Asset ownership rates by migrant status, in 2008

	Current migrant (Europe)	Return migrant, min 1 year out of Africa	Return migrant, only Africa	Non-migrant	Total
At least one asset	41%	71%	18%	17%	22%
Construction land	19%	33%	4%	7%	9%
House	26%	52%	9%	6%	10%
Business	5%	19%	9%	5%	6%

The association between migration experience and asset ownership is likely to vary depending on the type of asset, e.g. due to differences in monitoring costs. Nonetheless, one observes no differences with respect to individuals without migration experience for the group of returnees from other African countries, independently of the type of asset (construction land, housing and businesses). While the returnees' property rate is slightly higher for housing and businesses, and slightly lower for construction land, these differences are not statistically significant. Current migrants and return migrants who migrated out of Africa, on the contrary,

seem to have an advantage with respect to non-migrants. The difference is largest in the case of housing and construction land, and remains only present for the group of return migrants if the asset is a business activity. Migrants thus seem to have a clear preference for investments in the real estate sector, a phenomenon which has been highlighted within the existing literature (Tall 1994, 2002). Possible explanations for this bias towards construction land and housing include both economic and social motivations, and have to be examined within the institutional context in Senegal.

Housing is considered to be a relatively safe investment, which requires less financial, human and social capital than investments in businesses and faces less bureaucratic hurdles than business investment. Incentives to invest in real estate have further been provided by institutional initiatives. The Senegalese Housing Bank (BHS), for instance, supports the opening of savings accounts for housing investments by migrants, and annual housing fairs are organised in major destination countries (Ndione and Broekhuis, 2006). Investment into land and housing can represent a form of saving for the migrant, since the investment can be done step-by-step, and the money is no longer fungible and possibly diverted to more ad-hoc expenditures as may be in the case of remittance transfers. Real estate property may also constitute a collateral in the context of constrained access to credit markets. Moreover, the completed dwelling may be rented out and provide regular income flows in the form of rental payments. An important non-economic reason is that housing owned at the origin may be a visible sign of social status and success, which facilitates maintaining social ties while abroad and then reintegrating in the home community after return (Osili, 2004).

With regard to businesses, the advantage of migration is less clear-cut. While property rates of non-migrants and current migrants identical (5 per cent), the proportion of those return migrants who lived in non-African countries and own a business is four times as large (19 per cent). The difference between returnees and migrants reflects the fact that business activities need to be managed and maintained. Therefore, they are likely to require the presence of the owner, at least from time to time. Several authors have also noted that the lack of a trustworthy and motivated social network at home, which would take over the management of the business during the migrant's stay abroad, constitutes an obstacle to investment into business activities (Bruzzone et al., 2006; Fall et al., 2006). Migrants may therefore delay their investment into businesses until after the return. However, the relatively low presence of returnees from Africa in business activities is surprising, if one starts from the premise that entrepreneurial activities in the context of the Dakar region are to a large extent located in the informal low-productivity sector. These descriptive statistics suggest rather that migration does indeed lead to capital accumulation which facilitates business investment after return. More detailed analyses on the type of business, the characteristics of business owners, and the timing of the investments would be needed to clarify the relationship between starting and maintaining a business, staying abroad and returning.

5.2 Access to migrant networks and investments by non-migrants

Our third research question concerns the indirect channel between migration and investment: do non-migrants, who have links to a network of family and friends with migration experience, invest more than non-migrants without any migrant network? A first attempt to approach this question consists in comparing the asset ownership status of non-migrants with and without migrant networks, keeping in mind that the association may work in both directions: having a network may influence the investment behaviour, if financial support or

know-how is provided, but wealth in the form of asset ownership can also finance the migration of network members. Moreover, one should take into consideration that our definition of "migrant network" is relatively broad. In fact, the large majority of interviewees report having a network of relatives or friends with migration experience, either abroad or back in Senegal, while only 29 per cent of non-migrants have no migrant network of any kind in 2008.

The first descriptive results indicate that there is no statistically significant association between non-migrants' ownership status and their link to a network of migrants and return migrants, those with a migrant network exhibiting a rate of 17%, while it is 18% for those without a network (Figure 2, "any network" columns). A distinction by the type of asset (building land, housing and business) does not provide a different view (see tables in Annex).

To investigate if this lack of association observed when grouping together all network members and all assets is robust to modifications of the network definition, we distinguish migrant network characteristics by various variables: (1) the relationship link with the (return) migrants in the network, (2) the location of the migrants, and (3) the presence of women in the network.

(1) The network variable by relationship link separates non-migrants who have at least one child or sibling with migration experience from non-migrants with networks of other relationship links. Since the broad definition of the network, which takes account of the extended family structures in Senegal, does not provide any differential for individuals with and without network, a "close family" definition is hence tested to explore if stronger links have a stronger association with investment. An exploratory analysis (not shown) by detailed relationship links suggested that children and siblings are closest in their association with investment. From a theoretical point of view, the grouping corresponds to a view of migration as household-level decision, whereby older children migrate to provide additional income and/or minimize income risk for the household remaining at origin, in particular parents and younger siblings.

(2) The location of the migrant network in 2008 is captured by three dichotomous variables, being equal to one if at least one relative lives in Europe, in Africa, or back in Senegal after a stay a abroad. Since the migrant network consists most often of more than one relative or friend with migration experience, the same non-migrant can have simultaneously a network in a European country, an African country, and links to returnees in Senegal. Migrants in Europe could dispose of more resources, transfer more, and hence may have a stronger association with investment. However, return migrants in the network may have repatriated their savings. Being at home, they are more accessible, and, given their presence, they may keep a certain control over the way savings from migration are invested by their kinsmen.

(3) Finally, networks with at least one female (return) migrant are distinguished from all-male networks, given that the literature takes increasingly a gendered perspective, analysing, for example, if women are more altruistic and hence more likely to send transfers.

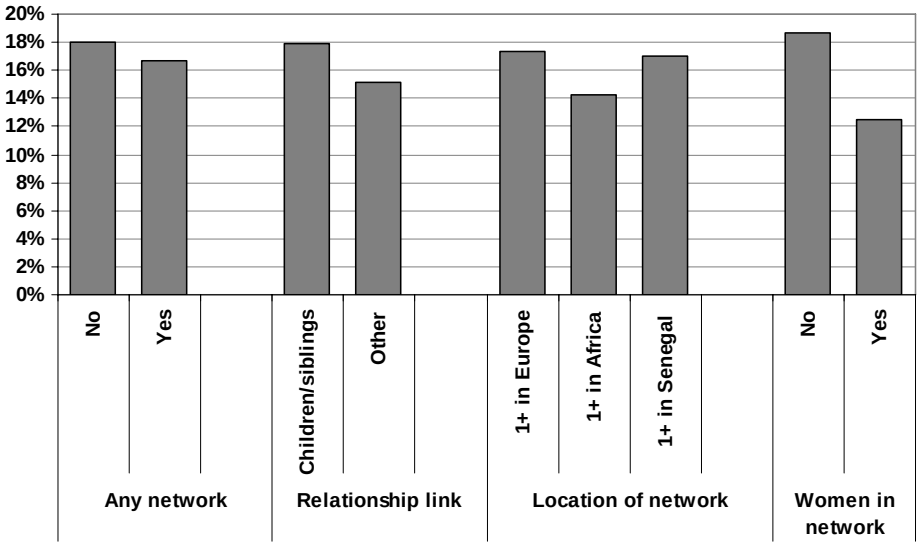

Figure 1: Asset ownership rates using different definitions of the migrant network

Non-migrants with and without migrant network remain very similar with regard to their ownership status, whatever the migrant network definition adopted (Figure 2). Only for the case of female migrant networks one observes a slightly negative association with asset ownership, but the difference is not statistically significant. This suggests that there is no significant association between investment into assets and access to migrant networks, whatever the network definition.

Overall, these first descriptive results indicate that individuals with personal migration experience in 2008 are more likely to invest in assets than non-migrants. On the other hand, access to migrant networks in the form of family members and friends with migration experience does not seem to influence asset ownership. However, the analysis of the situation in 2008 does not allow for an assessment of the causal relationship between migration and investment. The direction of the effect can be from migration to investment, if migration allows for the accumulation of resources, know-how and changes in cultural norms, but assets represent at the same time wealth which can be used to finance international migration. Moreover, we have been measuring characteristics at the time of the survey, and not at the time when the investment actually happened. An understanding of the causal relationship between the two processes requires also controlling for other determinants of investment, which may affect the way in which networks and personal migration experience are related to the acquisition of land, housing or businesses. The purpose of the next section is to refine the understanding of the migration-investment relationship by discussing the findings from several discrete-time event-history models.

6 Evidence on the migration-investment relationship from discrete-time event-history models

6.1 First investment into an asset: the effects of migration and other personal characteristics

Is there a direct effect of personal migration on investment?

The first set of models produces results on the personal experience of migration on investment (Table 6). In Model 1, all types of assets are grouped to test for our first general hypothesis

according to which migration has a direct effect on the odds to invest in any type of asset. Separate models (2a to 2c) are then estimated for each type of asset (construction land, housing and business activities[14]) in order to test the hypothesis, according to which the effect of personal migration experience varies depending on the type of asset.

The positive effect of personal migration experience on the odds of investing in any type of asset (Model 1) is large and significant for all but the group of current migrants in Africa. While being a current migrant outside of Africa more than doubles the odds of investing, current migrants in Africa seem not to have any advantage with respect to non-migrants. However, they seem to delay the investment until after return, as individuals who returned from African destinations are twice more likely to invest for the first time than non-migrants.

The following models, which provide separate estimates for land, housing and business assets, provide an even more differentiated picture. The impact of migration experience differs depending on the asset type, and effects across current migrant and return migrant groups become more diverse than in the model pooling all types of assets.[15] Being a current migrant in destination countries in the North has the strongest positive influence on investments in the housing sector. Investments into land range second. This differential between land and housing suggests that migrants invest, in addition to constructing dwellings, in already built houses and apartments, a type of housing investment which requires less management and oversight effort, and may be faster ready to be rented out or used by family members more rapidly than other assets. Being a migrant in an African country does not increase the odds of investing in constructible land, but raises the chances of constructing a house. This can imply that they also invest in already built houses. A more likely explanation would be that the land is acquired through other channels, for example through an inheritance. Once there is a plot of land, migrants in Africa are more likely to invest in a dwelling than non-migrants. Return migrants are no more likely to acquire land than non-migrants, suggesting that land investments are made before returning to Senegal. However, there is a positive effect of being a returnee with migration experience outside Africa on the odds of housing investments. Migrants may thus follow two types of strategies - investing while abroad or repatriating savings to acquire a dwelling after the return. With regard to business investments the results suggest that returnees who lived in other African countries are more than twice more likely to start an activity than non-migrants, while there is no effect of other types of migrant experiences. While statistically not significant, the odds ratio below one on current migrant statuses indicates that businesses may require a more continued presence of the investor to monitor the business activity. Returnees who gained some migration experience outside of Africa are not more likely to become entrepreneurs than non-migrants, which contrasts with the results from the descriptive statistics had suggested. After controlling for other characteristics, it seems thus that migration experience in Africa matters most for the type of business activities started after return. According to the list of open answers, these are mainly located in the informal trading sectors.

All in all, these findings confirm our first and second hypotheses. They also provide some evidence with respect to the selectivity of migration effects by destination region, taking to

[14] Agricultural land was included in Model 1. But due to the few relevant observations, it is not considered as a separate outcome variable in the following analyses.

[15] Since the models are estimated separately, have overlapping observations of individuals purchasing several types of assets, and are of unequal panel length, no formal statistical tests on differences in coefficient estimates have been carried out. The comparisons of migrant status effects across models should hence be treated with caution.

some extent the "sample mismatch" problems into consideration. Moreover, they give a quantitative support to the largely qualitative literature studying the role of international migration in the Senegalese housing sector (e.g. Tall, 2004), and, to some extent, to the literature on the preference of return migrants for taking up business activities after their return (e.g. McCormick and Wahba, 2001; Mesnard, 2004; Ilahi, 1999). The type of business and the motives for becoming entrepreneur need to be studied in more detail to determine whether the positive effect indicates that migration helps indeed overcoming credit constraints in the origin country or whether the business activities are rather a "survival strategy" when other occupations are not available.

Inequalities in the access to asset ownership

Access to property is not only dependent on the migratory experience of the individuals, but the results show that other individual characteristics influence the probability of acquiring an asset. The overall model shows, for instance, that women have a clear disadvantage in accessing asset ownership, as being female reduces the odds of investing for a first time in year t by over 50 per cent, compared to male individuals (Table 6, Model 1). However this disadvantage is heterogeneous across asset types (Table 6, Models 2a to 2c). The difference to men becomes statistically insignificant in the case of land, but is pronounced in the case of first investments in business activities and housing. This suggests that entrepreneurship is still mainly driven by men, despite the increasing emphasis on female entrepreneurship in policy-making and in the literature (e.g. Sarr, 1999; Diagne, 2005).

Not surprisingly, the socio-economic position also plays an important role in access to property. Earning an income from an economic activity pushes the odds of a first investment upwards, in the specification in which all types of assets are confounded.(Table 6, Model 1). The strongest effect is observed for the group of managers/employers, for which the odds of investment more than triple compared to individuals who do not earn any income. Skilled workers, unskilled workers and self-employed have similar odds ratio estimates of around 2, compared to the group of non-income earners. When a person experiences a period of income instability or even clearly lacks the financial resources to assure day-to-day life expenses, the odds of investing drop compared to a situation in which the individual has sufficient financial resources to manage every-day-life. Human capital matters as well, as being highly educated raises the odds of investing by 56% when compared to individuals who did not receive any formal education. Beyond this general picture, looking at the type of asset leads to more mixed results. On the one hand, investing into a constructible land or housing depends largely on being highly educated and on the occupational status, as in model 1. On the other hand, the past migration experience in Africa appears to be the major factor influencing the odds of investing into a business, together with the fact with passing through a period of income instability, the education level and occupation status having no influence in this matter. This absence of selectivity might be due to the fact that the businesses in question are mostly low-skilled and trade oriented. The migration experience would represent a way to acquire the initial capital, whatever the initial skills of the migrants.

The fact of having inherited an asset, which can be seen as a wealth attribute, does not have a significant effect on the odds of personally acquiring an asset. This could be explained by a substitution effect since owning already an asset may satisfy the needs. The results by type of asset suggest, however, that there is a cumulative process of acquisition. Owning construction land raises strongly the odds of investment into housing, and, to a lesser extent, of starting a

business activity. This suggests that there is a sequencing of the investments. First a land plot is bought, and the investment into housing or businesses occurs later on, once the necessary capital is accumulated. Conversely, owning a business helps to invest into land when such an asset is not already owned. This cumulative logic of investments is only contradicted by the result that individuals who already own a dwelling are less likely to invest in additional construction land, indicating that further land is not bought when the housing needs are satisfied.

The influence of all these variables on the odds of investing is seen as independent from the migration experience of the individuals. However, the fact whether one has migrated or not may change the role of other individual, family and household characteristics for a first investment in housing, land or business assets. More specifically, migration experience could attenuate or offset some disadvantages observed so far, as formulated in hypothesis 2. The distinction between people with and without migratory experience could also qualify the results regarding the influence of migrant networks. According to table 6, having access to a migrant network does not have any effect on the odds of first investment with respect to individuals without any network. Still, it may play a role only for non-migrants, as suggested in hypothesis 3.

Table 6: Odds ratio estimates for first investment into an asset in year t from discrete-time event-history analyses (all asset types confounded and separate models by asset type)

Event: First investment in…	**Model 1 ... any type of asset**	**Model 2a … land (building)**	**Model 2b …housing**	**Model 2c …business**
Time (since age 18)	1.102***	1.142***	1.024	1.046
Time squared (since age 18)	0.998***	0.997***	1.000	0.998*
Migrant status (in t-1)				
Non-migrant (ref)	1.000	1.000	1.000	1.000
Current migrant outside Africa	2.304***	2.627***	3.386***	0.790
Current migrant in Africa	1.308	1.343	1.887*	0.747
Returnee at least 1 yr outside Africa	2.368***	1.676	2.566***	1.493
Returnee, only spells in Africa	1.946**	0.918	1.614	2.365**
Migrant network (in t-1)				
No migrant network (ref)	1.000	1.000	1.000	1.000
Any migrant network	1.062	0.935	0.818	0.875
Gender				
Male (ref)	1.000	1.000	1.000	1.000
Female	0.459***	0.837	0.502***	0.500***
Occupational status (in t-1)				
No income earner (ref)	1.000	1.000	1.000	1.000
Manager/employer	3.498***	5.348***	3.198***	0.739
Skilled worker	2.126***	3.359***	1.802**	0.789
Unskilled worker	1.781***	2.719***	2.250***	0.883
Self-employed	2.102***	2.721***	2.997***	1.337
Education				
No education (Ref)	1.000	1.000	1.000	1.000
Primary education	0.879	0.783	0.925	0.858
Secondary education	1.360	1.298	1.368	1.127
Tertiary education+	1.564*	2.043***	1.642*	0.998

Event: First investment in…	Model 1 ... any type of asset	Model 2a … land (building)	Model 2b …housing	Model 2c …business
Income stability (in t-1)				
Sufficient resources	1.000	1.000	1.000	1.000
Insufficient resource	0.436**	0.407*	0.702	0.299**
Unstable	0.685**	0.629**	0.725	0.717
Children (in t-1)				
Number of children 0-16	1.108***	1.019	1.053	1.094
Marital situation (in t-1)				
Single (ref)	1.000	1.000	1.000	1.000
Partnership and same country	1.179	1.368	1.439	0.929
Partnership and different countries	1.459**	1.275	2.423***	1.372
Family background (in t-1)				
No inherited asset (ref)	1.000	…	…	…
Owns inherited asset	0.722	…	…	…
Assets already owned (in t-1)				
No previous land owned (ref)	…	…	1.000	1.000
Owns land	…	…	5.048***	1.972**
No previous dwelling owned (ref)	…	1.000	…	1.000
Owns dwelling	…	0.525**	…	1.098
No previous business owned (ref)	…		1.000	…
Owns business	…	1.640*	1.306	…
Place of birth				
Born elsewhere in Senegal (ref)	1.000	1.000	1.000	1.000
Born in Dakar	0.717**	0.936	0.707*	0.754
Period				
before 1980 (ref)	1.000	1.000	1.000	1.000
1980-1994	0.727	0.605	0.508***	2.584*
1995-1999	0.804	0.647	0.474***	3.620**
after 2000	1.111	0.987	0.291***	4.911***
Observations	31,608	34,413	33,736	35,342

* significant at 10%; ** significant at 5%; *** significant at 1%

6.2 Migrants vs. non-migrants: how do they differ in their access to asset ownership?

We now split the sample into non-migrant spells and migrant/return spells, in order to investigate if some of the average effects studied before may indeed hide differences depending on the migrant status. In the series of models number 4, migrant and return migrants are pooled together. However, in order to keep the comparison between models 3 and 4, we did not include a variable to control for the status of the migrants (returnee or not).

Does migration have an equalizing effect?

Results of the models 1 and 2a to 2c showed that investment is determined not only by the direct experience of migration but also by various individual characteristics so that access to asset ownership appears, without any surprise, as a selective process. However, as earlier hypothesized and suggested by the descriptive results, it is possible that people who migrate are able to compensate for their possible initial disadvantage. Migration would thus act as an empowerment experience for those who are usually handicapped in terms of their possibilities

to invest, for instance women or less educated people. Findings from the models 3a and 4a confirm this hypothesis.

When migrants and non-migrants are pooled together, we showed that females have lower odds of investing for the first time (model 1, Table 6). When migrants and non-migrants are separated in the analyses, this result needs to be qualified. While being a female non-migrant lowers the odds of investment even more, the negative gender effect disappears for migrant and returnee spells (Table 7, lower part). Similarly, individuals with a low level of education are generally less likely to access asset ownership (model 1, Table 6). However, according to estimates in Table 7, it appears that higher education (secondary and tertiary) only matters for non-migrants, and becomes statistically insignificant for migrants. For the latter, it also appears that individuals with primary education have lower odds of investing than those with no education at all. In short, migration seems to be a way to compensate for an initial educational handicap.

Still, migration does not help overcome income instability. While a period of income instability does not affect non-migrants' investments, migrants and returnees with insufficient or unstable resources are strongly disadvantaged when compared to those who possess sufficient resources. This difference between the two groups could be explained by migrants and returnees being less embedded in social networks, which may represent an insurance mechanism and facilitate the absorption of income shocks. On the other hand, migrants appear to be less vulnerable to the changing economic and social conditions in Senegal, as the time period has no statistically significant effect on investment for migrants and returnees. Non-migrants' odds of investing seem to be affected by the context: in the 1980 to 1994 period, a time of economic and social crisis, the odds of investing for the first time diminished by 37% compared to the years before 1980. The post-devaluation period (1995 and after) has neither an impact on non-migrants, nor on migrants. It is possible though that the devaluation had a differential effect according to the type of asset, a question we will further explore in section 6.3.

Is there a network effect of international migration for non-migrants on any type of investment?

Having a migrant network has no effect on the odds of investing in any type of asset when migrants and non-migrants are pooled together (Model 1, Table 6), whatever the type of asset considered (Models 2a-2c, Table 6). After differentiation between non-migrant spells (models 4a) and migrant/return spells (models 3a), the presence of a migrant network still exerts no effect on personal investment. Network effects may, however, play differently according to who is considered as a member of the network. Beyond the broad definition of the migrant network used in models 3a and 4a (having at least one migrant in ones social circle at any point in time, friends and relatives included), other models explore the potential effect of more specific migrant networks. Models 3b and 4b distinguish between having children or siblings with migration experience versus other family members and friends. The third model (3c and 4c) takes into account the network location (at least one return migrant in Senegal versus all network members abroad in the previous year). Lastly, Models 3d and 4d investigate whether networks with female migrants have a different effect on first investment than all-male networks. In the end, is there some migrant network effect on non-migrants' investment behaviour?

Although odds ratio estimates for the children and sibling network, as well as for return migrants in Senegal among network members, and women in the network are positive, the estimates are not significantly different from one. It thus seems that there is no network effect of migration, whatever the specification of the network variable. This finding could be qualified by the result of the marital status variable (Table 8, lower part): non-migrants having a partner abroad have larger odds (1.9) of investing than those with their partner in Senegal (1.5). However, this difference is not statistically significant. Rather than an indirect effect of migration on non-migrants' investments, there seems to be a positive effect of being in a partnership versus being single, whatever the location of the partner. All in all, the hypothesis that migration may affect non-migrants' investment behaviour, for example via transfers of material resources or know-how, is not supported by the data when all assets are pooled together. Still, are there specificities to investments in business, housing or land?

Table 7: Separate models for non-migrant and migrant/return person-periods: Odds ratio estimates for first investment into any type of asset (effect of networks and migrant status)

	Models 3a-4a : Network of any type		**Models 3b-4b : Network by relationship link**		**Models 3c-4c : Network location**		**Models 3d-4d : Women in network**	
	Non-migrant spells	**Migrant spells**	**Non-migrant spells**	**Migrant spells**	**Non-migrant spells**	**Migrant spells**	**Non-migrant spells**	**Migrant spells**
Time*	1.126***	1.058	1.125***	1.056	1.126***	1.060	1.126***	1.057
Time squared	0.998***	0.998**	0.998***	0.998**	0.998***	0.998**	0.998***	0.998**
Migrant network (in t-1)								
No migrant network (ref)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Any migrant network	1.114	0.959	…	…	…	…	…	…
Children or siblings	…	…	1.128	1.048	…	…	…	…
Other relationship	…	…	1.098	0.751	…	…	…	…
In Senegal	…	…	…	…	1.139	1.138	…	…
Abroad	…	…	…	…	1.105	0.892	…	…
At least one woman	…	…	…	…	…	…	1.044	1.208
No women	…	…	…	…	…	…	1.153	0.775
	with controls (see estimates below)				*with all controls (not shown)*			

Table 7 : Continuation

Variable	**Category**	**Model 3a : Any network; Non-migrant spells (cont.)**	**Model 4a : Any network; Migrant spells (cont.)**
Gender	*Male (ref)*	1.000	1.000
	Female	0.385***	0.828
Occupational status (in t-1)	*No income earner (ref)*	1.000	1.000
	Manager/employer	2.962***	3.454***
	Skilled worker	1.599*	2.541***
	Unskilled worker	1.701**	2.023***
	Self-employed	1.610**	2.861***
Income stability (in t-1)	*Sufficient resources (Ref)*	1.000	1.000
	Insufficient resources	0.698	0.249**

	Unstable income	0.716	0.672**
Education	*No education (Ref)*	1.000	1.000
	Primary education	1.041	0.681*
	Secondary education	1.696***	0.912
	Tertiary education+	1.907**	1.171
Children (in t-1)	Number of children 0-16	1.032	1.152***
Marital situation (in t-1)	Single (ref)	1.000	1.000
	In partnership and same country	1.498**	1.002
	In partnership and different countries	1.902*	1.339
Family background (in t-1)	No inherited asset (ref)	1.000	1.000
	Owns inherited asset	0.657	0.919
Place of birth	Born elsewhere in SN (ref)	1.000	1.000
	Born in Dakar	0.785	0.784
Period	before 1980 (ref)	1.000	1.000
	1980-1994	0.630*	0.824
	1995-1999	0.735	0.896
	after 2000	0.936	1.292
	Observations	23,080	8,528

* Time elapsed since age 18 for the non-migrants and since first migration for those who left Senegal.

6.3 Different assets, different effects of migration experience?

No network effects for non-migrants

Models 5 and 6 allow for a more detailed analysis of the impact of having a migrant network on individual investment in housing, land or business, rather than in any type of asset. This refinement does not change the broad results: non-migrants are not more likely to invest when they have international migrants in their social circle (Table 8). Results regarding the marital status and the location of the partner are also similar to the previous ones. At first view, non-migrants with a partner abroad seem to be much more likely to invest (especially in land or housing) than those whose partner is in Senegal. Individuals engaged in a transnational relationship are 2.7 times more likely to invest in a building land than single people and 6 times more likely to invest in a dwelling. The odds are respectively 1.6 and 3.9 for the non-migrants whose spouse lives also in Senegal. But again, albeit large, the differences between the estimated values are not statistically significant. This implies that being in a partnership is what matters, independently of the location of the partner. There is, in fine, no indirect effect of migration through social networks.

The results concerning migrants, on the contrary, suggest a differential behaviour depending on the location of the partner: when they left a partner in Senegal, they are twice as likely to invest in a dwelling as when they are single. In order to provide the family in Senegal with housing, migrants appear to prefer to acquire themselves real estate, rather than transferring funds that would be invested by the spouse at origin. Migrants with a migrant network (broad specification of migrant network) are also less likely to invest in a business than migrants with no such network. A possible explanation may be that having a network at destination leads to stronger social links abroad and weakened links to the home country, lowering incentives for individual investments in Senegal. The literature is divided on this point. While Mooney (2003), for instance, predicts a positive effect of living with social network members

at destination on investment at origin if the network exerts "social pressure", other authors suggest that the social network may pressure the migrant to divert capital towards remittances instead of accumulating savings for investment projects (Platteau, 2006).

Does the equalizing effect hold for all types of assets?

Previous analyses have suggested that migration has an equalizing effect on first investment in general (all assets pooled together, Models 3a and 4a). Is this effect homogeneous across the various types of assets?

The answer is negative regarding the gender variable (Table 8). When asset types were pooled, it was shown in the previous section that female migrants are not significantly less likely to invest than males, while there is a gender gap for non-migrants. While an equalizing effect can be observed for construction land and business activities, for which the ratios are not statistically significant, the gender gap persists in matter of housing investments, though at a lower level than among non-migrants (35% lower odds than males as opposed to 64% lower odds among non-migrants).

As for education, one also observes variations depending on the type of asset. Migration does not have an equalizing effect in terms of business investments, as there is no significant effect of education on investments by migrants nor individuals without migration experience (models 5c-6c). The story is different for land or housing. In these cases, non-migrants with higher levels of education are clearly advantaged. For example, an individual with a tertiary level of education is 3.7 more likely to invest in a constructible land than someone with no education at all. This selection effect of education fades away among migrants and returnees, suggesting that there is, in matter of access to land, an equalizing effect regarding the level of formal education.

Migration, however, never helps overcome the lack or the irregularity of financial resources. While unstable or insufficient resources do not affect the odds of investing of non-migrants, there is a clearly negative impact on migrants: when confronted to this kind of situation, they are 50% to 60% less likely to invest. The effect of the occupation status on investment is much less homogeneous. The occupation status does not impact business investments. Individuals who do not participate in the labour market or do not receive revenues from their economic activity are no more and no less likely to invest than individuals in other occupational categories. It does exert, however, a great impact on the first investment in land, even though migration experience tends to lower this effect. For example, managers are 7 times more likely than people with no earnings to invest in land when they are non-migrants, against a ratio of 4 when they are migrants. As to investment in housing, migrants and non-migrants with an income from an economic activity (management, skilled and unskilled workers, self-employed) are more likely to acquire a dwelling than those without an income-generating activity. For the non-migrant group, one observes this effect only for managers/employers and self-employed.

The effect of the period (which accounts partly for the economic context) varies depending on the migratory status and the type of asset. Neither non-migrants' nor migrants' and returnees' investment in construction land is affected by the period context. On the contrary, the time period exerts a strong impact on housing and business investments, although the effect is heterogeneous across asset types and migration statuses. Investing in a dwelling became less and less likely for non-migrants after 1980, though the decrease appears less marked for

migrants. After 2000, non-migrants were 88% less likely to buy a dwelling than before 1980, against a fall of "only" 50% for migrants. This general downward trend in housing investment might be due to the continuously increasing prices in the real estate sector. The difference between migrants and non-migrants might be due to the fact that these two groups lived in very different economic contexts, the latter being the subject of an increasing economic hardship in times of structural adjustment programs in Senegal. In any case, it seems there was a "buffer" effect of migration on housing investment. While the devaluation of the CFA franc (1994) could have boosted investments from abroad, it seems to have had no effect on migrants' odds to invest in dwellings. Still, the devaluation may have encouraged the migrants' investments in businesses. Indeed, this type of investment became more likely as time went by, especially for migrants after 1994. After 2000, migrants and returnees were almost 7 times more likely than their counterparts during the years before 1980. Albeit in a lesser extent, non-migrants were also much more likely (4.5) to invest in a business after 2000 than before 1980. This general apparent attraction for business might actually be explained by a shift of the labour market away from the formal sector towards the informal sector since the beginning of the structural adjustment programs in the 1980s. This evolution was exacerbated in more recent years, which were characterised by a mismatch between supply and demand on the labour market, in particular in the urban context of Dakar (Diagne, 2005).

Tableau 8 : Separate models for non-migrant and migrant/return person-periods: Odds ratio estimates for first investment into a land / a dwelling / a business

	Models 5a-6a : Investment into a plot of land		**Models 5b-6b : Investment into a dwelling**		**Models 5c-6c : Investment into a business**	
	Non-migrant spells	**Migrant spells**	**Non-migrant spells**	**Migrant spells**	**Non-migrant spells**	**Migrant spells**
Time*	1.225***	1.093*	1.011	1.030	1.125***	0.902
Time squared	0.996***	0.998**	1.001	0.999	0.997***	1.001
Migrant network (in t-1)						
No migrant network (ref)	1.000	1.000	1.000	1.000	1.000	1.000
Any migrant network	0.827	0.943	0.824	0.950	1.165	0.416***
Gender						
Male (ref)	1.000	1.000	1.000	1.000	1.000	1.000
Female	0.493**	1.325	0.358***	0.650*	0.415***	0.712
Occupational status (in t-1)						
No income earner (ref)	1.000	1.000	1.000	1.000	1.000	1.000
Manager/employer	7.080***	4.427***	4.406***	3.404**	0.466	1 .595
Skilled worker	3.926***	3.165***	1.365	2.391**	0.690	0.938
Unskilled worker	5.387***	2.118**	1.269	3.512***	0.624	1.216
Self-employed	3.514***	2.100*	2.091**	4.274***	1.060	1.852
Income stability (in t-1)						
Sufficient resources (Ref)	1.000	1.000	1.000	1.000	1.000	1.000
Insufficient or unstable resources	0.571	0.595*	0,858	0.608**	0,719	0.506*
Education						
No education (Ref)	1.000	1.000	1.000	1.000	1.000	1.000
Primary education	1.051	0.623	1.391	0.737	1.043	0.640
Secondary education	1.648	1,006	2.672***	0.982	1.365	0.655

	Models 5a-6a : Investment into a plot of land		Models 5b-6b : Investment into a dwelling		Models 5c-6c : Investment into a business	
	Non-migrant spells	Migrant spells	Non-migrant spells	Migrant spells	Non-migrant spells	Migrant spells
Tertiary education+	3.692***	1,512	2.764**	1.396	1.161	0.571
Children (in t-1)						
Number of children 0-16	0.950	1.043	0.981	1.074	1.089	1.142*
Marital situation (in t-1)						
Single (ref)	1.000	1.000	1.000	1.000	1.000	1.000
In partnership and same country	1.575*	1.268	3.924***	0.791	0.937	1.059
In partnership and different countries	2.676*	1.482	5.979***	1.906**	1.182	1.183
Assets already owned (in t-1)						
No previous land owned (ref)			1.000	1.000	1.000	1.000
Owns land			5.002***	4.967***	1.539	2.458**
No previous dwelling owned (ref)	1.000	1.000			1.000	1.000
Owns dwelling	0.945	0.491**			0.344	1.788
No previous business owned (ref)	1.000	1.000	1.000	1.000		
Owns business	1.851*	1.588	1.358	1.041		
Place of birth						
Born elsewhere in SN (ref)	1.000	1.000	1.000	1.000	1.000	1.000
Born in Dakar	0.912	0.950	0.878	0.648*	0.728	1.034
Period						
before 1980 (ref)	1.000	1.000	1.000	1.000	1.000	1.000
1980-1994	0.597	0.653	0.456**	0.641	2.185	3.592
1995-1999	1.119	0.504	0.298***	0.697	2.587	6.635*
after 2000	1.025	1.059	0.117***	0.505*	4.446**	6.907*
Observations	24495	10324	24401	9713	24632	11112

* Time elapsed since age 18 for the non-migrants and since first migration for those who left Senegal.

7 Conclusion and Discussion

Let us now come back to our initial objectives and hypothesis in order to sum up the findings (see table 9 below). On the one hand, the hypotheses concerning the direct effect of migration are supported by the results. Overall, direct experience of international migration is found to stimulate personal investment (Hypothesis 1). This effect varies according to the type of asset and the migratory status: while current migrants invest in housing and land in priority, return migrants are much more engaged in the business sector (Hypothesis 1A). In addition to looking at current migrants as well as returnees, it is important to take account of the fact that returnees and current migrants in the sample (the first interviewed in Senegal, the latter exclusively in Europe) may have had very diverse migration experiences, clouding the results with regard to "current migrant" and "return migrant" statuses. The findings on migrant status by destination show that the fact of having gained migration experience in the same region has a more homogenous effect on investment behaviour than the fact of being a migrant or a

returnee in a given year. The only exception is investment in business activities, where one sees a clearer split between current migrant and return migrant statuses.

Moreover, international migration appears as a way to overcome certain social disadvantages in terms of access to property (Hypothesis 2). Females with a migration experience are not less likely than male migrants to invest, while there is a considerable gender gap among non-migrants. Migration also augments the odds of investing among less educated people. On the other hand, hypotheses referring to the indirect effect of migration on investment are not confirmed. Non-migrants with access to migrant networks, in a broad sense, are no more likely to invest than non-migrants without any migrant network (hypothesis 3). This result is robust to the specification of the migrant network we use (location, gender composition) and the type of asset (hypotheses 3A and 3B).

Table 9 : Summary of main findings

	All types of assets	**Land**	**Housing**	**Business**
Direct effect of migration (hypotheses 1, 1A)				
Current migrants outside Africa	++	++	++	No effect
Current migrants Africa	No effect	No effect	+	No effect
Return migrants min 1 year outside Africa	++	No effect	++	No effect
Return migrants only Africa	+	No effect	No effect	+++
Equalizing effect of migration (hypotheses 2, 2A)				
Gender	++	+++	+	+++
Education	++	+++	+++	No effect
Occupation status	++	++	mixed	No effect
Period – Economic situation	No effect	No effect	++	--
Indirect effect of migration on non-migrants' investments (hypotheses 3, 3A, 3B)				
Network effect	No effect	No effect	No effect	No effect

These results suggest that the investment spin off effect of international migration works primarily at the individual level: migrants would invest by themselves, but would not help people from a larger social circle, including close family, to access asset ownership themselves. This finding would tend to confirm the idea that the African large solidarity is a myth (Vidal, 1994). It also suggests that international migration could be a matter of individualistic behaviour rather than a community or a family strategy. However, these observations need to be qualified. Firstly, even if the migrant is the asset owner, other people from his family circle could well be using the asset (living in the house, working in the business…) and thus reaping an indirect benefit of migration which we did not capture in this paper. The finding that migrants are more likely to construct or purchase a dwelling when their spouse lives in Senegal than when they are single or both partners are abroad indicates that dwellings are used by the family. Furthermore, migrants may donate or bequeath assets to non-migrants, who would thus become asset owners without having invested by themselves. Indeed, the rate of owners who inherited or received the asset from a relative or friend is approximately twice as high among non-migrants as among individuals with migration experience. Further analyses of the MAFE data could give some insights on this form of support to those left behind. Secondly, apart from the personal investments we analysed here, it is also likely that migrants send remittances to non-migrants and participate in collective investments. Actually, first cross-tabulations show that the same migrants, who invest for themselves, also distribute savings via remittances and are members of migrant associations involved in community investment in towns and villages in Senegal. Further investigation

would also be needed to study to what extent these results on the personal character of migrants investments is due to the urban context. It is important to bear in mind that our sample of non-migrants is limited to the region of Dakar. The functioning of networks might be different in rural areas, as it has been observed in other contexts. This would require an extension of the survey to other Senegalese regions.

As for the direct effect of international migration, further investigations are also needed. We found that international migration helps individuals to overcome some social disadvantages in their access to property (gender, education). But so far, we just distinguished between land, house and business. These broad categories potentially conceal very heterogeneous sub-groups. There is thus a need to refine the analyses, at least in a qualitative way, in order to understand the value and stability of the acquired assets. Finally, this paper focused on the differences between migrants and non-migrants in order to test whether migration triggers investment. Now that this hypothesis is confirmed, further analyses should study the factors that facilitate migrants' and returnees' investments, in particular with regard to characteristics of the migration experience.

The econometric methodology should also be further enhanced. An instrumental variable approach would be needed to account for the potential endogeneity of the migrant status. Moreover, duration models typically assume that all individuals are at risk of experiencing the event, in this case investment. Another extension could therefore account for the fact that certain individuals may have an investment probability of zero. Finally, repeated investment events could be studied instead of the first investment decision only.

References

Adams, R.H. Jr., 2005. Remittances, household expenditure and investment in Guatemala, *Policy Research Working Paper Series* 3532, The World Bank.

Allison, P., 1982. Discrete time methods for the analysis of event histories. In: S. Leinhardt (ed) *Sociological Methodology* 1982, Jossey-Bass, San Francisco. pp. 61-98.

Amuedo-Dorantes, C. & Pozo, S., 2006. Remittance receipt and Business ownership in Dominican Republic, *The World Economy*, 29(7), 939-956.

Azam, J-P. & Gubert, F., 2006. Migrants' remittances and the household in Africa: a review of evidence, *Journal of African Economies* 15(2), 426-462.

Beauchemin, C. & Gonzalez Ferrer, A., 2009. Multi-Country Surveys on International Migration: an Assessment of Selection Biases in Destination Countries. *Mimeo*. Presented at PAA 2009 Annual meeting, Detroit.

Becker, G.S., 1964. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press, Chicago.

Bilsborrow, R., G. Hugo, A. Oberai, & H. Zlotnik, 1997. *International Migration Statistics: Guidelines for Improving Data Collection Systems* (Geneva: International Labour Office), 441 p.

Black, R. & Castaldo, A., 2009. Return Migration and Entrepreneurship in Ghana and Côte d'Ivoire: The Role of Capital Transfers. *Tijdschrift voor Economische en Sociale Geografie* 100(1), 44–58.

Bruzzone, T.; Fall, P.D.; Tall, M. & Gueye, C., 2006. Le milieu sénégalais et l'action transnationale des migrants, Centro Studi di Politica Internazionale (CeSPI), *mimeo*.

Calvès, A. E. & Marcoux, R., 2007. Présentation: les processus d'individualisation « à l'africaine ». *Sociologie et sociétés*, 39(2), 5-18.

Cassarino, J.P., 2004. Theorising return migration: the conceptual approach to return migrants revisited, International Journal on Multicultural Societies 6(2), 253-279.

Chami, R., Fullenkamp, C. & Jahjah, S., 2003. Are immigrant remittance flows a source of capital for development? *IMF Working Paper* WP/03/189.

Cissé, F., Dansokho, M. & Diagne, A., 2006. Migration et développement de l'entreprenariat des migrants Sénégalais d'Italie. In : S. Ceschi & A. Stocchiero (eds.) *Relazioni transnazionali e co-sviluppo. Associazioni e imprenditori Senegalesi tra Italia e luoghi di origine*. Torino: L'Harmattan Italia.

De Brauw, A. & Rozelle, S., 2008. Migration and Household investment in rural China, *China Economic Review* 19(2), 320-335.

De Haas, H., 2006. Migration, remittances and regional development in Southern Morocco, *Geoforum*, 37(4): 565-580.

Dodson, B., Simelane, H., Tevera, D., Green, T., Chikanda, A. & de Vletter, F. 2008. Gender, Migration and Remittances in Southern Africa, in J. Crush (ed) *SAMP Migration Policy Series*, Vol. 49, Cape Town: Southern African Migration Project.

Pendleton, W., Crush, J., Campbell, E., Green, T., Simelane, H., Tevera, D. & De Vletter, F. 2006. Migration, Remittances and Development in Southern Africa, in J. Crush (ed) *SAMP Migration Policy Series*, Vol. 44, Cape Town: Southern African Migration Project.

Diagne, A., 2005. L'entrée des Jeunes dans la vie Professionnelle à Dakar: Moins D'attente et Plus de Précarité. *African Population Studies*, 20(1), 119-139.

Dimé M. N ., 2007. Remise en cause, reconfiguration ou recomposition? Des solidarités familiales à l'épreuve de la précarité à Dakar. *Sociologie et sociétés*, 39(2), 151-171.

Dos Santos, M.D. & Postel-Vinay, F., 2003. Migration as a source of growth: The perspective of a developing country. *Journal of Population Economics* 16(1), 1432-1475.

Economic Community Of West African States, 2008. *Common approach on migration*. adopted at the 33rd ordinary Session of the Head of State and Government, Ouagadougou, 18 January 2008.

Fall, P.D., Tall, S.M., Bruzzone, V.T. & Gueye, C., 2006. Capital social et potentiel d'investissement dans les territoires d'origine des Sénégalais d'Italie. In : S. Ceschi & A. Stocchiero (eds.) *Relazioni transnazionali e co-sviluppo. Associazioni e imprenditori Senegalesi tra Italia e luoghi di origine.* L'Harmattan Italia, Torino.

GRAB, 1999, *Biographies d'enquêtes. Bilan de 14 collectes. Biographiques*, Paris, INED, 340 p.

Groenewold G., Bilsborrow R., 2004, Design of Samples for International Migration Surveys: Methodological Considerations, Practical Constraints and Lessons Learned from a Multi-Country Study in Africa and Europe. Communication to the Population Association of America 2004 General Conference, Boston, 1-3 April 2004, 28 p, *mimeo*.

Hampshire, K. 2002. Fulani on the Move: Seasonal Economic Migration in the Sahel as a Social Process, *Journal of Development Studies* 38(5): 15 - 36.

Harris, J. & Todaro, M.P. (1970). Migration, Unemployment and Development: A Two-Sector Analysis. *American Economic Review*, 60, 126-142.

Hatton, T. & Williamson, J., 2003. Demographic and Economic Pressure on Emigration out of Africa. *Scandinavian Journal of Economics* 105, 465-486.

Hoddinott, J., 1994. A Model of Migration and Remittances Applied to Western Kenya. *Oxford Economic Papers*, New Series, 46(3) 459-476.

Ilahi, N., 1999. Return Migration and Occupational Choice, *Review of Development Economics* 3(2), 170-186.

International Monetary Fund, International Development Association, Republic Of Senegal, 2006. *Second Poverty Reduction Strategy Paper*. Joint Staff Advisory Note.

International Organization for Migration, 2005. *World Migration Report 2005: Costs and Benefits of International Migration*, IOM: Geneva.

Lavigne-Delville, P. (2000). Courtiers en développement ou entrepreneurs politiques ? Les responsables d'associations villageoises de développement dans une région d'émigration interantionale (Mali, Sénégal). *Courtiers en développement : Les villages africains en quête de projets*. T. Bierschenk, J.-P. Chauveau and J.-P. Olivier de Sardan. Paris, Karthala-APAD.

Kabbanji, L., 2010, Migration et développement: quelles politiques menées en Afrique subsaharienne? *MAFE Working Paper 7*, INED.

Katz, E. & Stark, O., 1986. Labor Migration and Risk Aversion in Less Developed Countries, *Journal of Labor Economics* 4(1), 134-149.

Kilic, T.; Carletto, G.; Davis, B. & Zezza, A., 2007. Investing Back Home: Return Migration and Business Ownership in Albania, *World Bank Policy Research Working Paper* 4366, The World Bank.

Lucas, R.E., 2006. Migration and Economic Development in Africa: A Review of Evidence. *Journal of African Economics* 15, 337-395.

Marie, A., 1997. *L'Afrique des individus : itinéraires citadins dans l'Afrique contemporaine* (Abidjan, Bamako, Dakar et Niamey), Paris, Karthala.

Massey D., 1987, The Ethnosurvey in Theory and Practice, *International Migration Review*, 21(4), p.1498-1522

Massey, D. S. & Parrado, E. A., 1998. International Migration and Business Formation in Mexico, *Social Science Quarterly* 79(1), 1-20.

Mattoo, A. & Neagu, I. C. & Özden, Ç,, 2008. Brain waste? Educated immigrants in the US labor market, *Journal of Development Economics*, 87(2), 255-269.

Mazzucato, V., 2009. Informal Insurance Arrangements in Ghanaian Migrants' Transnational Networks: The Role of Reverse Remittances and Geographic Proximity. *World Development* 37(6), pp. 1105–1115.

McCormick, B. & Wahba, J., 2001. Overseas Work Experience, Savings and Entrepreneurship amongst Return Migrants to LDCs, *Scottish Journal of Political Economy* 48(2), 164-178.

McKenzie, D. & Sasin, M.J., 2007. Migration, Remittances, Poverty, and Human Capital: Conceptual and empirical challenges, *World Bank Policy Research Working Paper* 4272.

Mesnard, A., 2004. Temporary Migration and Capital Market Imperfections, *Oxford Economic Papers* 56, 242-262.

Ndione, B. & Lalou, R., 2005. Transferts de revenus, investissements, obligation de dons ? Les usages économiques et sociaux de l'argent de la migration au Sénégal (Dakar, Touba, Kaolack) et au Mali (Bamako, Kayes). *Mimeo.* Presented at the XXV IUSSP International Population Conference, Tours, France, 18-23 July 2005

Ndione, B. & Broekhuis, A., 2006. Migration international et développement. Points de vue et initiatives au Sénégal, *Working Papers Migration and Development Series* Report 8, Research group Migration and Development, Radboud University, Nijmegen, the Netherlands.

Osili, U.O., 2004. Migrants and Housing Investments: Theory and Evidence from Nigeria, *Economic Development and Cultural Change* 52(4), 821-849.

Platteau, J-P., 2006. *Institutions, social norms, and economic development*, London: Routledge.

Poirier J., Dabire B. et al., 2001, Projet d'étude des stratégies de reproduction des populations sahéliennes à partir de l'enquête « Dynamique migratoire, insertion urbaine et environnement au Burkina Faso », *Cahiers québécois de démographie*, 30(2), p.289-309.

Rapoport, H. & Docquier, F., 2005. The Economics of Migrants' Remittances, *IZA Discussion Paper* No. 1531.

Ródenas Calatayud, C. & Martí Sempere, M., 2009. Estimating False Migrations in Spain, *Population* vol. 64(2), p. 361-376.

Sakho, P., 2006. Les migrations internationales sénégalaises: potentiels financier et changement social*, Mimeo,* IPDSR, Université Cheikh Anta Diop de Dakar.

Schiff, M. & Ozden, C. (eds.) *International Migration, Remittances, and the Brain Drain*, Washington DC: Palgrave Macmillan and World Bank.

Schoumaker B, Dabiré B., et al., 2006, Collecting community histories to study the determinants of demographic behaviour: a survey in Burkina Faso. *Population*, vol. 61, n° 1-2, p. 81-107.

Sjaastad, L.A., 1962. The Costs and Returns of Human Migration, *Journal of Political Economy* 70(5), 80-93.

Stark, O. & Bloom, D.E., 1985. The New Economics of Labor Migration, *American Economic Review* 75, 173-178.

Stark, O. (Ed.), 1991. *The Migration of Labor*. Oxford: Blackwell.

Stark, O. (1995): *Altruism and Beyond*, Oxford and Cambridge: Basil Blackwell.

Tall, S.M., 1994. Les investissements immobiliers à Dakar des émigrants sénégalais, *Revue Européenne des Migrations internationales* 10(3), 137-151.

Tall, S. M., 2002. L'Émigration internationale sénégalaise d'hier à demain. In: Diop, M. C. (ed.) *La Société sénégalaise entre le local et le global*. Paris: Karthala, 549-578.

Tani, M. & Mahuteau, S., 2008. Return Migration and Working Choices, *Technical report* (2008/01), MIREM Project, Robert Schuman Centre for Advanced Studies.

Taylor, J.E., 1999. The New Economics of Labour Migration and the Role of Remittances in the Migration Process, *International Migration* 37(1), 63-88.

Taylor, J.E., Arango, J. Hugo, G., Kouaouci, A., Massey, D.S. & Pellegrino, A., 1996. International Migration and Community Development, *Population Index* 62(3), 397-418.

Taylor, J.E. & Mora, J., 2006. Does Migration Reshape Expenditures in Rural Households? Evidence from Mexico, *World Bank Policy Research Working Paper* 3842.

United Nations Development Programme, 2009. Human Development Report 2009: Overcoming barriers: Human mobility and development. New York: Palgrave Macmillan.

Vidal, C., 1994., "La 'solidarité africaine', un mythe à reviser", *Cahiers d'études africaines* 39(136), 687-691.

Wahba, J. & Zenou, Y., 2009. Out of Sight, Out of Mind: Migration, Entrepreneurship, and Social Capital, *CEPR Discussion Paper Series* No. 7552.

Wouterse, F. S., 2006. *Survival or accumulation: migration and rural households in Burkina Faso*, Wageningen: Wageningen University.

Yang, D., 2008. International Migration, Remittances and Household Investment: Evidence from Philippine Migrants' Exchange Rate Shocks. *The Economic Journal* 118 (April), 591–630.

ANNEX: Tables presented in descriptive analysis: without and with sampling weights
(Numbering corresponds to table number in the text)

Association with individual migration experience

Table 5: Property rates by migrant status – without weights

	Current migrant	Return migrant, min 1 year out of Africa	Return migrant, only Africa	Non-migrant	Total
No asset	335	25	72	641	1,073
%	64%	36%	70%	84%	74%
At least one asset	188	44	31	122	385
%	36%	64%	30%	16%	26%
Total	523	69	103	763	1,458
	100%	100%	100%	100%	100%
Construction land	94	21	9	58	182
%	18%	29%	9%	8%	12%
House	110	33	15	35	192
%	21%	45%	15%	5%	13%
Business	20	14	16	45	94
	4%	19%	16%	6%	6%

* There are 14 individuals who own agricultural land, included in the count for "owning at least one asset"

Table 5: Property rates by migrant status – with weights

	Current migrant	Return migrant, min 1 year out of Africa	Return migrant, only Africa	Non-migrant	Total
No asset	59%	29%	82%	83%	77%
At least one asset	41%	71%	18%	17%	23%
Total	100%	100%	100%	100%	100%
Construction land	19%	31%	4%	7%	10%
House	28%	51%	9%	5%	10%
Business	8%	19%	9%	5%	6%

Asset ownership rates by migrant status and individual characteristics, 2008

Age – without weights

		Current migrant in Europe		Return migrant (both types)		Non-migrant	
> 35 years	**No asset**	121	80%	27	87%	331	94%
	Asset	31	20%	4	13%	22	6%
35-49 years	**No asset**	184	61%	53	69%	220	83%
	Asset	117	39%	24	31%	44	17%
50+ years	**No asset**	30	43%	17	27%	90	62%
	Asset	40	57%	47	73%	55	38%

Age – with weights

		Current migrant	Return migrant (both types)	Non-migrant
> 35 years	**No asset**	80%	90%	90%
	Asset	20%	10%	10%
35-49 years	**No asset**	53%	78%	83%
	Asset	47%	22%	17%

50+ years	**No asset**	37%	20%	63%
	Asset	63%	80%	37%

Education – without weights

		Current migrant in Europe		Return migrant (both types)		Non-migrant	
No education	**No asset**	45	61%	19	43%	193	85%
	Asset	29	39%	25	57%	35	15%
Primary	**No asset**	92	70%	39	76%	228	89%
	Asset	40	30%	12	24%	29	11%
Secondary	**No asset**	133	64%	25	53%	169	84%
	Asset	74	36%	22	47%	33	16%
Tertiary	**No asset**	54	56%	14	47%	51	67%
	Asset	42	44%	16	53%	25	33%

Education – with weights

		Current migrant	Return migrant (both types)	Non-migrant
No education	**No asset**	61%	58%	82%
	Asset	39%	42%	18%
Primary	**No asset**	68%	86%	87%
	Asset	32%	14%	13%
Secondary	**No asset**	56%	56%	85%
	Asset	44%	44%	15%
Tertiary	**No asset**	56%	60%	66%
	Asset	44%	40%	34%

Gender – without weights

		Current migrant in Europe		Return migrant (both types)		Non-migrant	
Male	**No asset**	160	56%	59	50%	205	73%
	Asset	127	44%	59	50%	76	27%
Female	**No asset**	175	74%	38	70%	436	90%
	Asset	61	26%	16	30%	46	10%

Gender – with weights

		Current migrant	Return migrant (both types)	Non-migrant
Male	**No asset**	57%	65%	70%
	Asset	43%	35%	30%
Female	**No asset**	67%	75%	92%
	Asset	33%	25%	8%

Place of birth (Dakar or elsewhere) – without weights

		Current migrant in Europe		Return migrant (both types)		Non-migrant	
Not in Dakar	**No asset**	194	54%	37	40%	279	73%
	Asset	163	46%	56	60%	103	27%
In Dakar	**No asset**	147	59%	69	68%	388	80%
	Asset	102	41%	33	32%	99	20%

Place of birth (Dakar or elsewhere) – with weights

		Current migrant	Return migrant (both types)	Non-migrant
Not in Dakar	**No asset**	63%	48%	77%
	Asset	37%	52%	23%
In Dakar	**No asset**	55%	83%	87%
	Asset	45%	17%	13%

Differences outside Dakar – In Dakar statistically significant for return migrants and non-migrants

Role of migrant network for ownership status for non-migrants

Table 6: without weights

	No migrant network		Migrant network	
No asset	166	86%	475	83%
Asset	28	14%	94	17%
Total	194	100%	569	100%

Table 6: with weights

	No migrant network	Migrant network
No asset	82%	83%
Asset	18%	17%
Total	100%	100%

Figure 2: Asset ownership rates using different definitions of the migrant network
(Corresponding tables)
Relationship type : without weights

	Children or siblings		Other network		No migrant network		Total	
No asset	276	81%	199	87%	166	86%	641	84%
Asset	64	19%	30	13%	28	14%	122	16%
Total	340	100%	229	100%	194	100%	763	100%

Relationship type : with weights

	Children or siblings	Other network	No migrant network	Total
No asset	82%	85%	82%	83%
Asset	18%	15%	18%	17%
Total	100%	100%	100%	100%

Limited to those individuals with at least one network member:
Location : without weights

	At least one network member in Europe		At least one network member in Africa		At least one returnee in Senegal	
No asset	374	83%	92	84%	109	81%
Asset	76	17%	18	16%	25	19%
Total	450	100%	110	100%	134	100%

Location: with weights

	At least one network member in Europe	At least one network member in Africa	At least one returnee in Senegal
No asset	83%	86%	83%
Asset	17%	14%	17%
Total	100%	100%	100%

Female network : without weights

	No women		At least one woman		Total	
No asset	294	83%	200	84%	494	83%
Asset	62	17%	37	16%	99	17%
Total	356	100%	237	100%	593	100%

Female network : with weights

	No women	At least one woman
No asset	81%	87%
Asset	19%	13%
Total	100%	100%

Further noted in text (no figure or tables in main text)

Association between access to migrant network and non-migrants' property rates by type of asset

Construction land – without weights

	No migrant network		Migrant network		Total	
No asset	179	92%	526	92%	705	92%
Asset	15	8%	43	8%	58	8%
Total	194	100%	569	100%	763	100%

Construction land – with weights

	No migrant network	Migrant network	Total
No asset	89%	94%	93%
Asset	11%	6%	7%
Total	100%	100%	100%

Dwellings – without weights

	No migrant network		Migrant network		Total	
No asset	188	97%	540	95%	728	95%
Asset	6	3%	29	5%	35	5%
Total	194	100%	569	100%	763	100%

Dwellings – with weights

	No migrant network	Migrant network	Total
No asset	97%	94%	95%
Asset	3%	6%	5%
Total	100%	100%	100%

Businesses – without weights

	No migrant network		Migrant network		Total	
No asset	184	95%	534	94%	718	94%
Asset	10	5%	35	6%	45	6%
Total	194	100%	569	100%	763	100%

Businesses – with weights

	No migrant network	Migrant network	Total
No asset	96%	94%	95%
Asset	4%	6%	5%
Total	100%	100%	100%

Timing of acquisition with respect to first migration/first return

Assets before or after departure/return: without weights

If at least one asset owned, asset acquired…	Current migrant in Europe		Return migrant (both types)	
after first departure	163	87%	67	89%
after first return			51	68%

Assets before or after departure/return: with weights

If at least one asset owned, asset acquired…	Current migrant in Europe	Return migrant (both types)
after first departure	88%	91%
after first return		72%

Asset characteristics (owned in 2008 in Senegal and not inherited)

Place of investment and place of birth – without weights

	Current migrant in Europe		Return migrant (both types)		Non-migrant		Total	
Place of investment not = place of birth	141	52%	108	77%	94	64%	343	61%
Place of investment = place of birth	131	48%	33	23%	54	36%	218	39%

Place of investment and place of birth – with weights

	Current migrant	Return migrant (both types)	Non-migrant	Total
Place of investment not = place of birth	48%	78%	78%	67%
Place of investment = place of birth	52%	22%	22%	33%

Duration of asset ownership

Only assets located in Senegal, not inherited and not owned anymore at the time of the survey.
Migrant status is measured at the time the asset ownership ended.

	Average duration in years
Non-migrant	8.1
Current migrant	8.3

Return migrant (both types)	11.7
Total	8.9

Answers to open question about type of business (non-exhaustive list)
Migrant status at the time of the survey, not at time of investment

	Current migrant	Returnee	Non-migrant
Wholesale and retail trade	Commerce étale De Marché	Petit Commerce De Fruit	Vendeuse De Couscous
	Vendedor Ambulante	Vente De Pains	Vendeuse De Fataya
	Venta Ambulante De Artesania	Vente De Fruits	Commerce Au Detail De Legumes
	Vendia Articulos De Bazar En La Calle	Commerce De Denrees Alimentaires	Commerce De Fruits
	African Shop	Commerce De Marchandises Divers	Vendeuse Darachides Et De Fruits
	Commerciante Di Tutto: Oro, Arredi	Vente De Pieces Detachees	Vente De Glace Et D Eau Fraiche
	Vente De PrêT-à-Porter	Commerce De Materiels De Bureau	Vente De Poissons Et De LéGumes
	Compraba Bisuteria En Barcelona Y La Vendia En Tarragona	Commerce De Friperies	Commerce De Chaussures
	Venta De Textiles y Artesania	Commerce De Marchandises Divers	Commerce De Savons En Poudre
	Compra-Vendita	Commerce D Objets cultes	Commerce D'Habillement
	Venta Ambulante De CD Y DVD	Commerce Denree Alimentaire	Commerce Vente De Tissus
	Vendia Articulos De Bazar En La Calle	Vente De Produits Alimentaires	Vendeur De Bois
	Vente De Produits Alimentaires	Vente D' Epicerie	Vendeur D'Habits
	Commerce Alimentation	Vend Des Cassettes	Vendeuse De Sangle (Lakh)
	Boutique (Type éPicerie)	Vente Des Tableaux D'Art	Vente De Vetements
	Vendita Artigianato	Vente De Produits Divers	Epicerie
	Boutique De VêTements	Commerce De Tissus	Vendeuse De Thiaf
	Venta De Textiles Y Otros	Commerce D Articles Divers	Vente De Produits Alimentaires
	Commercio Stoccaggio	Commerce D'Effet De Toilette	Vente Produit Alimentaire
	Boutique De Quartier	Vend Des Cassettes	Boutiquier
	NéGoce D'Objets De DéCo	Vente D' Habits	Mercerie
	Comercio De Zapatos	**etc.**	Table De Commerce
	Vendia Piezas De Recambio		Vendeur De Produits Musicaux
	Comercio de frutas		Vente Appareils Electronques
	etc.		Vente De Cassettes Audios Et Visuelles
			Vente De MatéRiaux De PêChe Et Divers
			etc.
Manufacturing/Craft	Falegnameria	Atelier Menuisier	Atelier Couture Vente Habillement
		Teinture	Menuiserie Metallique
		Atelier De Couture	**etc.**
Services	Telephone Centre	Cabine Telephone	Coiffure
	Garage	Cabinet Medical	Coiffure -Vente-Mercerie.
	Fotografo	Cantine Restaurant	Cyber Cafe
	Service Informatique à Domicile	Restauration	Mecanicien
	etc.	Pharmacie A Mon Compte	Photographie
		etc.	Telecentre,Cosmetique
			etc.
Other: Transport construction ...	Taxi (Achat D'Une Voiture Et Location à Un Chauffeur)	Taxi	Chauffeur A Son Propre Taxi
	Taxi De Ville	Il Possedait Un Taxi Qu Il Conduit Lui-MÊM	Transport En Commun
	Transport	Transport En Commun	Une Charrette Pour Le Transport De Marchandise
	Peintre D'Intérieur	Tansport / Taxi	Entrepreneur En Batiment
	etc.	Charrette + Cheval	Frigoriste
		etc.	**etc.**