THE SOCIAL ROOTS OF SUB-SAHARAN AFRICAN MIGRATION TO EUROPE: NETWORKS, RESOURCES AND CONTEXT

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For my fellow migrants

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Abstracts

This dissertation explores the social determinants of international migration between sub-Saharan Africa and Europe from approximately 1970-2008. The study begins by focusing on Senegalese migration to Europe (France, Italy, and Spain) to examine the role of migrant social networks in international migration and extends prior research by testing the strength of tie theory for a wide range of personal ties, decomposing networks by sources and resources, and disentangling network effects from complementary explanations (household migration strategies). The results confirm that weak ties are important and that network influences appear to be gendered, but they do not uphold the contention in previous literature that strong ties are more important than weak ties for male and female migration. Indeed, weak ties play an especially important role in male migration. In terms of resources, having more resources as a result of strong ties appears to dampen overall migration, while having more resources as a result of weaker ties appears to stimulate male migration; and the diversity of resources has varied effects for male and female migration. In the second part of the dissertation, I seek to understand whether migrations of different legal statuses appear to reflect different kinds of migration strategies and different uses of social resources. Results indicate that, for the case of Senegal, authorized migrations reflect household migration strategies, while unauthorized migrations do not. Instead, unauthorized migrations appear to be individual projects, supported by friendship rather than family networks. Visa overstays and authorized migrations are most strongly supported by migrant networks, although all migrations are heightened by friendship networks. Finally, I explore how economic and political contexts influence the role of migrant social capital in migration to Europe from the Democratic Republic of Congo, Ghana and Senegal. Overall, I find that, during times of economic growth, migration becomes less socially selective in both Ghana and Senegal. The role of migrant networks in Congolese migration is particularly sensitive to politics. During times of political instability (with violence, economic growth and inflation held steady), Congolese migration appears to become more socially selective: migrant networks gain influence during these times. At the same time, as civil liberties weaken, Congolese migration to Europe becomes less socially selective.

Aquesta tesi explora els determinants socials de la migració internacional entre l'Àfrica subsahariana i Europa entre 1970 a 2008 aproximadament. L'estudi comença centrant-se en la migració senegalesa a Europa (França , Itàlia i Espanya) per examinar el paper de les xarxes socials migratòries en la migració internacional, i amplia l'estat de l'art en comprovar la teoria de "fortalesa del vincle" en una àmplia gamma de vincles personals, descomposant els efectes de les xarxes per les fonts i els recursos, i separant els efectes de xarxa de les explicacions complementàries (estratègies migratòries de les llars). Els resultats confirmen que els llaços febles són importants i que les influències de la xarxa varien per sexe, però no compleixen amb la contenció en la literatura prèvia on els llaços forts són més importants que els vincles febles per la migració masculina i femenina. De fet , els llaços febles tenen un paper especialment important en la migració dels homes. En termes de recursos, tenir més recursos com a resultat dels llaços forts sembla frenar la migració en general, si bé tenir més recursos com a resultat dels llaços febles sembla estimular la migració dels homes; a més, la diversitat de recursos té varis efectes en la migració masculina i femenina. En la segona part de la tesi, s'estudia si les migracions de diferents estatus legals representen diferents tipus d'estratègies migratòries i els usos diferents dels recursos socials. Els resultats indiquen que en el cas de Senegal, les migracions autoritzades reflecteixen les estratègies migratòries de les llars, mentre que les migracions no autoritzades no és el cas. Les migracions no autoritzades semblen ser uns projectes individuals, recolzats per l'amistat en lloc de les xarxes familiars. Els "Visa overstays" i migracions autoritzades estan més fortament recolzades per les xarxes migratòries, malgrat que totes les migracions s'accentuen per les xarxes d'amistat. Finalment, s'ha explorat com els contextos polítics i econòmics influeixen en el paper del capital social migratori en la migració a Europa des de la República Democràtica del Congo , Ghana i Senegal. En general, sembla que en temps de creixement econòmic la migració es converteix menys selectiva socialment en Ghana i Senegal. El paper de les xarxes migratòries en la migració congolesa és particularment sensible a la política. Durant les èpoques d'inestabilitat política (amb la violència, el creixement econòmic i la inflació mantinguts estable), la migració congolès sembla ser més socialment selectiva: les xarxes migratòries augmenten la seva influència en aquests períodes. Al mateix temps, quan es debiliten les llibertats civils, la migració congolès a Europa esdevé socialment menys selectiva.

Table of Contents

Chapter 1. Introduction

This dissertation attempts to explain and explore the role of migrant social capital in international migration between sub-Saharan Africa and Europe from approximately 1970 until 2008. Specifically, the dissertation focuses on the first migration from the Sub-Saharan country of origin to Europe. As a result, it is unable to comment on more complex migration trajectories, such as stepwise migration (Paul 2011), transit migration (Baldwin-Edwards 2006) or repeat migrations. The second and third chapters of the thesis focus on migration from Senegal, while the fourth chapter analyzes migration from the Democratic Republic of Congo, Ghana, as well as Senegal.

Since this dissertation is a collection of free-standing essays on the role of migrant social capital in international migration between sub-Saharan Africa and Europe, I briefly introduce here the context, data and theoretical framework common to most or all of the essays. These elements are also again discussed in each of the analytical chapters (3, 4, 5).

Context

This dissertation focuses on three origin countries: Senegal, Ghana and the Democratic Republic of Congo. Each enjoys an incredible diversity of cultures and histories, whose just descriptions are beyond the scope of this dissertation. However, for the purposes of orientating readers, I briefly introduce here the country protagonist of this dissertation (Chapters 2 & 3): Senegal. Each analytical chapter (3, 4, 5) contains a review of the relevant contextual information.

Largely heterogeneous in terms of geography, ethnicity, culture and economic activity, Senegal has experienced many changes, especially perhaps since independence from France in 1960. Although it is currently still considered to be a "Least Developed Country" (United Nations 2014)[1], Senegal has experienced major general improvements to individual welfare in the half century since independence (see review, Mezger Kveder 2012): life expectancy at birth has increased 50%, from 39 in 1960 to 59 by 2009; national literacy rates have increased to about 50%, with the Dakar region continuing to enjoy better education (and other) infrastructures than much of the country. Predominantly Muslim and made of a great diversity of ethnicities, the Senegalese population is dominated by three major ethnic groups: Wolof/Lébou (45%), Pular (25%) and Serer (14%); and most individuals associate with one of the four major Sufi brotherhoods: Tidiane, Mouride, Layne and Khadre. In terms of migrant networks, the Mouride brotherhood is well-known for its transnational spiritual-commercial networks of traders, with links especially strong among Senegal, Italy, Spain, and the U.S. (Grillo and Riccio 2004; Jabardo Velasco 2006, Lacomba and Moncusi 2006), some scholars have even identified a Mouride "culture" of migration, based on the hierarchical relationship between the *marabout*, or spiritual leader, and the *talibé*, his disciples, and on the horizontal links among the Mourides (Riccio 2012), and how this can even shift gendered power dynamics (Jabardo Velasco 2006).

[1] The United Nations' current definition of a LDC is a low-income country "suffering from the most severe structural impediments to sustainable development", while it formerly defined it as "suffering from low level of human resources and a high degree of economic vulnerability" (United Nations 2014a).

International migration has long influenced the life of the Senegalese, with most migrants traveling from or to neighboring African countries: Mali, Mauritania, Guinea-Conakry, Guinea-Bissau, Ghana, Côte d'Ivoire, Cameroon, Gambia. Attractive due to its political and economic stability, Senegal was a net immigrant country until the beginning of the 1970's (Mezger Kveder 2012). In that decade, the global oil crisis, severe repeated droughts, and the groundnut crisis led to new migration from Senegal to different destinations, including Italy and Spain (Jabardo Velasco 2006). Pressure to migrate increased as Senegal's economic crisis deepened in the 1980's with the first round of structural adjustment program (SAP), with adverse and perhaps permanent social effects (Lopez and Hathie 1998), and then again in the 1990's, with the crippling SAP II from 1990-1994 (African Development Bank Group 2011) and the devaluation of the currency by half on January 1st, 1994 (Gerdes 2007). In terms of migration stock, the most recent information (2010) identifies five major destinations: Gambia, France, Italy, Mauritania and Spain (Mezger Kveder 2012, quoting the World Bank). The oldest flows of Senegalese to Europe were to France and have produced a gender-balanced mix, while newer flows to Italy and Spain have led to heavily male-dominated stocks (Mezger Kveder 2012). An entry visa of Senegalese nationals was not required in Spain until 1984, in France until 1986 and Italy until 1990 (Vickstrom 2013).

Overall, during the period of study, African migration to Europe shifted from nearly exclusive flows to the former colonial powers (Belgium – in the case of DR Congo, the United Kingdom – in the case of Ghana, and France – in the case of Senegal) to other migration destinations (the United Kingdom – in the case of DR Congo, the Netherlands – in the case of Ghana, and Italy and

Spain – in the case of Senegal) and represents part of the challenge of reconciling European ideals of welfare states with understanding migration dynamics and developing effective policies about borders and immigrant integration.

Recent scholarship on African migration to Europe (much produced, in part, with MAFE project data) has uncovered a rich diversity of migration experience and relationships and has the potential to help shift future migration scholarship, even that in well-studied contexts like the Mexican-U.S., into unexplored theoretical and empirical territories. For Senegal and DR Congo respectively, Toma (2012) and Vause (2012) clearly demonstrate the gendered nature of migrant networks in contexts of migration behavior between sub-Saharan Africa and Europe and subsequent labor market behavior of migrants: Toma finds that female networks lead to higher likelihoods of female migration, but also lower labor market outcomes, while Vause finds evidence that there is a 'convergence' of male and female migration experience among Congolese migrants. For Senegalese and Congolese female migrants to Europe, a general 'network' effect can be powered by a significant partner effect (Toma 2012, Vause 2012). In his work on the legal and social production of irregularity, Vickstrom (2013) exploits the diversity of Senegalese migration to Europe to uncover how context and access to different kinds of capital influence migrant irregularity, gendered channels of labor market access and transnational activities. For migration between Senegal and Europe, Mezger Kveder (2012) finds that migration attempts (including "failed" migration) and departures appear to have different selection processes, especially with regards to sex, education and immigration policies, while international migration experience itself

appears to help individuals overcome social disadvantage in terms of access to property. In her extensive mixed methods study of return migration from Europe to Senegal and DR Congo, Flahaux (2013) is able to connect migrant's aspirations of returns with their actual return and labor market outcome back at origin, linking origin and destination contexts.

Data

The sub-Saharan African-European context also provides a novel source of migration data: the Migration between Africa and Europe (MAFE) project. This is a monumental multi-country effort to collect longitudinal data from individuals in three countries of sub-Saharan Africa (the Democratic Republic of Congo, Ghana and Senegal), as well as their migrant counterparts in several countries in Europe (Belgium, France, Italy, the Netherlands, Spain and the United Kingdom) (Beauchemin 2012, Gónzalez-Ferrer and Beauchemin 2011). Besides its unique geographical coverage, MAFE collected a very rich range of longitudinal information about individual work, family, property and migrant network life histories, so far unavailable in other large-scale migration survey efforts. The MAFE project provides a unique opportunity to investigate migration in a rich context.

MAFE does have certain limitations; both general and specific to the study of migrant networks (see Toma 2012 or Vause 2012 for excellent reviews of data limitations related to networks). First, MAFE samples a limited set of destination countries for each origin country, and more complex migration trajectories (transit, stepwise migrations, etc.) are not represented. In fact, this even limits our ability to comment on migration attempts, failed migration (Mezger Kveder 2012), circular migration, and return migration (Flahaux

2013), although significant and substantial work has been done in many of these areas. Second, in MAFE's attempt to provide "representative socio-demographic data for both origin and destination areas" (Beauchemin 2012: 27), there is a "geographical mismatch" between the origin and destination samples (Beauchemin 2012: 28-29), and this introduces a potential source of bias.[2] Care should be taken when interpreting results in analysis that includes both origin and destination samples of MAFE, as is the case of this dissertation. Third, due to MAFE's retrospective nature, households in which all members have migrated are not included in the origin sample, and other kinds of recall bias may be introduced. Closer relationships and relationships maintained until the time of survey are more likely to be reported. This is especially a problem for the naming of extended kin and friends. An individual's recall of their family and friends' migration trajectories (year, country) may include some level of error. Fourth, for the purposes of analyzing migrant networks, MAFE does not collect full network information (the kind necessary to apply social network analysis for example) nor the fine, specific information (e.g. amount of time spent together, emotional intensity, mutual confiding and services, resources or information shared) ideal for studying social capital.

Theoretical Framework

Scholars have traditionally used three theoretical lenses to investigate the complexity of individual migration behavior. The neoclassical economics tradition proposes that individuals engage in cost-benefit calculations to decide whether to migrate; key to these calculations are differences in wages

[2] Data collection at origin followed a stratified sampling frame, while at destination, representative sampling and various non-probabilistic methods were employed (Schoumaker and Diagne 2010, Beauchemin and González-Ferrer 2011).

and employment likelihood between origin and destination (e.g. Todaro 1969). The new economics of labor migration scholarship suggests that relative deprivation and household migration strategies are essential for understanding migration behavior (see Stark and Bloom 1985); and a primary motivation for migration is a household's desire to diversify risk and overcome credit constraints (e.g. Taylor 1986). Social capital theory emphasizes that individuals can access valuable information and resources through their relationships with others; and that a person's social capital depends on the relationships, as well as the amount and quality of the resources (Bourdieu 1986).

Social capital theory is considered to be either complementary (Massey et al 1998) or competing (Palloni et al 2001) with the neoclassical economics model and the new economics of labor migration model. Theoretically, migrant social capital (the potential information and resources an individual can access through their family and friends abroad) is a potent influence in determining individual migration likelihood, can encourage *or* discourage migration, and depends on a wide variety of individual, network and contextual factors. Migrant social capital is also theoretically fungible, or transformable, into other kinds of capital (economic, human, etc.) and can represent one form of inequality in the social structure, while possibly compensating for or heighten other types of inequality. In this dissertation, we focus our attention on personal (ego-centric) migrant networks of kin and friends and aim to distinguish the influence of social capital from the possible effects of household-level strategies.

Current literature on the role of migrant social capital is rich and vast. Scholarship has covered a range of geographical contexts: primarily Mexican-U.S. migration (*e.g.* Massey and Espinosa 1997, Curran and Rivero-Fuentes 2003, Kanaiupuni 2000), U.S. migration from other Latin American countries (*e.g.* Massey and Aysa 2005), Thai internal migration (Curran *et al* 2005, Garip 2008), Albanian out-migration (Stecklov *et al* 2010). Prior work using the MAFE data has found that the use of migrant networks are gendered and distinct among Senegalese and Congolese would-be migrants to Europe (Toma 2012, Vause 2012) and that legal status is indeed legally and socially produced (Vickstrom 2012: 109). Despite its depth and richness, prior scholarship has still been rather limited in a few key ways, which this dissertation intends to help remedy. Specifically, this dissertation explores: a wider range of personal networks (as do Toma 2012 and Vause 2012); complementary explanations to the migrant network hypothesis; the relevance of the strength of tie hypothesis for migration; how different migration strategies may differentially employ migrant social capital; how migrant social capital may interact with other kinds of capital; and how context affects the use of migrant social capital.

Dissertation

The dissertation begins by examining the role of migrant social networks in international migration and extends prior research by testing the strength of tie theory, decomposing networks by sources and resources, and disentangling network effects from complementary explanations. Nearly all previous empirical research has ignored friendship ties and has largely neglected extended-family ties. Focusing on Senegalese migration to Europe (France, Italy, and Spain), this article tests the robustness of network

theory—and in particular, the role of weak ties—on first-time migration between Senegal and Europe. Discrete-time hazard model results confirm that weak ties are important and that network influences appear to be gendered, but they do not uphold the contention in previous literature that strong ties are more important than weak ties for male and female migration. Indeed, weak ties play an especially important role in male migration. In terms of network resources, having more resources as a result of strong ties appears to dampen overall migration, while having more resources as a result of weaker ties appears to stimulate male migration. Finally, the diversity of resources has varied effects for male and female migration.

The third chapter widens understanding of the social determinants of authorized and unauthorized migration. Specifically, it seeks to understand the role of migrant social capital in migrations of different legal statuses and advances prior work by clarifying mechanisms, testing social capital theory against complementary explanations, and distinguishing between legal status at entry and at initial stay. The empirical quantitative literature has largely neglected legal status at migration; the one exception analyzed a set of extremely restricted indicators. In an analysis of Senegalese migration to Europe, I employ a competing risks (multinomial logistic) model to distinguish between authorized and unauthorized 1st-time migration entry into Europe, as well as legal status (authorized, unauthorized, visa overstay) at initial stay. Results indicate that, for the case of Senegal, authorized migrations reflect household migration strategies, while unauthorized migrations do not. Instead, unauthorized migration appears to be an individual project, supported by friendship rather than family networks. Visa overstays and authorized migrations are most strongly supported by migrant

networks, although all migrations are heightened by friendship networks. Cousin migrant networks encourage authorized entry, while friendship networks encourage both authorized and unauthorized entry. In terms of legal status at initial stay, visa overstay has high migrant social capital requirements and is very sensitive to migrant networks and their resources.

The fourth chapter ventures into a little-explored area of the interaction among migrant social capital and contextual effects. Although migrant networks are a key link between the micro (individual) level and the macro level of migration systems, theoretical and empirical exploration of how context affects the action of migrant networks has been scarce. In addition, most literature is segregated between economic migration on one hand, and refugee or asylum flows (political migration) on another. Finally, although our knowledge of Mexico-U.S. migration is considerable, but we understand far less about other topics: international migration in other parts of the world; how universally dominant theories can be applied; and how context influences migration behavior. This paper explores migration to Europe from three country contexts: the Democratic Republic of Congo, Ghana and Senegal. It explicitly tests for whether and how migration is socially selective. Overall, there is evidence that context impacts the influence of migrant networks, or as we term the social selectivity of migration flows. During times of economic growth, migration becomes less socially selective during periods of economic growth in both Ghana and Senegal. The role of migrant networks in Congolese migration is particularly sensitive to politics. During times of political instability (with violence, economic growth and inflation held steady), Congolese migration appears to become more socially selective: migrant networks gain influence during these times. At the same time, as

civil liberties weaken, Congolese migration to Europe becomes less socially selective.

In the fifth and final chapter, I review the major findings of this dissertation. I also acknowledge its limitations and identify different paths for future scholarship.

Chapter 2. Migrant Networks and International Migration: Testing Weak Ties

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Introduction

Migrant networks contribute to continued migration flows and the changing characteristics of these flows. The size and breadth of migrant social networks are thought to lead to continued international migration flow, independent of the economic and labor market factors that may have initiated it (Massey 1990; Massey and García España 1987). By providing information and resources, migrant networks lower migration costs and increase the number of people migrating, resulting in broader migrant networks and further reduced migration costs. Migrant networks are also a mechanism by which migration flows change, leading to less positive or even negative self-selection of migrants (Beine et al. 2011; McKenzie and Rapoport 2010). The role of migrant networks on the migration decision depends on both individual and network characteristics (e.g., Curran and Rivero-Fuentes 2003; Davis et al. 2002; Garip 2008; Kanaiaupuni 2000; Massey and Espinosa 1997). Questions remain, however, regarding how exactly networks affect migration. This article seeks to contribute to the analysis of how networks work.

The literature has focused mainly on strong personal networks (close family or household) and weak nonpersonal networks (aggregate levels of village migration). Often absent from the analysis are extended-family networks, and almost completely missing are friendship networks (see Espinosa and Massey (1999) for previous work on friendship ties). Palloni et al. wrote that

"network based on kinship are not necessarily the most efficient or most salient in shaping migration decisions . . . weaker ties or friendship or acquaintance may be equally or more important than kinship ties" (2001:1295–1296). However, empirical analysis of the act of migration has systematically excluded friendships because of data limitations and the difficulties of disentangling migrant network effects from endogeneity and selection.[3] In this article, I analyze a comprehensive range of strong *and* weak personal ties, including friendship ties.

Furthermore, a sizable gap exists between "strength of ties" theory (related to Schelling's threshold model (1971), specified by Granovetter (1973) and developed by many others) and the international migration literature. I argue that the literature's use of "strong" personal close family networks and "weak" nonpersonal village networks simplifies the strength of ties theory and no longer provides a strong test for it. Also, there has been no systematic rendering of how a theory developed for a specific context (a local job search) may or may not be applied to international migration. I intend to help close this gap.

Finally, the literature has largely neglected important complementary explanations (for an exception, see Palloni et al. 2001), and the evidence is limited mostly to the U.S.-Mexico case (exceptions include Parrado and Cerrutti (2003) for Paraguay-Argentina; Stecklov et al. (2010) for Albania; and Curran et al. (2005), Entwisle et al. (2007), and Garip (2008) for Thai internal migration). Complementing prior studies that use MAFE data to

[3] Some studies about immigrant labor market integration distinguish between familial and friendship ties (e.g., Amuedo-Dorantes and Mundra 2007; Munshi 2003).

explore gender and migrant networks in migration to Europe from the Democratic Republic of Congo (Vause 2012), Senegal (Toma 2012) or both (Toma and Vause 2011); the current study focuses on migration between Senegal and Europe and investigates the viability of the migrant network hypothesis, while accounting for complementary explanations.

My research aim is threefold. First, I exploit the nature of new data for migration between Senegal and Europe to investigate whether close family networks are important in explaining migration, net of complementary hypotheses. Second, I analyze weak personal ties (extended family and friends), study the effect of tie strength, and explore how the influences of strong and weak migrant networks are related. Third, I extend Garip's framework (2008) to distinguish among resources (amount and diversity) and sources (strength of ties) of the migrant network. Throughout, I distinguish network effects from the complementary explanations of household decision-making (Palloni et al. 2001) and legal family reunification and, wherever possible, correct for potential sources of endogeneity.

Social Capital Theory and the Migrant Network Hypothesis

First introduced by the economist Glenn Loury in 1977 the concept of social capital has benefited from the work of many contemporary scholars. Bourdieu (1986) argued that the level of social capital depends on two dimensions: the social relationship that allows access to resources, and the amount and quality of the resources themselves. He also emphasized the fungibility (convertibility) of social, economic, and cultural capital (1986:251). Later, Coleman (1988:S98) wrote that social capital "inheres in the structure of relations" and is not completely fungible but can be specific

to different activities. Massey and colleagues were first to label migrant networks as a specific form of social capital (1987:170).

The migrant network hypothesis thus predicts that the migration of a person directly affects the migration likelihood of those in his or her social network. Specifically, the tie to the migrant can facilitate migration by providing information and resources that reduce the costs or risks of both the migration act (Donato et al. 2008; Singer and Massey 1998) and life at destination (Gregorio Gil 1998; Hondagneu-Sotelo 1994); and increase migration's potential benefits by opening access to quality destination jobs and other forms of economic capital (Amuedo-Dorantes and Mundra 2007; Massey et al. 1987; Munshi 2003).

Strength of Ties and Resources

Not all network ties are equal. Coleman (1988) stressed the importance of strong ties, while Granovetter (1973), Burt (1995) and others emphasized the opposite. Granovetter (1973) distinguished between the value of having friends (strong ties) and acquaintances (weak ties) in gaining knowledge about appropriate job openings. He hypothesized that individuals with many weak ties would benefit from news beyond the "provincial news and views of their close friends" (1983:202). Burt (1995) stressed the necessity of lack of ties or "structural holes" to encourage mobility and innovation, arguing that network density actually dissuades information flow by providing redundant information.

Later, Portes (1998:6) proposed decomposing social capital into three dimensions: possessors (those making demands), sources (those agreeing to

demands), and resources. Lin (2000:786) conceived of social capital as "resources embedded in social relations" (quantity/quality) and "locations in a network or network characteristics" (tie strength). Garip (2008) integrated the ideas of Portes and Lin in a comprehensive empirical framework that deconstructed migrant social capital into several dimensions: recipients; sources (weak or strong tie); and resources (amount, accessibility, and diversity). In this article, I build on Garip's (2008) work and extend it in a context of international migration.

Complementary Explanations

Social capital theory is not alone in influencing studies of international migration. Prominent in academic discussion, the neoclassical economics model and the new economics of labor migration model are either considered complementary to or competing with social capital theory. On one hand, Massey et al. (1998) argued that the theories are complementary: the growth of migrant networks makes international migration less costly (thereby increasing the income-maximizing migration predicted by neoclassical economics) and less risky (thereby increasing the risk-diversifying migration predicted by new economics). On the other hand, Palloni et al. (2001) viewed the theories as rivals and argued that correlation of household migration with one's own is not proof of the social capital theory; such a correlation is also expected when a concerted family strategy is used to maximize household income or diversify risk by sending some members abroad.

Whether these conceptual approaches are considered rival or complementary, it is important to distinguish among them to clarify how migrant networks work. Ideally, one could distinguish among at least three explanations: (1)

belonging to a household with a household-level strategy to maximize income or decrease risk (household strategies); (2) belonging to a family with a family-level strategy to reunify at destination (legal family reunification); and (3) receiving helpful information or resources from kin and friends abroad (migrant network hypothesis). Because the extremely nuanced information required is not yet available, I use proxies. My overall strategy is to capture the first two explanations generously and to build the analysis strongly against the third (and primary) explanation.

Scholars have had difficulty capturing household strategies, primarily because of data constraints. Even the best studies have been limited to static measures of household: nearly all fix their household roster at the time of the survey, or on a predetermined list of relatives of the household head (e.g., Garip 2008; Massey and Espinosa 1997; Palloni et al. 2001; Steklov et al. 2010). Time-varying measures would better capture changes in household membership.

An important related explanation, legal family reunification has been largely neglected (for important exceptions, see Toma and Vause 2011, Toma 2012, Vause 2012 which also use MAFE data). Having a spouse abroad affects one's migration chances differently than do other relationships because of the privileged spouse-sponsoring procedure that most democratic destination countries offer.[4] Indeed, besides participating in household decision-making,

[4] There are two other reasons to analyze legal family reunification separately. First, the household strategies approach of Palloni et al. (2001) does not consider how legal family reunification can transform the migration context—pushing the equilibrium toward settlement, as opposed to circular migration—and therein the influence of migrant networks. Second, the concept of household is broader in Senegal than in many origin

a spouse can (if requirements are met) process paperwork to facilitate one's migration; each destination country studied has specific and special policies for reunifying spouses and parents and children. This process has different dynamics than other processes of international migration (Boyd 1989; Castles 1986; Jasso and Rosenzweig 1986, 1995) and thus deserves a separate analysis (Toma and Vause 2011, Toma 2012, Vause 2012).

Gender Perspective

A rich literature on migration and gender establishes that men and women experience migration differently. In terms of the migration decision, the qualitative literature has documented the special importance of strong ties for females (Gabrielli 2010; Gregorio Gil 1998; Hondagneu-Sotelo 1994) and weak ties for males (Bass and Sow 2006; Hernández-Carretero 2008; Jabardo Velasco 2006; Locoh 1995). When social barriers to female migration are high, strong dependable ties are especially important. When male migration decisions depend on accessing scarce information about trip and destination labor market, weak ties that facilitate this are essential. Empirical quantitative studies show that women are more likely to follow spouses, but men tend to migrate "independently" (Cerrutti and Massey 2001); strong-tied networks are important for both men and women (Curran and Rivero-Fuentes 2003; Kanaiaupuni 2000); female migration appears especially sensitive to migration of nephews and nieces (Cerrutti and Massey 2001); married men and women are influenced by matrilineal networks (Creighton and Riosmena 2013); and weak nonpersonal migrant networks influence both male and female migration (Davis and Winters 2001; Kanaiaupuni 2000; Stecklov et al.

countries (such as Mexico) and often includes extended family, who traditionally play a key role in migration decisions (see González-Ferrer et al. (2012) for a review).

2010). In recent scholarship using MAFE data, Toma (2012) and Vause (2012) clearly demonstrate the gendered nature of migrant networks in contexts of migration behavior between sub-Saharan Africa and Europe and subsequent labor market behavior for Senegal and DR Congo respectively. Toma finds that for the Senegalese, female networks lead to higher likelihood of female migration, but also lower labor market outcomes, while Vause finds evidence that there is a 'convergence' of male and female migration experience among Congolese migrants. For female migrants, a general 'network' effect can be powered by a significant partner effect (Toma 2012, Vause 2012). Because the literature shows that gendered migration is especially expressed through the action of migrant networks, including the case of Senegal-Europe migration, I will include gender-specific analysis wherever possible.

Working Hypotheses

With the preceding conceptual framework in mind, I specify working hypotheses that are related to tie strength, network resources, and the complementary explanations.

Tie Strength

Focusing on close *personal* ties (household kin networks) and weak *nonpersonal* ties (aggregate measure of village networks), the literature has found strong and consistent effects for strong ties and variable effects for weak ties (Cerrutti and Massey 2001; Curran et al. 2005; Espinosa and Massey 1999; Garip 2008; Kanaiaupuni 2000). However, previous studies have not distinguished between strangers and close friends in the village, and have treated extended family living outside the household the same as any

other village member, although their influences are likely to be quite different. In this article, I focus on personal ties of all strengths to connect the empirical analysis to theory. This strengthens the analysis in two ways. First, network mechanisms become clearer. Personal ties are transparent channels for information/resource flow when compared with aggregate measures of village migration, and are less likely to represent migration trends and possible patterns of contagion or imitation. Second, a gradient of tie strength can test the hypothesis differently than the dichotomous indicators used in previous work.

In terms of tie strength, network studies of employment point in two directions: stronger ties lead to more trustworthy information (Lin et al. 1981), and weaker ties lead to more innovative and useful information (Granovetter 1973). Two apparently contrary and rival hypotheses follow (Garip 2008). In contrast, I consider these hypotheses complementary and, using a gradient measure of tie strength, anticipate the following:

Hypothesis 1: Because stronger ties contribute more dependable help and because weaker ties contribute wide-ranging information, ties at both ends of the spectrum (strongest ties, weakest ties) will be important influences on migration.

Migrant Network Resources

Decomposing migrant networks can further illuminate migrant network mechanisms. Doing so, Garip (2008) found that migration propensity rose with greater, more accessible, and more diverse (occupation) resources, and fell with greater destination diversity. Weak (village) ties appeared to be more influential than strong (household) ties. Using Garip's (2008)

framework, I distinguish between the amount and diversity of network resources. I extend the framework to account for a gradient of tie strength and complementary explanations. Previous studies have found that the experience of migrants in one's household or village increases one's own migration likelihood (Curran et al. 2005; Garip 2008; Massey and Zenteno 1999). Similarly, I expect the following:

Hypothesis 2: The greater the amount of resources available, the greater the individual likelihood will be to migrate.

Only a few studies have incorporated diversity into their studies of networks (Curran et al. 2005; Garip 2008). A less-diverse network (more concentrated information about one or few destinations) will provide individuals with better information and resources and thus increase migration likelihood. The next hypothesis follows:

Hypothesis 3: The less diverse the available resources, the greater the individual likelihood will be to migrate.

Migrant Network Hypothesis and Complementary Explanations

Largely ignored until now, a number of complementary explanations complicate the study of the migrant network hypothesis. On one hand, the literature has consistently shown the importance of close family migrant networks, but this can be explained by household strategies and/or legal family reunification. Indeed, previous studies may have mislabeled products of social capital that were, in reality, evidence of household strategies.[5] In

[5] Even Palloni et al.'s strategy (2001) of controlling for household strategies via father migration and capturing migrant network effects via brother migration is troublesome in this regard.

this article, I explicitly distinguish between household strategies and close family networks. I then expect the following:

Hypothesis 4: Close family migrant networks will have a positive effect on international migration, even beyond what complimentary explanations justify.

On the other hand, personal ties outside close family have received much less attention. Some studies included extended-family living in the household (e.g., Cerrutti and Massey 2001; Curran et al. 2006; Davis and Winters 2001; Garip 2008), but their influence may reflect household strategies. Meanwhile, friendships have been nearly universally ignored (for an exception, see Toma and Vause 2011). Addressing these two weaknesses of the literature, I expect the following:

Hypothesis 5: Having personal migrant networks outside close family will increase the propensity to migrate internationally, even beyond what complimentary explanations justify.

The Context

Migration Between Senegal and Europe

Senegal is a very diverse country of both origin and destination in terms of international migration. Its geography, ethnicities, cultures, histories and economic sectors are diverse. Until the early 1970's, Senegal was a net immigration country, receiving migrants from its African neighbors (Mezger Kveder 2012). The first Senegalese migrants to Europe were members of the French army (*tirralleurs*) from St. Louis, Gorée, Dakar and Rufisque (Mezger Kveder 2012) who found work in the port of Marseille in the early to mid-twentieth century (Gerdes 2007). During the domestic labor shortage

of the 1950s, French industry recruited healthy workers from the Senegal River Valley and the neighboring region Tambacounda (Mezger Kveder 2012). These workers suffered during the 1967 and 1968 recessions, and with the oil crisis of 1973, France essentially halted labor migration (Jabardo Velasco 2006:37).

In the 1970's and early 1980's, Senegal's economy and society experienced serious setbacks due to severe droughts, the groundnut crisis and the 1973 oil crisis (Jabardo Velasco 2006). As France and Senegal became less hospitable, agriculture in Spain and Italy shifted to a more labor-intensive model, and new Senegalese migrants (of the same ethnicities as the workers recruited to France) went to Spain (initially Catalunya) and southern Italy, with hopes of moving to France later (Jabardo Velasco 2006:39). Faltering prospects in Senegal catalyzed the expansion of the Mouride Sufi brotherhood's religious/commercial networks from strongholds in Paris and Marseille to Italy (and the United States), and later to Spain (and elsewhere in Europe) (Lacomba and Moncusi 2006:74). The Mourides tend to work as wholesalers, market hawkers, and street peddlers. Some scholars have even identified a Mouride "culture" of migration, based on the hierarchical relationship between the *marabout*, or spiritual leader, and the *talibé*, his disciples, and on the horizontal links among the Mourides (Riccio 2012),

Pressure to migrate out of Senegal increased more due to the devastating structural adjustment programs of the 1980s and early 1990s (Lopez and Hathie 1998, African Development Bank Group 2011), and the devaluation (by half) of the currency on Jan 1, 1994 (Gerdes 2007). At the same time, Spain's need for labor grew, and Senegalese of varying ethnicities and origin

went to work. France's establishment of mandatory visa requirements for Senegalese in 1986 encouraged potential migrants to seek other destinations. Regularization campaigns in Spain and Italy have provided a mechanism for legalization, while possibly increasing the attractiveness of those countries as destinations.[6]

Since the 1990s, Senegalese migration flows to Europe have matured, and migrant networks now play a primary role in influencing migration (Gabrielli 2010). According to the OECD International Migration database (2012), the stock of Senegalese nationals in France has grown little since 1990, with about 50,507 Senegalese nationals living in France in 2007. In Italy, the number grew from nearly nonexistent in 1985, when data were first available, to 67,510 in 2008. In Spain, the number of Senegalese nationals has grown more than 10-fold from 4,880 in 1997, when the first data were collected, to 56,590 in 2008. Following earlier settlement patterns in France, female migration and one-family-unit households appear to be increasing (a sign of family reunification and family formation at destination, respectively) in Spain and, to a lesser extent, in Italy (Grillo and Riccio 2004; Jabardo Velasco 2006); and settlement has expanded beyond initial nucleuses (Jabardo Velasco 2006). Tougher immigration measures—which include more restrictive family migration (Bonizzoni and Cibea 2009; Gil Araujo 2010; Kofman et al. 2010:26–29), more resources in border enforcement, and the signing of repatriation agreements (Carling 2007; Nascimbene 2008)—

[6] Five extraordinary regularization programs of undocumented migrants occurred in each country. In Spain, these happened in 1986, 1991, 1996, 2000–2001, and 2005 (Arango and Jachimonwicz 2005). In Italy, the campaigns took place in 1986, 1990, 1995, 1998, and 2002 (Levinson 2005).

appear to have shifted the dynamic from circular migration toward settlement (Gabrielli 2010).

Senegalese Household and Family Structure

Different particularities of Senegalese culture, especially those pertaining to household decision-making and gender roles, are relevant for the analysis of migrant networks and migration. First, the traditional family or household structure in Senegal is patrilineal; when the situation allows, a group of brothers live together in the same compound with their wives and children (Gabrielli 2010). In recent decades, greater urbanization has led to a nuclearization of the family (Gabrielli 2010:83). International migration also alters household dynamics. The prospect of nuclear family reunification at destination disrupts traditional hierarchies, altering the nature of subordination of the not-yet-migrating wife to her in-laws (Barou 2001:17–18) and alarming the extended family and village, who fear the loss of remittances (Barou 2001:17). Even more unsettling for traditional norms is female independent migration: this migration act endangers the reputation of both the woman and (when married) her husband at origin (Evers Rosander 2002). To overcome such barriers to migration, information and resources provided by migrant networks are essential.

Another peculiarity of Senegal is a high incidence of polygamy (or polygyny). Senegal has one of the highest levels of polygamy in sub-Saharan Africa: 48.6 % of women aged 15–49 were in polygamous marriages in 1997 (Westoff 2003:9); and polygamy is significant even in urban areas like Dakar (Antoine and Nanitelamio 1996). Although polygamy has traditionally implied co-residence of wives and children, migration introduces the

possibility of multisite families, institutionalized through marriage (Locoh 1995:30). Polygamy becomes less likely as women gain decision-making power: educated women are less likely to participate in polygamous marriages (Hayase and Liaw 1997). International migration also may lessen the likelihood of polygamy via legal restrictions on legal family reunification of only one spouse; legal restrictions that favor settlement rather than transnational living, despite original preferences; increased decision-making power of women as they earn income and rise in status; and changing cultural norms and ideals in general.

Finally, Senegalese society is strongly stratified by a caste system, based on a history of slavery, migration, and division of professions (Gabrielli 2010:78). Contemporary migration to Europe alters this: individuals of different castes now work in similar professions, and revenues transform status through consumption and religious donations (Evers Rosander 2002).[7] These changes, experienced at both origin and destination, can influence future migration, possibly through migrant network effects.

Overall, the power of the household or family structure is very strong in Senegal, and it is difficult for an individual to pursue a goal (migration, for example) without the explicit approval of the larger social structure. However, international migration is also changing traditional structures and expectations, allowing both men and women to step out (some) from the roles ascribed to them by class, caste, and culture.

[7] In addition to traditional avenues of status-raising consumption (e.g., houses, cars, and ceremonies and religious pilgrimages at origin), Senegalese migrants of both genders can enjoy unprecedented access and proximity to important *marabouts* (Muslim religious leaders) when they contribute to the marabouts' fundraising tours abroad (Evers Rosander 2012).

Data and Empirical Analysis

Data

This article uses the recent longitudinal biographical survey data from the Migration between Africa and Europe (MAFE) Project (2012), specifically that of the Senegal migratory system.[8] The multi-site survey methodology is discussed in Beauchemin (2012). The data are based on a retrospective individual questionnaire with housing, union, children, work, and migration histories documented. The data contain additional information about migrant networks, legal status, remittances, and properties. The network information is particularly rich and includes year-by-year migration itineraries for each migrant network member. Approximately 600 current Senegalese migrants in France, Italy, and Spain[9] and nearly 1,100 residents of the Dakar region[10] were interviewed in 2008.

[8] 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/.

[9] These countries were selected primarily because of data limitations, but they appear to be an appropriate focus of study. The three hosted a remarkable 62% of Senegalese international migrants in 2008, according to the MAFE household survey (Flahaux et al. 2010).

[10] The urban sampling strategy of urban Dakar might actually downwardly bias results, if at all. Fussell and Massey (2004) found that community social capital in Mexico was less influential in urban than rural areas.

This article employs discrete-time event history model techniques to analyze how the likelihood of first-time migration to Europe is related to origin, changes in individual life course, period and macro indicators, and changes in one's migrant network. Given my interest is adult migration, I restrict the sample to adults aged 17 and older, with the first possible migration to Europe at age 18. All individuals in the sample were born in Senegal.

This data source has several limitations (for excellent reviews of MAFE data limitations see Mezger Kveder 2012; or Toma 2012 and Vause 2012 for reviews specifically related to networks). First, due to practical constraints, MAFE sampled a select set of destination countries for each origin country (in the case of Senegal: France, Italy and Spain). This introduces a certain bias (rather than migration to *Europe*, we more accurately should refer to migration to *France, Italy and* Spain) and limits our ability to comment on migration attempts, failed migration (Mezger Kveder 2012), circular migration, return migration (Flahaux 2013) and stepwise migration (Paul 2011), although significant work has been done in many of these areas (e.g. Flahaux 2013, Mezger Kveder 2012). Second, in MAFE's attempt to provide "representative socio-demographic data for both origin and destination areas" (Beauchemin 2012: 27), there is a "geographical mismatch" between the origin and destination samples (Beauchemin 2012: 28-29), and this introduces a potential source of bias.[11] Care should be taken when interpreting results in analysis that includes both origin and destination samples of MAFE, as is the case of this chapter. Third, like all retrospective surveys, households in which all members have migrated are not included in

[11] Data collection at origin followed a stratified sampling frame, while at destination, representative sampling and various non-probabilistic methods were employed (Schoumaker and Diagne 2010, Beauchemin and González-Ferrer 2011).

the origin sample, and there may be recall bias. Closer relationships and relationships maintained until the time of survey are more likely to be reported. This is especially a problem for the naming of extended kin and friends. An individual's recall of their family and friends' migration trajectories (year, country) may include some level of error. Fourth, the data source does not include the fine, specific information (e.g., amount of time spent together, emotional intensity, mutual confiding and services, resources or information shared) ideal for studying social capital and tie strength. I use a proxy for tie strength: the source of relationship.[12] Finally, I cannot distinguish directly between the migrant network hypothesis (information and resources provided) and issues of identification (imitative behavior or contagion) and selection bias because the data do not include whether the respondent received information or help and how this influenced a migration decision. Nevertheless, imitation effects are less a problem here than in previous studies, given the nature of the survey (which includes only network members for whom the respondent remembers exact migration itineraries) and the use of weak personal networks rather than weak nonpersonal networks (the former being more likely to capture resources/information than imitative behavior).

Operational Measures

Dependent Variable

The dependent variable *First-time migration to Europe* is a binary indicator coded as 1 the year when the respondent first moves to France, Italy, or

[12] Marsden and Campbell (1984) argued that strength of ties literature has confounded indicators ("actual components of tie strength"; p. 485) and predictors ("aspects of relationships that are related to, but not components of tie strength"; p. 488) of tie strength. The migrant networks literature therefore has systematically substituted tie strength predictors (source and number of ties) for indicators.

Spain.[13] Moves from Senegal to other destinations, including those in Europe, were censored at the year of migration. For all previous years, the dependent variable is coded as 0.

Independent Variable: Measuring Migrant Networks

The migrant network indicators are based on two survey questions. First, respondents were asked to name all close family members (parents, siblings, partners, and children) who had lived at least one year abroad and to reconstruct a complete migration itinerary of all the countries where they had lived since. Second, they were asked to list other relatives and friends on whom they could count (or could have counted) to receive or help them to migrate from Senegal, and who had also lived abroad; they were also asked to report a complete migration history. *Year met* is recorded for friends and spouses, as is *year of death*, where appropriate.

For precision's sake, I make two general restrictions on the migrant network indicators. First, I restrict indicators to years lived in Europe. Second, the network measures are mostly noncumulative (e.g., ties, household strategies, and migrant spouse), but I also include some cumulative measures (amount of migration experience and diversity) because migrant social capital has been widely considered to be cumulative (e.g., Cerrutti and Massey 2001; Curran et al. 2005; Davis and Winters 2001). However, some studies justify analyzing ties to current migrant networks (Davis et al. 2002; Steklov et al.

[13] Focusing on first migration to Europe clarifies and limits our analytical strategy. Analysis of complex migration strategies (e.g., stepwise, circular, or return migration) is outside this study's scope but holds much promise for future study. In the case of stepwise migration (Paul 2011), Senegalese migrants may first work in a "stepping-stone country" (such as oil-rich Libya) in order to accumulate the human, financial, and social capital to move to a more desired destination in Europe or America.

2010; Toma and Vause 2011). Given my inability to document actual transfer of information and resources, I argue that links to current migrants are more likely than cumulative measures to represent actual conduits of information and resources (the results include a direct comparison). Both restrictions aim to lower the risk of capturing general imitation (or contagion) behavior and overestimating the impact of migrant networks. All migrant network indicators are lagged one year and are measured at $t - 1$. Operationalization of the migrant network indicators is summarized in Table 7 (in the appendix) and discussed at greater length in the next sections.

There are a few potential sources of bias in measuring the other relatives and friends migrant network. First, a complete roster of friends and other relatives was not solicited; only those close enough to give migration help were listed, making this group a selected category. I expect the bias to run against the network hypothesis because migrants—knowing what "help to migrate" looked like and who provided it—may list very few people compared with nonmigrants. Second, relationships that were active at the time of the survey may be overrepresented. If this possible overrepresentation is positively related to quality and likelihood to help, it introduces upward bias to the analysis. Third, friendships may be endogenous to migration (individuals seek out friendships that help them migrate), and I counter this with three strategies: (1) excluding friendships where *year met* is missing, (2) including only friendships formed before either individual had ever left Senegal, and (3) including only longer-term friends (in friendships of three or more years).[14]

[14] Models that include all friendship ties without restrictions exaggerate migrant network effects. Results are available upon request.

Migrant Social Capital Source: Tie Strength

Unable to capture directly other dimensions of tie strength, I exploit a predictor of tie strength: the source of relationship. The theory proposes that there are more relationships among strong ties than weak ties. Likewise, it is intuitive to expect more connections among sibling networks than cousin networks as well as more connections among blood ties than friendship ties.[15] My indicator of tie strength is based on blood proximity and generation. Blood proximity is justified: the more closely related family members are, the greater level of common expectations of trust and reciprocity. This dimension was used in Espinosa and Massey (1999). I justify generation for primarily cultural reasons: the Senegalese family structure is characterized by strong vertical intergenerational solidarity (e.g., Bass and Sow 2006; Gabrielli 2010). The most costly commitments of *teranga* (hospitality) are between different generations of the same extended family: for example, an aunt fostering her nephews (Gasparetti 2011). Because friendships are least likely to be governed by mutual obligation, I label these relationships as the most weak. My proposal for a gradient of weak ties is (1) stronger tie (different generation: aunt/uncle, niece/nephew), (2) medium tie (same generation: cousin), and (3) weaker tie (friends). Figure 1 captures the tie strength operationalization in a kinship chart.

[Figure 1 about here]

Migrant Social Capital Resource: Amount and Diversity

The amount and diversity of migrant social capital resources are key network indicators. First, I use the cumulative network experience in Europe, as

[15] This may be especially true given Senegalese family structure. Between one-fourth (28 %) and one-half (48 %) of marriages (in urban and rural areas, respectively) are endogamous or between maternal or paternal cousins (Bass and Sow 2006:94, citing Ndiaye et al. 1991).

measured in years, to capture the amount of migrant social capital. Second, I model my diversity index after Garip's (2008) diversity index (which, in turn, is based on Shannon (1948)):

$$Diversity = \frac{-\sum_{i=1}^{n} p_i \times \log(p_i)}{\log(n)} \times 10,$$

where *n* is the number of possible destinations, and *p* is the proportion of migration experience to each destination *i*. The index varies between 0 (all migration experience concentrated in one destination) and 10 (migration experience equally distributed among all destinations). The four different destination categories, which exhaust the possibilities for all Senegalese would-be migrants, are France, Italy, Spain, and other countries.

Complementary Explanations

Complementary Explanation #1: Household Strategies (Household Migrant Network)

The household migrant network indicator was constructed by matching time-varying information about membership in the respondent's household and the respondent's migrant network. The strategy weighs the indicator toward the complementary hypothesis (household strategies). Specifically, the survey includes the respondent's links to other household members (e.g., brother/sister, mother/father, other relative, friend) but not their exact identities (e.g., the sister's, other relative's, or friend's names). The survey also includes the migration itineraries of the respondent's network: parents, siblings, friends, cousins, aunts/uncles, nieces/nephews, and grandparents. I develop a generous measure for household migrant network: if any sister is listed as a household member, all sisters in the migrant networks are

considered *household migrant network* members during the entire housing spell. This procedure is repeated for brothers, mother, father, and friends. If any "other relative" is listed as a household member, all migrant cousins, aunts/uncles, nieces/nephews, and grandparents are categorized as a household migrant network. Figure 3 in the appendix graphically represents the construction of the household migrant networks.[16]

There are two important limitations of capturing the household migrant network. First, the household membership information is available only at the beginning of each housing spell, so the longer the housing spell, the less accurate the information will be. Second, despite the possible multilocal nature of Senegalese families at origin (in some cases of polygamy) and the important influence of kin and elders from outside the physical household, I can account only for the respondent's current physical household. I do, however, control for polygamy in overall and male-only models.

Complementary Explanation 2: Legal Family Reunification (Migrant Spouse)
The theoretical framework identified legal family reunification as a special pathway of household migration strategies and justified its separate analysis. Its proxy (migrant spouse: whether the respondent's spouse lived abroad in Europe in a given year) is thus kept distinct from other network ties. The operationalization focuses only on the migrant spouse, even though legal family reunification also usually provides for the reunification of minor children and sometimes elderly parents. This is justified doubly: on one side, the analytical focus here is adult migration (destination samples explicitly

[16] Alternative operationalizations of household membership were tested (results not shown, but available upon request): it appears that Palloni et al.'s original household indicator (father migration) is relevant only for male migration.

excluded individuals who migrated as minors), and minor children at destination do not ensure the right to parental reunification (González-Ferrer et al. 2012); and on the other side, the incidence of elderly migration appears to be negligible for Senegalese migration to the West (Flahaux et al. 2010). Data restrictions limit the analysis and prevent it from distinguishing spouse's legal status and ability/desire to embark on the legal family reunification process; however, the decision to include all spouses in Europe biases the analysis against the primary hypothesis and appears to be the best proxy.

Covariates and Macro Indicators

The origin covariates are urban origin;[17] religious affiliation (Muslim brotherhoods of Khadre, Layene, Mouride, Tidiane, and a category for "other Muslim;" Catholic; and other Christian); father's education (no school, primary, secondary and above); whether the father was deceased or unknown; whether the respondent was the firstborn; number of siblings; and the respondent's highest level of education (preschool or lower, primary, lower secondary, and higher secondary or higher). The time-varying covariates are marital status; polygamous union; number of children; occupational status (working, unemployed, studying, working at home, or inactive); and property ownership (whether the respondent owned land, housing, or a business).

[17] The urban origin indicator is based on the most recent comprehensive data available; the Agence Nationale de la Statistique et de la Démographie's (ANSD) urban/rural classification from the 2002 Senegal census.

To capture some macro-level effects, I include a series of period indicators[18] and two time-varying macro-economic indicators for Senegal: GDP percentage growth per capita, and urban population growth (percentage of total). The macro-economic indicators, collected by the World Bank's World Development Indicators, are available from 1961 through the time of the survey. Other potentially important indicators at destination—such as Senegalese foreign stock, rates of inflation, and unemployment—were not available for the entire time frame in the wide range of data sources investigated (European Migration Network, Eurostat, IMF International Financial Statistics, OECD, UNPD, and WDI) nor from individual country sources.

Analytic Approach

Modeling Individual Migration Propensity

Because my dependent variable is dichotomous, I use a logistic regression model:

$$Y_{ij} \sim B\left(1, \pi_i\right) \quad (1)$$

$$\log it\left(\pi_{ij}\right) = \beta_0 + \beta_1 x_i + \beta_2 x_{ij}. \quad (2)$$

Y_{ij} represents the dichotomous migration outcome for observation *i* for individual *j*. The conditional probability π_{ij} represents the probability of migration to France, Italy, or Spain over the probability of staying in Senegal

[18] The periods are pre-1985, 1985–1993, 1994–1998, 1999–2003, and 2004 and later. In 1985, France introduced a compulsory visa policy for Senegalese. In 1994, Senegal experienced a grave economic crisis when its currency, the CFA franc, was unlinked from the French franc and devalued by one-half. The rest of the periods were made to be of approximately equal length.

in a given person-year observation. A discrete-time (vs. continuous-time) model is preferred given the data's discrete nature (yearly information was collected). Results are expected to be quite similar (see, e.g., Allison 1984; Yamaguchi 1991). In Eq. (2), x's represent observed time-varying (and non-time-varying) individual characteristics, and β's represent coefficients. All migrant network variables, indicators for the alternative explanations (household membership and migrant spouse), labor force status, and property ownership are captured in year ($t - 1$); in other words, they are lagged by one year. To ease interpretation, I present the results in odds ratios (exp(β)) in the tables.

Results

Figure 2 displays survival functions, specifically the Kaplan-Meier nonparametric estimate for the full sample. Panel A shows that men are more likely to migrate than women (chi-square = 16.35, $p = .0001$). Panels B, C, and D show that there is support for both complementary explanations, even when network indicators are restricted to age 18 in order to run the Kaplan Meier: individuals with household migrant networks at age 18 are more likely to migrate than those without (chi-square = 56.56, $p = .0000$), while legal family reunification effects depend on gender. Women with a spouse already in Europe at age 18 appear to more likely to migrate (chi-square = 2.38, $p = .1227$), whereas no men in the sample had a spouse already in Europe at age 18. Finally, Panel E shows that individuals possessing only a weak tie or only a strong tie at age 18 are more likely to migrate than those with no ties, or both ties at age 18 (chi-square = 50.94, $p = .0000$).

Table 1 summarizes the demographic and migrant network information of migrants and nonmigrants at the time of the survey. Migrants are defined as those who migrated from Senegal to France, Italy, or Spain at age 18 or older. Nonmigrants are defined as individuals who did not migrate directly from Senegal to Europe before the survey date, although they may have migrated to other countries. Migrants are more likely than nonmigrants to have both strong and weak network ties and are much less likely not to have any tie ($p < .01$). Migrants are also more likely than nonmigrants to have only strong ties and to have friends (weaker weak tie) in their migrant networks ($p < .01$). Although differences between migrants and nonmigrants are apparent here, these descriptive results beckon us to apply more demanding techniques to the data.

[place Fig. 2 about here]

[place Table 1 about here]

Individual Likelihood to Migrate and the Migrant Network Hypothesis

All in all, the empirical analysis bolsters the strength of tie hypothesis and the hypothesis that the likelihood of migration increases with the amount of network resources available. Unlike the case of nonpersonal ties, strong and weak personal ties appear to act competitively in influencing migration. After one moves beyond dichotomous indicators to analyze a gradient of tie strength, the evidence supports Granovetter's original hypothesis that the weaker the tie, the larger the impact on migration. However, after gender-specific analysis is run, the hypothesis that both ends of the tie strength spectrum will be important is partially confirmed: the evidence confirms the importance of weaker weak ties (for male migration) and hints at the importance of stronger weak ties (for female migration). After the resources

of the migrant network are accounted for, the hypothesis of the amount of migrant network resources is rebutted for strong ties (strong tie experience lessens migration likelihood) but is confirmed for weak ties. At the same time, the diversity of migrant network resources acts in a gendered way: destination diversity (especially that of aunts/uncles/nieces/nephews) appears to decrease the likelihood of female migration, while destination diversity (especially that of cousins) appears to increase male migration chances. Finally, throughout the analysis there is strong and consistent evidence that migrant networks increase individuals' likelihood to migrate, even when complementary explanations of household strategies and legal family reunification are accounted for. The results are detailed in the sections that follow.

Tie Strength

The third model in Table 2 shows the first results for the strength of ties. Having a weak personal tie increases one's odds of migrating, but strong ties are not statistically significant. The impacts of strong and weak ties are tested in a direct comparison of those with only a strong tie, only a weak tie, no tie, or both ties (Table 2, Model 5). Surprisingly, individuals with no ties are not at a disadvantage in terms of migration likelihood as compared with the strong-tie-only reference group. Nevertheless, the weak-tie-only group holds a significant advantage ($p < .001$) compared with the strong-tie-only group. This offers evidence that strong and weak personal migrant networks are competitive (their effects do not appear additive) rather than complementary (holders of both networks do not appear to be more likely to migrate than those with only one kind of network). Also, personal migrant networks outside the close family clearly influence international migration.

[place Table 2 about here]

In addition, the effects of strong and weak personal ties appear to be gendered. After complementary explanations (including household strategies) are accounted for, weak ties are more influential for men than are strong ties (Table 3, Model 3, $p < .01$), while strong and weak ties appear to be of equal importance for women (Table 4, Model 3), although these effects are not statistically significant. This partly reflects what the qualitative literature has found for migration in general: a special importance of strong ties for females (Gregorio Gil 1998; Hondagneu-Sotelo 1994) and weak ties for men (Jabardo Velasco 2006; Locoh 1995). Yet, it is surprising that weak and strong ties for women are of similar importance. There are at least two possible explanations: (1) previous studies did not account for household migrant networks separately, and included these in their measures of strong ties; and (2) extensive nonfamilial female networks play an important role for independent Senegalese women migrants (Evers Rosander 2002). The results also reflect the importance of patrilineal traditions, the extended family (especially uncles and male cousins) (Bass and Sow 2006), and friendships (Gabrielli 2010; Hernández-Carretero 2008) in Senegalese men's lives and migrations.

[place Table 3 about here]

[place Table 4 about here]

After one moves beyond dichotomous measures to employ a gradient measure of tie strength, the results (Table 2, Model 4) appear to challenge the

findings of the previous literature on migrant networks and support Granovetter's tie strength hypothesis. For example, the weakest weak tie (friend) has a greater effect on migration than does having a stronger weak tie (aunts/uncles/nieces/nephews) or a strong tie. This result, which uses personal network indicators, departs from previous literature's findings that strong ties are more important than weak ties (as captured by nonpersonal aggregate measures) in international migration (e.g., Cerrutti and Massey 2001; Curran et al. 2005; Espinoza and Massey 1999; Kanaiaupuni 2000). This also corroborates the idea that personal ties differ empirically from nonpersonal ties: personal weak ties appear to efficiently capture a path for information and resource flow from network to recipient. In support of Granovetter's idea, friends (who are less likely to provide redundant information and resources than family) have a greater influence on one's likelihood to migrate than close family (Table 2, Model 4, $p < .001$). Indeed, strong tie effects are not statistically significant. Furthermore, the "weaker" weak tie (friends; $p < .001$) appears to have a stronger influence than the "stronger" weak tie (aunt/uncle/niece/nephew; $p < .05$), and the "medium" weak tie (cousin) is not statistically significant. As the network tie grows weaker, its influence appears to increase. I can explain the stronger influence of friends than uncles/nephews. First, because uncles are often considered father figures and because cousins are sometimes considered brothers in Senegalese society, uncles/nephews will likely share more redundant (and unhelpful) information and network connection than friends do. Second, because of the extended nature and hospitality (*teranga*) of the Senegalese family culture, even friends can be welcomed as family members. However, friends will probably not be held to the same obligations that families share. As a result, individuals may be more likely to share information of certain

risky unsanctioned activities, including undocumented migration to Europe, with friends than with uncles/nephews.

At the same time, the gender-specific models reveal differences. For male migration (Table 3, Model 4), the "weaker" weak tie (friends) has an extremely large and significant influence on migration ($p < .001$), which is comparable with the effects of household networks and greater than those of strong ties. At the same time, effects for female migration (Table 4, Model 4) lack statistical significance; indeed stronger (aunts/uncles/nieces/nephews) and medium (cousin) weak ties may be as important as strong ties. These results challenge the empirical literature to date, which espouses that strong ties are more important than weak ties in international migration, especially that of females. The results also beckon the need for more in-depth qualitative study to understand the role of extended family in Senegalese female migration and friends in Senegalese male migration to Europe.

In order to compare this article's "currently at destination" measures with the cumulative "ever been" measures found in most of the literature, I reran the analysis with the latter (Table 5). Cumulative indicators do not distinguish household membership; do measure whether any network member had ever been to destination by year $t - 1$; and do differ from noncumulative measures indicating whether any network member was living at destination in year $t - 1$. Although strong tie effects and alternative explanation are comparable and similar in scale, the cumulative modeling of weak tie networks (especially weaker weak ties and stronger weak ties) appears to dampen their effects; the dynamic noncumulative effects are even larger. A likely explanation is that individual migration decisions may be especially sensitive to timely and non-

redundant information about destination, which weak-tie networks are more likely to offer and which only current migrants can provide.

[place Table 5 about here]

Overall, the most rigorous testing of Granovetter's tie strength hypothesis, which uses the gradient measure of tie strength and *only* the responses to the "other family and friends" survey question, produces evidence to support the hypothesis: the impact of social capital grows as tie strength decreases. After gender is accounted for, this analysis weakens, possibly suffering from sample size issues. However, the friend effect for males is clearly strong, and this powers the large overall impact of the weakest of the weak ties. At the same time, the uncle/nephew effect (stronger weak tie) and cousin effect (medium weak tie) seem important for females, although these effects are not statistically significant. Furthermore, joint analysis of both categories of network ties gives support for my hypothesis that networks at both ends of the tie strength spectrum are more influential but in a gendered way. For female migration, stronger ties (more dependable help and resources) may increase their likelihood to migrate, while male migrants benefit most heavily from the weakest ties. Finally, evidence suggests that the use of cumulative measures, as compared with noncumulative measures, may dampen the effect of migrant networks. In the next section, I analyze migrant social capital in greater detail in terms of the resources that the migrant network contributes.

Migrant Network Resources: Amount and Diversity

Table 6 summarizes the results of the analysis of the amount and diversity of migrant social capital resources. First, greater amounts of migrant social capital resources do not appear to increase migration propensity overall (Table 6, Model 1). Surprisingly, the migration experience of strongly tied networks dissuades migration (Table 6, Model 3, $p < .05$), while that of weakly tied network members increases male migration (Table 6, Model 3, $p < .10$). Such effects run contrary to what was found in other studies of duration (Curran et al. 2005; Garip 2008). In terms of gender-specific analysis, there is some support for Granovetter's tie strength hypothesis (i.e., the weaker the tie, the more influential) in Table 6, Model 4. For male migration, each year of migration experience of the weaker weak tie category (friend) increases the odds by 6 % ($p < .001$), but the other ties are not significant. For women, only the middle weak tie category (cousin) holds significance: each year of experience increases migration odds by 1 % ($p < .10$).

[place Table 6 about here]

In terms of resource diversity, the only significant effects were found in the gender-specific analysis, given that diversity appears to power female and male migration distinctly. On one hand, greater diversity of migrant social capital dampens the likelihood of female migration (Table 6, Model 2; $p < .05$). Indeed, the diversity of the stronger weak tie (aunt/uncle/niece/nephew) is a perfect predictor for female migration and is thus excluded from Table 6, Model 4. In other words, female migrants had minimum diversity of their stronger weak ties: *all* the migration experience was concentrated in only *one* location. These results validate the importance

of stronger more dependable ties (Hypothesis 1) and less diversity (Hypothesis 3) and are in line with previous studies that found that destination diversity dampened the likelihood of internal migration in Thailand (Curran et al. 2005; Garip 2008).

On the other hand, and unexpectedly, the destination diversity of migrant social capital (Table 6, Model 2, $p < .05$) increases male migration propensity. This is particularly true for middle weak tie (cousin) migration experience (Table 6, Model 4, $p < .05$). There are several reasons why potential Senegalese male migrants to Europe may benefit more heavily from diverse (by destination) migrant network experience than do internal migrants in Thailand. First, because the costs and barriers to migration between Senegal and Europe are far greater, and because the likelihood of success in migration is far lower than internal migration in Thailand, having access to several destinations may especially encourage migration between Senegal and Europe. Second, if migrants from Senegal to Europe believe that mobility among different destinations is relatively easy and that network connections to several destinations would then increase their chances of success at destination (while Thai internal migrants do not), destination diversity will especially encourage migration between Senegal and Europe. Third, destination diversity in the European case may also capture some aspect of occupational diversity that I cannot control for separately (as Garip (2008) does).

Migrant Networks and Complementary Explanations

The evidence strongly supports the migrant network hypothesis for international migration, beyond the complementary explanations tested here. Nested models confirm this. Table 2 shows the results of a model with only the complementary explanations of household strategies and legal family reunification (Model 1) and then adds in the migrant network hypothesis (Model 2). I apply a log likelihood test between the two models. The test statistic is 37.13 ($df = 1$), and the associated p value is extremely low ($p < .0000$). Including the migrant network hypothesis (as proxied by nonhousehold migrant networks) produces a statistically significant improvement for the analysis. At the same time, both complementary explanations (household strategies and legal family reunification) play a significant role in explaining migration ($p < .001$).

The importance of the migrant network hypothesis is further confirmed in separate analysis by gender. For men (Table 3, Models 1 and 2) and women (Table 4, Models 1 and 2), nonhousehold migrant networks (migrant network hypothesis) have a large and significant effect on migration beyond what household migrant networks (household strategies) can account for. . Nonhousehold and household migrant networks appear to be on a comparable scale. These results validate the importance of clearly defining and restricting migrant networks and overtly controlling for both complementary explanations. In terms of the legal family reunification explanation, the presence of a migrant spouse abroad (proxy for legal family reunification) is an extremely powerful explanation for both Senegalese female and male migration, but the influence runs in opposite directions: it increases female migration (Table 4, Model 1, $p < .001$), but decreases male migration (Table 3, Model 1, $p < .10$). A model rerun with “migrant spouse bias” included

(results not shown, but available upon request) demonstrates that failure to separate out the migrant spouse effect exaggerates household network effects on female migration.

Conclusion

This article contributes to existing research in four ways. First, I test the validity of the migrant network theory beyond what complementary explanations of household migration strategies and legal family reunification can explain. Prior work has largely failed to do so. I find strong evidence for the migrant network hypothesis net of these complementary explanations. Analysis of household strategies reveals an interesting and theoretically important finding. It seems that the household strategy explanations proposed by Palloni et al. (2001) and rigorously tested on a restricted sample of brother-pairs are particularly sensitive to the operationalization of household membership, and that the original (father migration) may apply to male migration only. Although this finding may seem surprising, gender scholars for years have critiqued the short-sightedness of viewing the household as a unitary decision-making body, especially when there is conflict between the household and the potential migrant (e.g., Boyd 1989; Gregorio Gil 1998; Hondagneu-Sotelo 1994). More theoretical and empirical attention in this regard is needed. Also, spousal reunification is an important, although heretofore neglected, explanation for both male and female migration. Indeed, it has such explanatory weight that it merits inclusion in future studies of migrant networks and international migration.

The second contribution is to focus on and analyze only *personal* migrant networks. Nearly all previous studies of migrant social capital exploited a

nonpersonal measure of weak ties (community migration prevalence) and, at the same time, neglected weak-tie personal migrant networks. Using only personal migrant networks here facilitates a connection to possible network mechanisms and allows for direct comparisons among ties of different strengths.

The third contribution is to clarify the role of personal migrant networks by analyzing source (tie strength measured dichotomously and—for the first time, via a gradient of tie strength)—amount and diversity of migrant social capital. The results are a bit surprising, considering the empirical migration literature: for female migration, strong ties (close family) are as influential as weak ties; for male migration, friendship networks appear to play a key role, and these weakest weak-tie networks are more influential than strong ties. Subsequent joint analysis of source and amount of social capital provides evidence for the tie strength hypothesis for male migration: the weaker the migrant network tie, the greater influence of the amount of migrant social capital. The destination diversity of migration experience has opposite effects that fall along gender lines: for women, the lesser the diversity (especially that of stronger weak ties to aunts/uncles and nieces/nephews), the greater propensity to migrate; for men, the greater the diversity (especially that of medium weak ties to cousins), the greater propensity to migrate.

Finally, this article compares, for the first time, dynamic and cumulative measures of migrant networks. The cumulative measures used in most of the literature appear to mask some of the actual (dynamic) effect of networks.

Although this article makes a key first step toward understanding the influence of tie strength and weak ties in international migration, it has certain limitations. First, the network indicators represent an improvement, but they still do not directly capture the tie strength: the levels (and fluctuations) of time spent, emotional intensity, and mutual confiding in each relationship. More precise measures of migrant networks should be collected and analyzed to lessen the literature's dependence on so-called predictors or proxies for networks.[19] Second, the article accounts for the amount and diversity of migrant social capital resources but does not capture the other aspect known to be important—namely, the accessibility of these resources (Garip 2008) and future study should. Third, this study focuses on first-time migration between Senegal and Europe. Subsequent study could and should explore subsequent migration. Fourth, for precision's sake, I limit the study to direct migration from Senegal to Europe and Senegalese networks in Europe; thus, I am unable to comment on other or more complex migration strategies or attempts, such as those found in return migration (Flahaux 2013), failed migration (Mezger Kveder 2012), transit migration, or stepwise international migration (Paul 2011), where migrants intentionally work in "stepping-stone countries" (perhaps oil-rich Libya, in the case of Senegalese migrants) and accumulate human, financial, and social capital in order to move to a more desired destination. Linking migrant networks to specific migration strategies and itineraries would help clarify their role and deepen our understanding of international migration.

[19] Analyzing the Mexican Health and Migration Survey, Kanaiaupuni et al. (2005) found that different dimensions of migrant network (proximity, frequency of contact, co-residence, and whether emotional support or financial resources was offered) were associated with different aspects of child health at origin.

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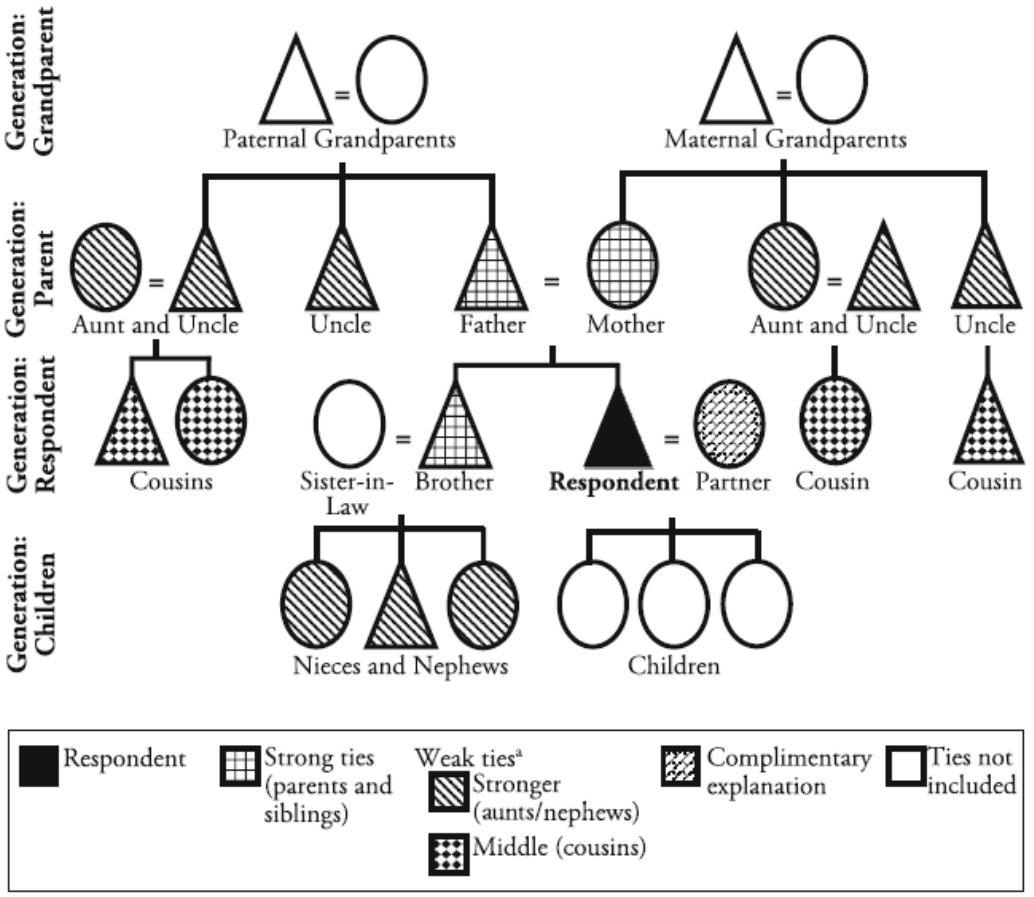
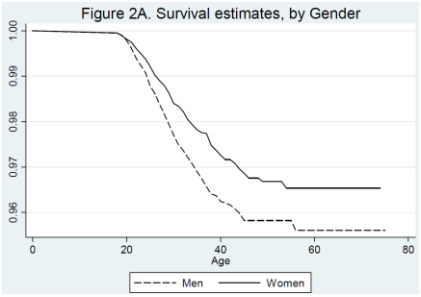
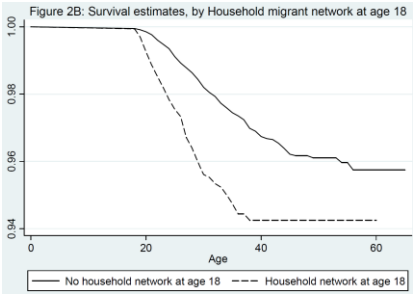
Fig. 1 Kinship chart showing strong and weak ties.

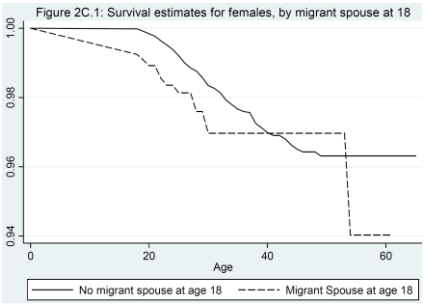


[a]Weaker-weak ties (friends) are not shown in kinship chart

Fig. 2 Kaplan-Meier survival estimates of migration to Europe







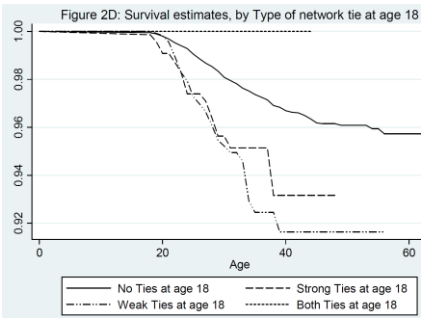


Table 1 Descriptive information of non-migrants and migrants in the MAFE-Senegal data (at the time of the interview)

	Nonmigrants (at time of interview)		Migrants to Europe (at time of migration)		
Controls	Mean	SE	Mean	SE	
Age	38.94	(0.66)	26.99	(0.31)	**
Gender (male = 1)	0.462	(0.023)	0.693	(0.026)	**
Family of origin					
Urban origin	0.706	(0.022)	0.772	(0.026)	
Firstborn	0.244	(0.021)	0.274	(0.023)	
Number of siblings	8.333	(0.265)	7.247	(0.235)	**
Father unknown or deceased at respondent's age 15	0.090	(0.015)	0.072	(0.013)	
Father's education					
No formal schooling	0.452	(0.023)	0.449	(0.026)	
Primary school	0.149	(0.017)	0.208	(0.024)	
Secondary and above	0.200	(0.019)	0.274	(0.022)	
Religious affiliation					
Muslim					
Layene	0.029	(0.007)	0.008	(0.003)	**
Khadre	0.026	(0.007)	0.025	(0.008)	
Mouride	0.277	(0.021)	0.380	(0.027)	**
Tidiane	0.411	(0.022)	0.294	(0.024)	**
Other Muslim	0.068	(0.012)	0.146	(0.018)	**
Christian					
Catholic	0.065	(0.011)	0.065	(0.012)	
Other Christian	0.001	(0.001)	0.000	(0.000)	
Individual Status					
Current household structure					
Married	0.721	(0.020)	0.765	(0.022)	
Has children	0.737	(0.020)	0.371	(0.027)	**
Number of children	2.968	(0.164)	0.767	(0.066)	**
Own education					
No formal schooling	0.273	(0.020)	0.164	(0.020)	**
Primary school	0.320	(0.022)	0.211	(0.021)	**
Lower secondary	0.140	(0.015)	0.236	(0.025)	**
Baccalaureate and above	0.149	(0.016)	0.387	(0.025)	**
Current property ownership status					
Own land	0.093	(0.014)	0.050	(0.010)	
Own a house	0.098	(0.014)	0.069	(0.014)	
Own a business	0.083	(0.014)	0.042	(0.010)	
Current occupational status					
Working	0.537	(0.023)	0.630	(0.026)	**
Studying	0.033	(0.008)	0.181	(0.024)	**
Unemployed	0.043	(0.010)	0.076	(0.013)	
At home	0.212	(0.019)	0.098	(0.014)	**
Retired or Inactive	0.055	(0.011)	0.015	(0.005)	**
Migrant Network					
Having a nonhousehold migrant network	0.289	(0.021)	0.381	(0.029)	**
No ties	0.731	(0.020)	0.666	(0.027)	
Only strong tie	0.087	(0.012)	0.115	(0.022)	
Only weak tie	0.162	(0.017)	0.201	(0.020)	
Both ties	0.020	(0.006)	0.018	(0.006)	
Weak tie: stronger	0.040	(0.007)	0.052	(0.011)	
Weak tie: medium	0.079	(0.012)	0.068	(0.012)	
Weak tie: weaker	0.093	(0.014)	0.123	(0.015)	
Having a household migrant network	0.169	(0.017)	0.307	(0.027)	**
Having a migrant spouse	0.021	(0.004)	0.090	(0.014)	**
Individuals	1,083		585		

Note: Data are weighted.
Source: MAFE-Senegal 2008.
**Differences are significant at $p < .01$.

Table 2 Logistic estimation of the odds of being a first-time migrant in a year: strength of tie and migrant networks

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	B	SE	B	SE	B	SE
Migrant Network										
Having a nonhousehold migrant network			1.83***	0.18						
Strong tie					0.85	0.11	0.88	0.12		
Weak tie					1.70***	0.19				
Weak tie: stronger							1.46*	0.26		
Weak tie: medium							1.09	0.19		
Weak tie: weaker							2.39***	0.35		
No tie									0.94	0.14
Strong tie only (ref.)										
Weak tie only									1.86***	0.30
Both ties									0.83	0.24
Having a household migrant network (different from spouse)	1.76***	0.21	1.79***	0.21	1.70***	0.20	1.78***	0.21	1.68***	0.20
Control for migrant spouse	1.83***	0.27	1.75***	0.26	1.88***	0.28	1.95***	0.29	1.92***	0.28
Controls										
Age	0.64***	0.036	0.65***	0.036	0.65***	0.036	0.65***	0.036	0.65***	0.036
ln(age)	2.61e5***	4.11e5	1.60e5***	2.52 e5	2.04e5***	3.21e5	1.74e5***	2.74e5	1.85e5***	2.90e5
Family of Origin										
Urban origin	1.39*	0.18	1.39*	0.18	1.38*	0.18	1.39**	0.18	1.38*	0.18
Firstborn	1.09	0.12	1.10	0.12	1.08	0.12	1.08	0.12	1.06	0.12
Number of siblings	0.96***	0.01	0.96***	0.01	0.96***	0.011	0.96***	0.011	0.96***	0.011
Father unknown or deceased	0.90	0.16	0.92	0.17	0.94	0.17	0.95	0.17	0.91	0.17
Father's education (ref. = no formal schooling)										
Primary school	1.07	0.13	1.06	0.13	1.07	0.13	1.07	0.13	1.07	0.13
Secondary and above	0.88	0.11	0.85	0.11	0.87	0.11	0.90	0.11	0.88	0.11

Religious affiliation (ref. = Tidiane)										
Muslim										
Layene	1.04	0.32	1.14	0.35	1.11	0.34	1.09	0.33	1.11	0.34
Khadre	0.74	0.27	0.79	0.29	0.78	0.29	0.77	0.28	0.78	0.29
Mouride	1.31*	0.14	1.35**	0.15	1.33**	0.15	1.29*	0.14	1.34**	0.15
Other Muslim	1.55**	0.22	1.55**	0.22	1.53**	0.22	1.48**	0.21	1.56**	0.22
Christian										
Catholic	0.87	0.17	0.87	0.17	0.86	0.17	0.85	0.17	0.86	0.17
Other Christian	0.85	0.86	0.77	0.78	0.98	0.99	0.97	0.98	0.93	0.94
Individual Status										
Current household structure										
Married	1.04	0.14	1.05	0.14	1.06	0.14	1.08	0.14	1.07	0.14
Polygamous	1.67	0.55	1.63	0.54	1.70	0.56	1.75†	0.57	1.66	0.55
Number of children	0.83***	0.04	0.84***	0.039	0.83***	0.04	0.84***	0.04	0.84***	0.04
Education (ref. = primary school)										
No formal schooling	0.84	0.13	0.85	0.14	0.87	0.14	0.89	0.14	0.87	0.14
Lower secondary	1.41**	0.19	1.39*	0.19	1.45**	0.19	1.46**	0.20	1.46**	0.19
Baccalaureate and above	1.40*	0.20	1.36*	0.19	1.39*	0.20	1.38*	0.20	1.38*	0.19
Property										
Land	1.06	0.23	1.04	0.22	1.05	0.22	1.03	0.22	1.03	0.22
House	1.16	0.22	1.09	0.21	1.15	0.22	1.15	0.22	1.18	0.23
Business	1.18	0.31	1.07	0.28	1.09	0.29	1.05	0.28	1.06	0.28
Current occupational status (ref. = working)										
Studying	1.26	0.20	1.24	0.19	1.26	0.20	1.28	0.20	1.26	0.20
Unemployed	1.99***	0.36	2.00***	0.36	2.01***	0.36	1.94***	0.35	2.00***	0.36
At home	1.06	0.15	1.09	0.15	1.08	0.15	1.10	0.15	1.07	0.15
Inactive	0.81	0.30	0.84	0.31	0.83	0.31	0.84	0.31	0.83	0.30
Macro Factors										
Periods (ref: pre-1984)										

1984–1993	1.11	0.24	1.10	0.24	1.12	0.24	1.12	0.24	1.11	0.24
1994–1998	1.11	0.29	1.07	0.28	1.10	0.29	1.09	0.29	1.09	0.29
1999–2003	1.76*	0.47	1.65†	0.44	1.72*	0.46	1.70*	0.45	1.69*	0.45
2004 and after	1.36	0.37	1.23	0.33	1.33	0.36	1.30	0.35	1.30	0.35
Urban population growth (%)	0.91	0.14	0.95	0.15	0.92	0.14	0.92	0.14	0.93	0.14
GDP growth per capita (%)	0.96*	0.02	0.96*	0.02	0.96*	0.017	0.96*	0.017	0.96*	0.017
N (person-years)	28,319		28,319		28,319		28,319		28,319	
Log-Likelihood	–2,320.5		–2,301.9		–2,308.7		–2,302.0		–2,304.2	
Likelihood Ratio Chi-square	362.76***		399.89***		386.36***		399.71***		395.24***	

Source: MAFE-Senegal 2008.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 3 Logistic estimation of the odds of being a first-time migrant in a year: Migrant networks and tie strength (men only)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	B	SE	B	SE	B	SE
Having a Nonhousehold Migrant Network			2.24***	0.43						
Strong tie					0.98	0.24	1.03	0.25		
Weak tie					1.80**	0.37				
Weak tie: stronger							1.28	0.53		
Weak tie: medium							1.07	0.29		
Weak tie: weaker							2.57***	0.64		
No tie									0.88	0.26
Strong tie only (ref.)										
Weak tie only									1.71†	0.48
Both ties									1.08	0.41
Having a Household Migrant Network	2.53***	0.56	2.50***	0.54	2.42***	0.54	2.51***	0.58	2.39***	0.55
Control for Migrant Spouse	0.22†	0.17	0.19**	0.13	0.21*	0.15	0.23*	0.16	0.21*	0.16
N (person-years)	13,300		13,300		13,300		13,300		13,300	

Notes: Results are presented in odds ratios. Controls include age, ln(age), *urban origin*, *religious affiliation*, *father's education*, *father unknown/deceased at respondent's age 15*, *firstborn*, *number of siblings*, *own highest level of education*, marital status, polygamous, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than those listed in italics are time-varying, year by year.
Source: MAFE-Senegal 2008.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 4 Logistic estimation of the odds of being a first-time migrant in a year: Migrant networks and tie strength (women only)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	B	SE	B	SE	B	SE
Having a Nonhousehold Migrant Network			2.32***	0.50						
Strong tie					1.60	0.51	1.59	0.51		
Weak tie					1.30	0.27				
Weak tie: stronger							1.33	0.35		
Weak tie: medium							1.30	0.35		
Weak tie: weaker							0.67	0.33		
No tie									0.49*	0.15
Strong tie only (ref.)										
Weak tie only									0.85	0.31
Both ties									0.51**	0.13
Having a Household Migrant Network	2.48**	0.84	2.75**	0.80	2.47**	0.80	2.55**	0.84	2.33*	0.77
Control for Migrant Spouse	4.95***	1.60	4.20***	1.47	4.60***	1.39	4.53***	1.39	4.60***	1.37
N (person-years)	14,989		14,989		14,989		14,989		14,989	

Notes: Results are presented in odds ratios. Controls include age, ln(age), *urban origin*, *religious affiliation*, *father's education*, *father unknown/deceased at respondent's age 15*, *firstborn*, *number of siblings*, *own highest level of education*, marital status, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than those listed in italics are time-varying, year by year.
Source: MAFE-Senegal 2008.
$^{\dagger}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$

Table 5 Logistic estimation of the odds of being a first-time migrant in a year: "Ever been" strength of ties and migrant networks

			(1)	(2)		
	All	Men	Women	All	Men	Women
Having a Nonhousehold Migrant Network						
Strong tie	0.85	1.06	1.49	0.86	1.10	1.51
	(0.11)	(0.24)	(0.44)	(0.11)	(0.25)	(0.46)
Weak tie	1.55***	1.82**	1.49†			
	(0.17)	(0.36)	(0.33)			
Weak tie: stronger				1.30	1.26	1.34
				(0.22)	(0.44)	(0.33)
Weak tie: medium				1.20	1.17	1.40
				(0.19)	(0.29)	(0.32)
Weak tie: weaker				1.80***	2.21***	0.82
				(0.26)	(0.45)	(0.50)
Control for Migrant Spouse	1.84***	0.17*	4.49***	1.89***	0.19*	4.44***
	(0.27)	(0.12)	(1.45)	(0.28)	(0.13)	(1.46)
N (person-years)	28,319	13,300	14,989	28,319	13,300	14,989

Notes: Results are presented in odds ratios. Controls include age, ln(age), *urban origin, religious affiliation, father's education, father unknown/deceased at respondent's age 15, firstborn, number of siblings, own highest level of education,* marital status, polygamous, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than those listed in italics are time-varying, year by year.

Source: MAFE-Senegal 2008. $^{\dagger}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$

Table 6 Logistic estimation of the odds of being a first-time migrant in a year: Resources in migrant network (amount and diversity)

	(1)			(2)			(3)			(4)		
	All	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women
Amount of Migration												
Nonhousehold migrant	1.00	1.00	1.01	1.00	1.00	1.01						
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)						
Strong tie							0.98*	0.99	0.98	0.98*	0.99	0.98
							(0.01)	(0.01)	(0.03)	(0.01)	(0.01)	(0.02)
Weak tie							1.00	1.01†	1.01			
							(0.00)	(0.00)	(0.01)			
Weak tie: stronger										1.01	1.01	1.01
										(0.01)	(0.01)	(0.02)
Weak tie: medium										1.00	1.00	1.01†
										(0.00)	(0.00)	(0.01)
Weak tie: weaker										1.06***	1.08***	0.94
										(0.02)	(0.02)	(0.06)
Household migrant	1.01†	1.01	1.04***	1.01	1.01	1.04**	1.01	1.01	1.04**	1.01	1.01	1.04**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Diversity of migration												
Nonhousehold migrant				1.01	1.14*	0.88*						
				(0.04)	(0.06)	(0.05)						
Strong tie							1.00	1.16	0.93	1.01	1.18	0.93
							(0.07)	(0.19)	(0.08)	(0.07)	(0.19)	(0.08)
Weak tie							1.01	1.07	0.96			
							(0.05)	(0.07)	(0.13)			
Weak tie: stronger										0.85	1.16	
										(0.14)	(0.22)	
Weak tie: medium										1.07	1.23**	1.19
										(0.12)	(0.11)	(0.39)
Weak tie: weaker										0.91	0.92	0.98
										(0.09)	(0.12)	(0.27)
Household migrant				1.06	1.05	1.23*	1.07	1.07	1.22*	1.06	1.05	1.22*
				(0.06)	(0.11)	(0.12)	(0.06)	(0.11)	(0.11)	(0.06)	(0.12)	(0.12)

Control for migrant	1.76***	0.18*	4.36***	1.76***	0.19*	4.20***	1.85***	0.20*	4.37***	1.86***	0.20*	4.36***
	(0.26)	(0.14)	(1.35)	(0.26)	(0.14)	(1.30)	(0.27)	(0.15)	(1.35)	(0.27)	(0.14)	(1.36)
N (person years)	28,319	13,300	14,989	28,319	13,300	14,989	28,319	13,300	14,989	28,319	13,300	14,930

Notes: Results are presented in odds ratios. Controls include age, ln(age *urban origin*, *religious affiliation*, *father's education*, *father unknown/deceased at respondent's age 15*, *firstborn*, *number of siblings*, *own highest level of education*,, marital status, polygamous, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than those listed in italics are time-varying, year by year.

Source: MAFE-Senegal 2008.

$^{\dagger}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$

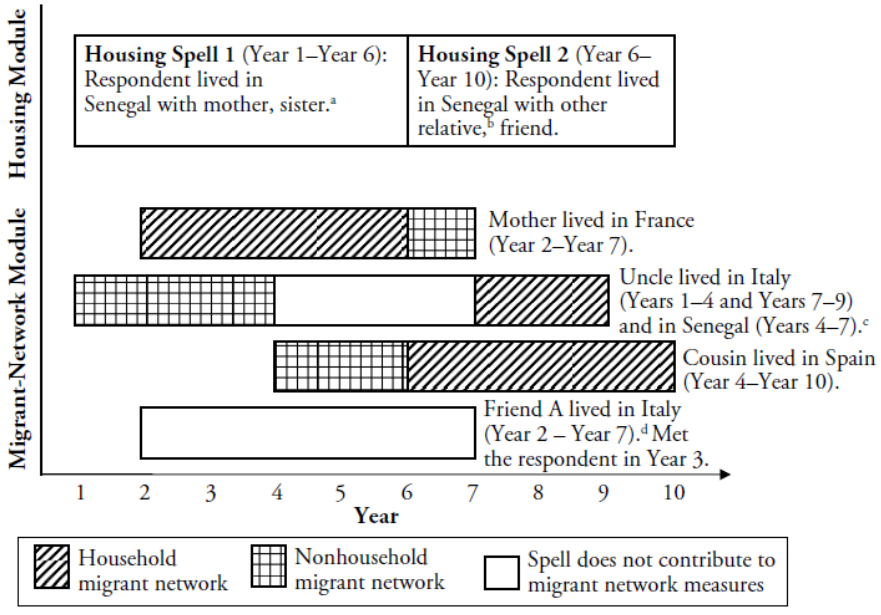
Appendix

Table 7 Migrant networks and operational measures

	Measure	Definition	Details[a]
Migrant Network Sources	Strong Tie	Parents and siblings	Spouses and children excluded.
	Weak Tie		
	Stronger weak tie	Aunts/uncles, nephews/nieces	All other extended family excluded.
	Medium weak tie	Cousins	All other extended family excluded.
	Weaker weak tie	Friends	A friendship is included only if (1) it was formed before either individual left Senegal, and (2) it is at least three years old.
Migrant Network Resources	Amount	Cumulative migration experience in Europe in given year	Measured in years.
	Diversity	Diversity index (min. 0–max. 10) in given year	Based on cumulative experience and accounts for four destinations (France, Italy, Spain, and other Europe).
Complimentary Explanations	Household Migrant Networks	Whether a member of the respondent's current household lived in Europe in given year	If the household includes *any* sister (brother, mother, father, friend), *all* sisters in the migrant networks are considered household migrants during the entire housing period.
			If the household includes *any* "other relative," all cousins, aunts/uncles, and nieces/nephews in the migrant network are considered household migrants during the entire housing period.
	Spousal Reunification	Whether the spouse lived in Europe in given year	

[a]Network measures are lagged by one year.

Fig. 3 Construction of household migrant network and nonhousehold migrant network indicators.



Note: Network indicators are lagged by one year (not shown) to avoid capturing simultaneous migration with the respondent.
[a]Housing composition is available only for the first year of the housing spell (Year 1 for Spell 1, and Year 6 for Spell 2).
[b]Cousins, aunts/uncles, nieces/nephews, grandparents are all recorded as "other relative" in the housing module.
[c]Only years lived in Europe qualify for migrant network measures.
[d]Friend A is excluded from the migrant network measures because friendship with the respondent started *after* the friend moved to Italy

Chapter 3. Legal Status, Networks and Migration between Senegal and Europe

Introduction

Migrant networks are a key link between origin and destination, and between the micro and macro levels of analysis of migration (Boyd 1989, Massey and García España 1987). Individuals are more likely to migrate if their parents, siblings, extended family (Massey 1990, Massey and Espinosa 1997, Espinosa and Massey 1999) and friends already have (Liu 2013). The influence of migrant networks is gendered (eg. Curran and Rivero-Fuentes 2003, Kanaiaupuni 2000, Toma and Vause 2011) and depends on the characteristics of the network resources themselves (Garip 2008, Liu 2013).

However despite the breadth and depth of the migrant networks literature, surprisingly little attention has been dedicated to two areas of migration scholarship: how different kinds of migration may employ migrant social capital resources and whether different migration strategies may reflect different family-related or individual strategies. First, although previous studies have found that migrant networks appear to stratify individuals among different pathways of irregularity for Senegalese migration to Europe (Vickstrom 2013) and different gendered modes of unauthorized Mexico-U.S. border crossings (Singer and Massey 1998, Donato et al 2008), only one study to date (Espinosa and Massey 1999) has contrasted migrations of differing legal statuses.[20] Second, despite the theoretical and empirical importance of

[20] Several studies contrast internal and international migration (e.g. Bohra and Massey 2009, Curran and Rivero-Fuentes 2003, Fussell and Massey 2004, etc.) and intra- and inter-continental international migration (Toma 2012, Vause 2012). However, given

how and whether migrations are individual or family-driven, few if any studies have explored this at length and in conjunction with migrant networks. Perhaps migrants choosing different migration strategies (*e.g.* authorized, unauthorized entry) differ in their motivation for migration. Authorized migrants may be motivated by family goals (and thus follow more in line with expectations of the New Economics of Labor migration), while unauthorized migrants may follow a more individual agenda. This chapter intends to explore both the above areas.

At the same time, understanding what drives migrations of differing legal statuses is important for policy makers and society as a whole. Specifically, migrations of different legal status – authorized and unauthorized migrations - hold different risks and promises for states, individual migrants and their families.[21] The historical gap between destination governments' desire and discourse to control migration and their ability to do so (Schrover *et al* 2008:12-20) is fueled, in part, by influential sectors of the economy (eg. agriculture, domestic work, construction) which prefer unauthorized migrant labor for its flexibility

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this chapter's specific focus on migrant networks and the potentially confounding but largely unaccounted-for contextual differences among domestic/international or intra/inter-continental migrations, I justify the decision to limit this study to the context of migration between Senegal and Europe.

[21] Other terms in the literature include illegal migration and undocumented migration. Here, we use the term unauthorized migration, which is preferred since it seems both accurate (unlike 'undocumented' migration when, in most cases, individuals have a passport or other identification/documentation) and politically neutral (unlike 'illegal' migration). Although 'irregular' migration also avoids these problems, it seems less clear. In principal, our focus of study are individuals who, to the best of our knowledge, have always traveled voluntarily and may have sometime hired a *passeur* or human smuggler to help them enter a country without authorization. Human smuggling is distinct from the grave problem of human *trafficking*, which involves: involuntary movement, long(or short)-term exploitation, interdependency with organized crime, and the possibility that the individual will be recruited for criminal work (Bakrektarevic 2000, as quoted by Aronowitz 2001: 165). According to de Haas (2008: 10), human trafficking is rather rare in the West African-Europe context.

and lower cost (PICUM 2004b). In 2008, an estimated 7% - 12% of the total foreign-born population in the EU-15 was in irregular status (Clandestino 2009b: 4). Compared to authorized migrants, unauthorized migrants appear to have lower wages (Rivera-Batiz 1999), lower occupational status (Obućina 2013) and face higher risks: less job protection and more dangerous jobs (PICUM 2004b); difficulty securing housing (PICUM 2004a); poorer health and less access to health care (PICUM 2007). Since the benefits of migration vary heavily by legal status, it is especially important to understand what leads to authorized and unauthorized migration (Vickstrom 2013).

Existing micro-level quantitative literature about legal status at migration is limited in terms of geographical and legal status reach: nearly all has focused on unauthorized migration from Mexico (*e.g.* Espinosa and Massey 1999, McKenzie and Rapoport 2010) or unauthorized migration from Albania (Stecklov *et al* 2010); *quasi*-legal migration where migration law is not routinely enforced (Parrado and Cerrutti 2003 for Paraguay-Argentina migration); migration where special documentation is not required as in most examples of internal migration, like Thailand (*e.g.* Curran *et al* 2005); or has failed to distinguish among different legal statuses. One notable exception is the recent MAFE-based scholarship of Vickstrom (2013) who explored varied pathways into irregular status, gendered labor market access due to legal status, and transnational activities of Senegalese migrants in Europe. However, only one study (Massey and Espinosa's 1997 study of Mexican-U.S. migration) appears to have explicitly compared determinants of first-time authorized and unauthorized migration. Given its broader aims, the study has limited findings regarding social

capital: household social capital raised the likelihood of both kinds of migration.

Given this gap in the literature, migration between Senegal and Europe provides an excellent case for studying networks and legal status: migration is a relatively recent phenomena, with numbers of migrants becoming significant in Europe by 1990 (Zlotnik 1999); migrant flows are diverse in terms of legal status and include visa overstays (Schoorl et al 2000: 101, Vickstrom 2013); and migration costs and distances are fairly large so that network-provided information and resources will be valuable. Finally, since traditional extended family hierarchies are very important in Senegal, I can distinguish among a range of household migration strategies and migrant social capital influences. This provides a captivating backdrop against which to scrutinize the influences of migrant social capital.

Particularly relevant to this study is the recent MAFE-based scholarship of Vickstrom (2013) which explores the multiple pathways to irregularity of Senegalese migrants in France, Italy and Spain from entry through early labor market integration, with special attention to how these are related to institutional, geographical and period contexts. This dissertation chapter complements Vickstrom (2013) by exploring unauthorized *and* authorized (or irregular and regular) migration entry strategies, focusing on first-time migration from Senegal to Europe, and utilizing a longitudinal perspective. I use the 2008 Migration between Africa and Europe (MAfE)-Senegal survey data[22], collected in both

[22] 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

Senegal and Europe (France, Italy and Spain), and examine the patterns of legal status of migrants over time, as well as how social capital influences migration. The retrospective nature of the data will help strengthen the analysis with a contingent of time-varying covariates.

This study includes both descriptive and analytical aspects. The descriptive section focuses on how the legal status make-up of Senegalese migration to Europe has changed over time, specifically from 1970 to 2008. Here, I carefully distinguish among authorized or unauthorized legal status at entry to Europe as well as the migrant's subsequent legal status when they remain in Europe: authorized, unauthorized and visa overstay. The analytic section examines the determinants of migrations of different legal statuses in general, and in particular how the influences of migrant social capital and household migration strategies shift depending on legal status. Can we find evidence that social capital is more important when migration is more costly or risky? Here, I account for the sources and resources of migrant networks (Garip 2008, Liu 2013) in an analysis of authorized and unauthorized migration between Senegal and Europe. Specifically, I will utilize a competing risks event history analysis to analyze legal status at migration and the role of migrant networks.

In this paper, I intend to explain the role of migrant social capital in migrations of differing legal statuses. As mentioned before, this is of

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Université de Kinshasa (J. Mangalu), the University of Ghana (P. Quartey), the Universitat Pompeu Fabra (P. Baizan), the Consejo Superior de Investigaciones Científicas (A. Gonzalez-Ferrer), FIERI (Forum Internazionale ed Europeo di Ricerche sull'Immigrazione; E. Castagnone), and the University of Sussex (R. Black). For more details, see: http://www.mafeproject.com/

particular interest in order to explore how social capital is used for costlier or riskier migration strategies and whether certain migrations reflect family-driven strategies, while others reflect individual-driven strategies. Prior study (Massey and Espinosa 1997) does not find differences: authorized and unauthorized migrations appear to require similar social capital. However, that paper's analysis of migrant social capital and legal status is likely limited given: its small sample of authorized migration; its failure to account for complementary explanations; and its use of rather blunt social capital and legal status indicators. In this paper, I have a three-fold strategy to refine analysis: first, I distinguish empirically between migrant social capital and complementary or competitive explanations; second, I account for the sources and resources of migrant social capital; and third, I distinguish among legal statuses at entry *and* at initial stay in order to accommodate new analysis about visa overstay.

Legal status and Migrant networks

Theoretical perspectives

International migration is a complex phenomenon, and its study has benefited from a wide range of theoretical perspectives.[23] The neoclassical economic perspective (*e.g.* Todaro 1969) rose out of studies of rural-urban migration and has suggested that individuals are primarily motivated to migrate by their goal of maximizing income. The new economics of labor migration perspective (*e.g.* Stark and Bloom 1985) later argued that households and families play a key role in migration decision-making and that primary motivations for

[23] I refer to voluntary migrations. Therefore, refugee movements or human trafficking are outside the scope of my study.

migration are to distribute economic risk and access credit and capital. Meanwhile, the social capital perspective has emphasized and demonstrated the importance of the social networks and structures that link potential migrants to destination (*e.g.* Boyd 1989, Curran and Rivero-Fuentes 2003). Recent studies attempt to integrate all three perspectives (Liu 2013, Massey and Espinosa 1997, Munshi 2003, Palloni et al 2001, Stecklov *et al* 2010).

Nevertheless, economic and sociological scholars have only tentatively explored the determinants of migrations of varying legal statuses[24] (Massey and Espinosa 1997) and have largely neglected how the migrant decision-making process accommodates all these outcomes (Carling 2002, Koser 2010). Indeed, migrations of different legal status likely involve families, social networks and individuals in distinct ways. A coherent framework for analyzing authorized and unauthorized migrations needs to distinguish among household migration strategies, social capital effects and individual action. For example, some households' strategies may center exclusively on authorized migration, while disapproving of unauthorized migration. In other words, social capital may sometimes power household migration strategies and other times help individuals *oppose* such household migration strategies. To test such mechanisms, the framework and analysis should include different modes of migration: *e.g.* authorized entry, unauthorized entry, and visa overstay.

[24] Besides the Massey and Espinosa (1997) study comparing different legal statuses, there are several studies (Donato et al 2008, Singer and Massey 1998) that focus on different modes of unauthorized migration (crossing alone, crossing with family, crossing with a coyote, etc.).

Legal Status and Networks in the Senegalese-Europe migration Context

Migration between Senegal and Europe is a suitable context for studying legal status and migrant networks for three reasons. First, migration between Senegal and Europe is diverse in terms of legal status, including visa overstay, and offers a great stage to compare different migrations. Most studies-to-date have been based on Mexican migration that is overwhelmingly unauthorized (95% of first-time trips, according to Massey and Espinosa 1997: 964) and has therein limited systematic comparison. One of the few prior information sources about Senegalese migration to Europe (1996-1998 Push-Pull project) documented that 36% of Senegalese in Spain reported overstaying their visa, while 16% entered the country without authorization (Schoorl *et al* 2000: 101).

Second, despite the complexity of the immigration policy histories of France, Italy and Spain (for review, see Vickstrom 2013), it is possible to identify a few major policies that have transformed the regulation of legal status for Senegalese nationals at migration and immediately thereafter. After enjoying a preferential status of citizenship and later free entry and movement in France (1946-1974) and no-visa entry into Italy (1966-1990), Senegalese nationals were not required to have compulsory entry visas until 1986 for France, 1990 for Italy and 1984 for Spain. Their introduction creates the authorized and unauthorized categorization of entry to Europe. In terms of legal status immediately subsequent to entry, residence permits have been required of Senegalese nationals staying past 90 days in France since 1974, in Italy since 1990 and in Spain since 1985. The introduction of compulsory residence permits creates the authorized and unauthorized categories of

a migrant's initial stay (the year subsequent to entry). Besides France's abrupt decision to limit labor migration in 1974, other migration-related policies appear to be gradually more restrictive (*eg*. see Gil Araujo 2010, Bonizzoni et al 2009, Kofman et al 2010 for reviews of family reunification policies in Spain, Italy and France respectively). In all three countries, the major immigrant regularization campaigns are an exception to this trend (Spain – 1986, 1991, 1996, 2000-2001 and 2005 – Cebolla Boado and González-Ferrer 2008; and Italy – 1986, 1990, 1995, 1998, 2002 – Levinson 2005; and France – 1968, 1974, 1981, 1995 - Constant 2005).

Third, Senegal has been relatively peaceful, both in terms of politics and armed conflict, during the period of study, 1970-2008. With the deeply-entrenched Socialist Party in power from 1960 until 2000, Senegal has been relatively stable politically since its 1960 independence from France (Galvan 2001). Also, Senegal has been largely free of armed conflict, except for low-level violence related to a separatist movement in the Casamance region (Uppsala Conflict Data Program 2013). This rather politically stable and conflict-free setting appears ideal for a study of international migration.

Fourth, authorized and unauthorized migrations between Senegal and Europe have very different requisites and risks. Visas can be purchased, but are prohibitively expensive for most. Poeze (2010: 2) estimated that a visa to Portugal cost about 5000€ on the streets of Dakar, while her interview respondents earned an average of 80€ per month. Since a full review of visa requirements through recent decades is beyond the scope of this paper (for a review of France, Italy, and Spain's migration

policies, see Vickstrom 2013), we utilize France as an example. A successful tourist, family or professional visa application to France has very high requisites: proof of official employment at origin or scholarship, proof of financial resources and proof of housing at destination.[25] In Senegal, only 6.2% of the labor force is in the formal sector (World Bank 2007: 26), all other individuals then lack the ability to show the "proof of official employment" documentation usually necessary to complete a successful tourist, family or professional visa application for France (Consulat Général de France à Dakar 2013). Second, the financial resources requirement means having a personal bank account with at least 65€/day (or 32.50€/day for those with a host) for the trip's entire duration (Consulat Général de France à Dakar 2013). Finally, the individual's host must fulfill multiple employment and housing requisites in order to acquire an official ability-to-host certificate from their municipality in France. On the other hand, unauthorized migration involves high risks of physical harm, apprehension and failure. The most obvious risk preceding unauthorized entry in Europe is death. In 2003 and 2004, there were at least 378 deaths off the Spanish coasts of would-be migrants (Carling 2007: 318).[26] Other risks include apprehension: in 2003 alone, Moroccan authorities allegedly intercepted 18,326 sub-Saharan would-be migrants while leaving for Spain (Simon 2006: 30); and trip failure, like that experienced by would-be migrants in Senegal (Poeze 2010) and those in indefinite transit in Morocco (Collyer 2006).

[25] We do not include temporary work visa programs here since the number of visas available is minimal (Poeze 2010: 38).
[26] This is certainly a minimum estimate of deaths since it only counts media-reported accidents with at least 10 fatalities (Carling 2007: 318).

Fifth, extended family hierarchies play an important traditional role in Senegal, so Senegal is a rich environment in which to explore how household structures and migrant social capital influence authorized and unauthorized migrations. The traditional family structure is patrilineal and involves the co-residence of several brothers, their wives and children (Gabrielli 2010). Generational hierarchies are important in families (Bass and Sow 2006: 92-93) and villages (Gabrielli 2010), but have been altered by both urbanization (Gabrielli 2010) and migration (Barou 2001). Previous work (Liu 2013) identified that both household migration strategies and migrant networks are key in determining Senegalese migration to Europe, but did not explore how legal status may be a defining issue. Some qualitative studies have paid attention to familial hierarchies and legal status. Poeze (2010) describes two different models for unauthorized boat migration between Senegal and Spain: individuals searching for independence from familial hierarchies and those obeying such hierarchies. It is not yet clear which model dominates in the Senegal-Europe context, and I hope this paper helps clarify this. In other contexts, where unauthorized migration to Europe is a dangerous and uncertain journey, elders and households are likely to be against such a choice, despite promises of remittances (as is the case for Pakistani migrants to Europe, documented by Ahmad 2008). At the same time, peer pressure works the other way: unauthorized migration, despite its risks, appears to promise freedom from strict expectations and limited social and economic options and is thus very attractive to young people, especially young men (Ahmad 2008, Poeze 2010). Opposition to authorized migration appears to be lower since the voyage does not have the same mortal danger.

Decision-making Model in Senegal

Would-be migrants compare the possibilities of authorized, unauthorized, visa overstay migrations to staying in place (non-migration). Accounting for many different paths to migration (use of authentic and/or forged documents, authorized or unauthorized entry, etc.), Figure 2 displays a theoretical flowchart for migration decision-making. This is a tool for analysis, rather than an exact accounting of a potential migrants' (or family's) thinking process. Individuals (and families) can move up and down the flowchart, depending on their changing economic, network situations and previous migration attempts or outcomes. At each point, the individual (along with their family or household) weighs the desires and risks of migrating or not, given the circumstances. It starts by identifying those likely to migrate with authorization: individuals who have a steady, high-paying job in the formal sector and a hefty bank account; students who have won scholarships to study in Europe; individuals whose relatives in Europe sponsor their migration. It continues with individuals who can secure enough cash to purchase a tourist visa and an authorized entry, but whose trajectories – in the case they stay past visa expiration – lead to visa overstay or unauthorized stay. The flowchart ends with individuals likely to migrate without authorization, but who can accrue cash for such a journey, or who have contacts with someone who will bring them for no cost.

[Figure 2 about here]

The desire/risk calculation accounts for the financial costs, social costs, physical costs (bodily injury or death), the risk of failure (related, in

part, to border enforcement by destination countries), as well as access to legal status at destination (legal status vs. legal work, extraordinary regularizations, policies on family reunification, etc). The desire/risk calculation is key to each decision. Figure 3 and 4 summarize, respectively: the costs and risks of authorized and unauthorized entry, and the costs and risks of authorized stay, overstay and unauthorized stay. In Figure 4, we see that visa overstay occupies a middle ground: sharing the higher financial costs and lower risks of an authorized entry, as well as the higher costs and risk of an unauthorized stay's life at destination.

[Figures 3 and 4 about here]

Research Hypotheses

Even though the extremely high formal requisites for authorized migration are out-of-reach for nearly all, strong-tied migrant networks are most likely to provide the bank deposits and acquire the ability-to-host certificate necessary for a successful tourist visa application. Concurrently, strong-tied migrant networks can discourage unauthorized migration in two ways: encouraging authorized migration through promises of future sponsorship or resources or prohibiting unauthorized migration through family hierarchies. In other words, I expect that *strong-tied networks will be a strong driver of authorized migration and may even dissuade unauthorized migration.*

Since the risks of unauthorized migration to Europe are tremendous, I expect that information will be especially important in determining unauthorized migration. Abundant, non-redundant information

(Granovetter 1973, Burnt 1995) about migrating to Europe and life abroad, available through weakly-tied networks, will be especially important for unauthorized migration. This changes and impacts Ego's risk equation. I expect that *weakly-tied networks will influence both authorized and unauthorized migration, with a particularly large effect on unauthorized migration.*

Since authorized and unauthorized migrations have different risk and costs, I expect that they will utilize network resources differently. All other aspects equal, authorized migration is more dependent on certification of destination housing and economic resources and so will benefit more from longer-term migrant networks than will unauthorized migration. On the other hand, those considering unauthorized migration must believe it is a possible option, a greater concentration (or less diversity) of migrants will signal that many people have made it successfully. At the same time, authorized migration might benefit from more diversity, since these migrants will have freedom of movement (and possibly work) throughout Europe. I expect that *the amount and diversity of network resources will especially encourage authorized migration, while the diversity of network resources will discourage unauthorized migration.*

Visa overstay appears to be a pre-conceived migration strategy that combines higher cost and lower risk previous to migration than other paths to unauthorized stay (Carling 2002: 31). Once individuals overstay their visas, their unauthorized legal status renders them vulnerable for even basic necessities like housing and work. Despite changing legal requirements, the differences among authorized,

unauthorized migration and visa overstay remain rather stable. I expect that, *given both its high entry requirements (like authorized entry) and its high level of vulnerability at destination (like unauthorized entry), visa overstay will have the highest migrant social capital requisites, above those of authorized and unauthorized migration.*

Data

The longitudinal data used in the study come from the MAFE-Senegal (Migration between Africa and Europe) Project (2008). Nearly 1100 residents of the region of Dakar and about 600 current Senegalese migrants in France, Italy and Spain were interviewed in 2008.[27] The individual retrospective questionnaire collected biographical life histories and detailed information about one's housing, migrations, unions, children, and work. Information about migrant networks, legal status (residence and work permits), remittances and property ownership was also available. The retrospective nature of the data has limitations, namely potential recall bias (Smith and Thomas 2003). However, my focus on the first year of migration to Europe from Senegal – an extremely prominent life event – helps protect the analysis from recall bias. Nor is a migrant likely to remember poorly their legal status at entry, and in the year immediately following.

Given Vickstrom's (2013) findings about varied pathways to irregularity for migration between Senegal and Europe, I define two sets of dependent variables: legal status at entry into Europe and legal

[27] We do not expect the sampling strategy of urban Dakar to upward bias our results. Indeed, we might even expect the opposite. For the Mexican case, Fussell and Massey (1994) find that community-level social capital is less influential in urban areas than in rural areas.

status during the initial stay in Europe. Both dependent variables are constructed for an individual's first direct trip from Senegal to Europe. We focus on first-time migration, since it has higher costs (Deléchat 2001) and apparently different mechanisms than subsequent migration (*e.g*. Donato *et al* 2008, Parrado and Cerrutti 2001). Moves from Senegal to other destinations (including those to Europe but not France, Italy or Spain) were censored at the year of migration. First, we capture legal status *only* in the year of first migration from Senegal to France, Italy or Spain: the dependent variable takes the value of 1 ('authorized first-time entry') if the individual reports having either a residence or work permit, and 2 ('unauthorized first-time entry') if not.[28] Second, we focus on the legal status of an individual's initial stay or first two years in Europe: the year of arrival and the subsequent year. If an individual remains in Europe, they may move from authorized entry to unauthorized legal status (e.g. overstay of a tourist/student visa or temporary permit, losing work contract and permit, etc.). As a result, the dependent variable is an indicator that, in the year when Ego first moves to Europe, takes the value of 1 ('authorized initial stay') if the individual reports having a residence or work permit in the year of migration and the year after; 2 ('visa overstay') if the individual reports legal entry, but *no* authorization the year after; 3 ('unauthorized initial stay') if the individual reports *not* having a residence or work permit in the year of migration and the year after.

[28] First migration to Europe was chosen rather than the first international migration since the costs and barriers to migration are quite different across the Africa-Europe border, in comparison to borders between African countries, or those between Africa and North America for example.

My analysis uses the year-by-year migration histories of the migrant network, as reported by the respondent for individuals who had lived at least one year outside Senegal, and includes two groups: all migrants in their close family (parents, siblings, spouses and children); and extended kin and friend migrants who the respondent reported being able to count on (or could have counted on) to receive or help them migrate out of Senegal. Information about countries lived, type of link, gender, year of meeting (friendships), year of death (if applicable) are also included. I restrict the migrant network indicators to parents, siblings, uncles/aunts, nieces/nephews, cousins, and friends.[29] Migrant spouse is considered a proxy for (legal) family reunification. Most developed countries (including the whole EU) have special provisions to facilitate the reunification of close family. For the sake of precision, I restrict all migrant network indicators to the years lived in Europe. All migrant network indicators are lagged one year to avoid simultaneous migration among respondent and network members.

Migrant network indicators distinguish among different tie strengths and migrant network resources (amount and diversity). Following traditional nuclear family structures and common practice in the literature, I define strong ties as parents and siblings and weak ties are extended family and friends. Reflecting the traditional patriarchal extended family structure in Senegal and its importance for migration to Europe (Liu 2013), weak ties are also distinguished into categories:

[29] Friendship networks are potential sources of endogeneity in the study of network and migration behavior (individuals may form friendships in order to aid their own migration project), and so their analysis ought to be highly restricted (Liu 2013). I include only friendships which: 1. began when neither individual had migration experience; 2. lasted at least three years before either migrated out of Senegal; and 3. have passed the three-year threshold.

strong (uncle/nephew), middle (cousin) and weak (friends). Amount of network resources is measured by cumulative network experience in Europe, in years. Diversity of network resources is modeled (from Liu 2013, which is based on Garip's index (2008), which is based on Shannon 1948):

$$Diversity = \frac{-\sum_{i=1}^{n} p_i \times \log(p_i)}{\log(n)} \times 10,$$

where n is the number of possible destinations, and p is the proportion of migration experience to each destination i. The index varies between 0 (all migration experience concentrated in one destination) and 10 (migration experience equally distributed among all destinations). The four different destination categories, which exhaust the possibilities for all Senegalese would-be migrants, are France, Italy, Spain, and other countries.

Household migration networks and (non-household) migrant networks are captured in several ways. All measures are time-varying and are estimated utilizing the migrant networks information, the household membership roster or both. The respondent reported their ties (*e.g.* mother, brother, other relative) to all individuals living in the household at the beginning of each housing spell. The first household migration network is time-varying and follows Liu (2013): whenever a household included *any* sister, *all* sisters in the migrant networks were then considered household *during the entire housing spell*. This was repeated for migrant brothers, mother, father and friends. In addition, when the household included "other relative", all cousins, aunts/uncles, and nieces/nephews were categorized as household during the entire housing spell. The second household migrant network is time-invariant

and follows a tradition in the literature to define the household through nuclear family ties (Palloni et al 2001, Stecklov et al 2010): household migration network (migrant parents, siblings), and non-household migration network (migrant aunts/uncles, nieces/nephews, cousins and friends). The third household migrant network is also time-invariant but accounts for the particular importance of the extended family in Senegalese culture (Bass and Sow 2006): household migration network (migrant parents, siblings, aunts/uncles, nieces/nephews), and non-household migration network (migrant cousins and friends).

This network study has a rare opportunity to control for a multitude of time-varying control variables. These include age, ln(age), marital status; being polygynous; number of children; occupational status (working, unemployed, studying, retired or inactive); land ownership, housing ownership, and business ownership. Remaining covariates are time invariant. Origin indicators include: urban origin, whether the respondent's father was deceased or unknown; father's education (no formal schooling, primary schooling, secondary and above); individual religious affiliation (Muslim brotherhoods of Khadre, Layène, Mouride, Tidiane; "other Muslim"; Catholic and other Christian); whether firstborn; number of siblings; respondent's highest level of education (less than primary, primary, lower secondary, upper secondary or higher). Finally, to control for origin and destination contextual effects, period effects (before 1990, 1990-1999, 2000-2008)[30] and two time-varying contextual factors are included: urban population growth in

[30] The period effects are related to pertinent changes in immigration policies. Entry visas for Senegalese nationals were made compulsory in 1985 in Spain, 1986 in France, and 1990 in Italy (Vickstrom 2012). Nearly all the legalizations and regularization campaigns took place before 2000.

Senegal (%) and GDP per growth per capita in Senegal (%). This latter data was provided by the World Bank's World Development Indicators.

Methods

With my focus on adult migration, I restricted the sample to males born in Senegal who had never lived outside Senegal until at least age 17, with first possible migration to Europe at age 18. The sample restriction to males is justified by the low incidence of female unauthorized migration to Europe. All individuals in the sample had Senegalese citizenship in the year of their birth. The retrospective housing module allows me to identify the individual's entire housing and migration trajectory from birth. My empirical strategy is based on hazard analysis, which measures the risk of experiencing migration in a given year. I am interested in first-migration since the requirements of first migration are especially high, and studies have found that subsequent migration has distinct social capital costs (Massey and Espinosa 1997, Parrado and Cerrutti 2003).

To explore the dynamics of first migration between Senegal and Europe, I utilize discrete-time event history (or survival) analysis. Specifically, I use a competing risks (multinomial logit regression) model to predict legal status at migration (at entry and at stay). A competing risks design helps clarify and compare different outcomes. This has been traditionally and comprehensively applied to studies of contraceptive use (eg. Steele and Curis 2003), fertility (eg. Lillard 1993), divorce (eg. Lillard et al 1995), and the labor market (eg. D'Addio and Rosholm 2005), but is less common in migration studies (for exceptions, see Massey and Espinosa 1997; Davis and Winters

2001; Davis, Steklov and Winters 2002). Based on the above literature review and theoretical background, I argue that it is very important to distinguish between authorized and unauthorized migration, and a competing risks (multinomial logit regression) model allows us to analyze possible differences.

Results

Descriptive Analysis

Migration from Senegal to Europe is a rare event. Figure 4 displays the Kaplan-Meier failure estimates of migration to Europe, by legal status at entry. About 6% of the sample migrated by the time of survey, and authorized entry (Panel A) is more than twice as common as unauthorized entry (Panel B). Figure 5 shows the failure estimates, by legal status at initial stay. All migration has increased drastically since the year 2000: authorized stay has doubled (Panel A), visa overstay has increased by four-fold (Panel B) and unauthorized stay has increased by nearly five (Panel C). The incidences of visa overstay and unauthorized stay are roughly comparable. Summary statistics are displayed in Table 1 where information for migrants is captured for the year prior to migration (t-1) and information for non-migrants is captured in the year of survey (2008). Differences between authorized and unauthorized migrants are tested utilizing *chi*-squared tests for categorical measures and *t* tests for continuous measures: only differences significant at least $p<0.05$ are reported. Origin characteristics and religion are important: unauthorized migrants have lower-educated fathers than do authorized migrants, and unauthorized migrants are more likely to belong to the *Mouride* Muslim brotherhood

and less likely to belong to the *Tidiane* brotherhood. Human capital is influential: unauthorized migrants are less likely to have attended school at all and less likely to have an upper secondary education or above. At the same time, unauthorized migrants are more likely to be working and less likely to be studying or inactive. Finally, there are several differences in terms of migrant networks. Unauthorized migrants appear to have less networks overall: they are more likely to have no network tie at all ($p<.05$) and less likely to have both strong and weak ties ($p<.05$).

Multivariate Analysis

Overall, this paper's results support the premise that migrant social capital distinctly influence migration of different legal statuses and that visa overstay has high migrant social capital requirements. First and foremost, migrant networks clearly influence authorized migration. Friendship ties raise the likelihood of both authorized and unauthorized entry; in the case of the latter, they counteract the probable negative effect of stronger ties. In terms of network resources, the amount of resources from friendships power both authorized and unauthorized entries. In terms of legal status of the initial stay, visa overstay does appear to have high migrant network requirements. Friendship ties raise the likelihood of all three categories of initial stay: authorized, visa overstay and unauthorized. Again, the amount of friendship network resources drives all kinds of initial stay. Finally, there is evidence that visa overstay is also a household migration strategy.

Entry

Migrant networks significantly increase the relative risk of authorized entry (Table 2, Model 2, $p<.001$), but no similar effects are found for unauthorized entry. In the latter case, this rough network indicator may pool several varying, but contrary effects. Authorized and unauthorized migrants appear to vary. There is evidence for positive selection into authorized migration: individuals whose fathers had a medium level of education (primary school compared to no schooling) or who themselves were highly educated (Baccalaureate or above compared to primary schooling) had higher relative risks of authorized migration, while selection was not detected for unauthorized migration in this sample. Being firstborn raised the risks of authorized migration, while having an absent father and the number of siblings lowered the risks. Those who reported a primary occupation of being at home were also at higher risk. This is unsurprising, due to the importance of family reunification in authorized migration. In terms of unauthorized migration, higher relative risks are related to having an urban origin and belonging to the Mouride brotherhood. Qualitative literature has documented the importance of the Mouride commercial religious networks in Europe (*e.g.* Lacomba and Moncusi 2006, Riccio 2001, Salem 1981) and urban origin (Poeze 2010) in supporting unauthorized migrants. The unemployed were also at greater risk to migrate without authorization. This fits with portraits of young unauthorized boat migrants (Poeze 2010). In terms of contextual factors, the risk of unauthorized migration falls with economic growth ($p<.10$) and is greatest in the most recent periods, as compared to the 1984-1993 period (Table 2, Model 1 and 2, $p<.10$).

Network influence varies by strength of tie (Table 3). Strong ties do not significantly influence authorized entry. It is possible that the household migrant network indicators have captured much of the expected effect. To the contrary, weak ties raise the relative risks of authorized entry (Table 3, Model 1, $p<.001$). Friendships ($p<.001$) and ties to cousins ($p<.10$), rather than ties to uncles, power this effect (Table 3, Model 2). In terms of unauthorized entry, strong ties appear to dampen migration, although effects are not significant, while the overall weak ties effect is ambiguous. This "weak tie" effect appears to bundle several opposing influences. Friendships raise the relative risks of unauthorized entry (Table 3, Model 2, $p<.05$), while ties to cousins appear to lower the risks, although these latter effects are not statistically significant. All in all, these results support the idea that friendships are a key network influence (Liu 2013) and that unauthorized migration is better characterized as a culturally and peer-driven individual strategy rather than a family strategy (Ahmad 2008, Poeze 2010).

Migrant network resources are important for both authorized and unauthorized entries (Table 4). Larger amounts of weakly-tied network resources lead to higher relative risks of authorized migration (Table 4, Model 3, $p<.10$). This supports the idea that, given the demands of authorized migration for documented housing adequacy and income, well-established networks are especially able to fulfill these. Friendships are particularly important. The amount of friendship network resources raises the likelihood of both authorized (Table 4, Model 4, $p<.001$) and unauthorized entries ($p<.05$). Meanwhile, the diversity of network resources does not appear to significantly

influence either type of migration. However, it does appear that migrant siblings and migrant friends of unauthorized migrants are nearly always concentrated in one single country. This appears to partially confirm the expectation that network diversity discourages unauthorized migration.

In sum, the results confirm certain aspects of the hypotheses. Strong-tied networks do appear to dissuade unauthorized migration (Hypothesis 1), although effects lack statistical significance. On the contrary, there is no evidence that strong-tied networks encourage authorized migration. These results likely reflect our strategy to capture household migration strategies generously, and thus leave little to be explained via strong-tied migrant networks. Weakly-tied networks, specifically friendships, are important in influencing both authorized and unauthorized entry, although their effects on unauthorized entry are not particularly large (Hypothesis 2). Authorized and unauthorized migrations do appear to employ different network resources. The amount of network resources influences both authorized and unauthorized migration (Hypothesis 3). Contrary to expectations, network diversity does not appear to encourage authorized migration, although there is some evidence in support of the hypothesis that diversity would discourage unauthorized migration (Hypothesis 3). Unauthorized migration benefits from having siblings in one place and friends in one place, rather than spread apart.

Stay

Migrant networks influence the relative risks of initial stay (Table 5 and 6). Non-household migrant networks are important in explaining both

authorized stay (Table 5, Model 1, p<.001) and visa overstay (p<.05), while household migrant networks are also influential: authorized stay (Table 5, Model 1, p<.01) and visa overstay (p<.05). Like authorized stay, visa overstay is powered by weak ties in general (Table 5, Model 2, p<.01) and specifically friendships (Table 5, Model 3, p<.001).

Visa overstay does appear to have high network requirements, comparable to those of authorized stay. Weak ties increase the relative risk of visa overstay (Table 5, Model 2, p<.01), and friendships play a particularly important role (Table 5, Model 3, p<.01). In addition, visa overstay benefits from higher amounts of household migrant network resources (Table 6, Model 1 to 3, p<.05). Nearly all migrant cousins of visa overstay individuals lived in one destination (Table 6, Model 4). In the case of visa overstay, the influence of network diversity depends on tie strength: relative risk of visa overstay rises as friendship networks spread out throughout Europe, while it is highest when migrant cousins are located in only one country.

In terms of household migration strategy and strongly-tied migrant networks, there is also further evidence that unauthorized stay is unique. While household migrant network raises the relative risks of both visa overstay and authorized stay, it has no comparable effect on unauthorized stay is not significant (Table 5, Model 1-3). Also, the relative risks of unauthorized stays appear to plummet when an individual has a sibling or parent abroad, although these effects are not statistically significant (Table 5, Model 2-3). This is probably the product of several factors, documented in the qualitative literature: in Senegal's patriarchal family culture, the child or brother of a migrant

may not be free to embark on unauthorized migration due to a tight "collective fatherhood" that emerges especially when the biological father is absent due to migration (Barou 2001: 20); a brother may wait for his brother to formally sponsor family migration to Europe (Poeze 2010: 50); a father in Europe may send remittances for study or starting a business at origin, making unauthorized migration less attractive; and finally, information about destination may be bleak and unattractive.

All in all, there is evidence that visa overstay is at least as, if not more, sensitive to migrant social capital as authorized stay, although there is no evidence that visa overstay utilize the greatest variety of network resources (Hypothesis 4). This partially confirms the proposition that high levels of migrant social capital resources are required both to attain a visa prior to migration and to secure undocumented life at destination post-migration.

Complementary Explanations

This analysis has accounted for a key complementary explanation, distinct from and related to social capital theory: household migration strategy (proxied by household migrant network). The influence of this theoretically- derived explanation varies across different legal statuses at migration. First, there is evidence for the household migration strategy for all migration related to authorized entry: authorized entry (Table 2 and 3) and visa overstay and authorized stay (Table 5). However, there is no evidence that this strategy is related to either the amount or diversity of resources.

Second, there is no evidence that unauthorized migration of any kind (neither entry nor stay) reflects household strategies to distribute labor,

manage risk and/or maximize income in the case of Senegal. Indeed, this finding calls into question the relevance of certain migration theories (particularly the New Economics of Labor Migration) for explaining unauthorized migration between Senegal and Europe.

Discussion and Conclusion

Migration between Senegal and Europe offers an advantageous viewpoint from which to analyze authorized and unauthorized migrations. Senegal and Europe are separated by great geographical and social distances, and migration requires great economic and social capital, and unauthorized entry is extremely risky. Unlike other migration systems where unauthorized migration dominates (e.g. Mexico-USA as studied by Massey and Espinosa 1997 or Albania as studied by Stecklov et al 2010) or authorized (or *quasi*-authorized) migration (e.g. Paraguay-Argentina as studied by Parrado and Cerrutti 2003 or most cases of internal migration, see Entwisle et al 2007 and Curran et al 2005 for the Thai case) dominates, Senegalese migrants pursue various routes and legal paths to Europe.

The descriptive analysis shows that Senegalese migration to Europe is rare, and authorized migration is much more common than unauthorized migration, despite press coverage and political claims to the contrary. Since the late 1990's, authorized entries and unauthorized entries have multiplied. This paper confirms previous empirical findings (Massey and Espinosa 1997) of the importance of economic growth in increasing the risk of unauthorized migration, and finds evidence in support of previous studies of Senegal: urban origin and membership in certain Muslim brotherhoods are related to higher risks

of unauthorized migration. This paper also extends current knowledge and finds that for Senegalese migration to Europe, being firstborn, having a father with mid-level education or having high human capital oneself are related to higher risks of authorized migration, while more siblings are related to lower risks.

Migrant networks appear to differentially influence migrations of different legal status. This article intends to make three contributions. First, I build a theoretical framework for distinguishing different migration strategies, their risks and costs and relate this to the use of migrant networks (e.g. Figures 1 -3). While discussion about different pathways to migration exists (e.g. Carling 2002), the literature had not explicitly linked various kinds of migration behavior to the use of migrant network resources or to migrant networks in general. I have attempted to do so here.

Second, I find that, in the case of Senegal-Europe migration, migrations of different legal statuses employ network resources and ties in distinct ways. In general, authorized migrants have more migrant social capital than unauthorized migrants. While migrant social capital consistently raises the risks of authorized migration, it has varying effects on unauthorized migration. Regarding the debate of whether unauthorized migration is expression of individual autonomy or of household strategy, this article finds that authorized migration reflects a household migration strategy, but that unauthorized migration appears to be an expression of autonomy *in spite of* the opposition of the household and strongly-tied migrant networks. At the same time, individuals'

unauthorized migration projects receive the important support of friends and perhaps family abroad.

Third, I analyze visa overstay by differentiating between legal status at entry and subsequent legal status. Although visa overstay appears to be a popular strategy of Senegalese (and other African) migrants to Europe (Schoorl et al 2000), no systematic quantitative study exists. Studies tend to sort visa overstay into either authorized or unauthorized migration. Nevertheless, due to its particular set of costs and risks, visa overstay is an especially good test case for the migrant network hypothesis and, together with other modes of legal status, an advantageous context to test out its suppositions on migration behavior. This study finds that visa overstay reflects household migration decision-making and appears to utilize migrant network resources, especially those of friendships.

There are several limitations to this study. First, it focuses on migrant networks at destination and is not able to comment on origin-based networks. Origin-based kin, friendship and religious networks in Senegalese migration to Europe are important and well-documented (e.g. Evers Rosander 2002, Lacomba and Moncusi 2009, Poeze 2010). Also, origin and destination-based networks likely interact in a variety of ways, jointly influence migration behavior, and this process may depend on legal status, gender and other factors. This is a promising avenue for future research. Second, the study was limited to male migrants. Future study could strive to include female migration and explore how gendered networks (e.g. Cerrutti and Massey 2001, Creighton and Riosmena 2013, Davis and Winters 2001) influence

migration behavior of different legal statuses. Third, despite much attention to designing period effects and selecting contextual variables, this study has not explicitly accounted for changes in migration policies, although many are designed to affect migration behavior. Our concerns are partially off-set by prior research of Mexico-U.S. migration: as border enforcement changes, migration decisions remain stable (Orrenius 2004) although modes of unauthorized crossing change (Singer and Massey 1998, Donato et al 2008). Third, these are dynamic processes – migration policies change, as do migrants' economic outlook at destination. Future work ought to capture it and examine. Finally, this study has utilized a residence-based measure of household, but alternatives may exist. Given the tradition of multi-residence family or household structures in Senegal (Bass and Sow 2006) and between Senegal and Europe (Beauchemin et al 2013), a systematic exploration of other measures of household structures is important for the future.

Despite its limitations, this study has several policy implications. First, it confirms, that contrary to popular press coverage and dominant contemporary political rhetoric throughout Europe, the great bulk of migration between Senegal and Europe is *authorized* by European authorities. Although externalizing migration control responsibilities and investing in high-technology border control may be convenient politically and institutionally, the reach of these policies are very limited, and policymakers ought to recognize and respond to the complicated dynamic nature of migration. Second, this study finds evidence that visa overstay reflects household or family-driven strategies. Previously documented in in-depth qualitative studies (e.g. Alpes 2011, Poeze 2010), the wide-scale pooling of family and

household resources reflects that visa overstay is a widely-accepted migration strategy of *households*. In these cases, the success of the individual at destination is linked to the financial and psychological investments of many at origin. Understanding and responding to this is important for successful policy intervention. Finally, the study finds evidence that unauthorized entrants have lower levels of social and other resources (Vickstrom 2013), possibly reflecting a more individual-driven strategy. Policy-making and conscious-raising efforts ought to integrate deeply and respond to the legitimate perspectives of individuals in these high-risk situations.

Figures

FIGURE 1: MIGRATION DECISION-MAKING FLOWCHART

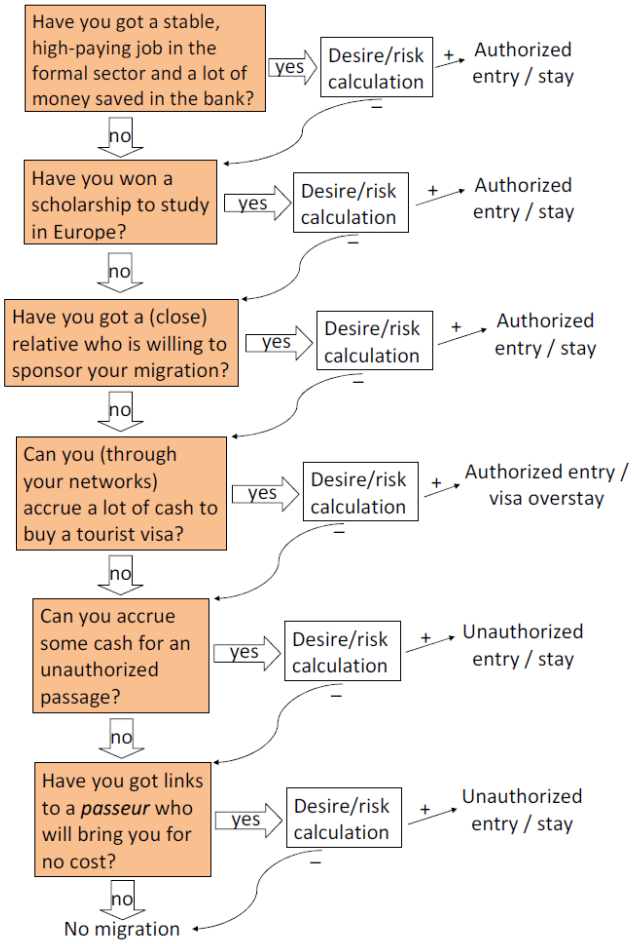


FIGURE 2: COSTS AND RISKS OF AUTHORIZED AND UNAUTHORIZED ENTRY

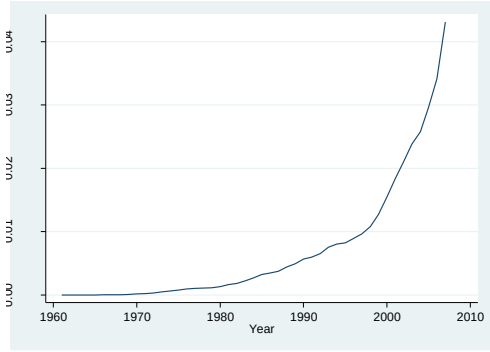
		Authorized entry	Unauthorized entry
Actual Trip	Financial costs	High	Medium
	Physical risk	None	High
	Risk of failed attempt	None	High
	Risk of apprehension	None	High
Life at destination	Difficulty finding housing	Low	Medium
	Difficulty integrating in legal labor market	Low	High

FIGURE 3: COSTS AND RISKS OF AUTHORIZED STAY, OVERSTAY AND UNAUTHORIZED STAY

		Legal stay	Visa overstay	Unauthorized stay
Actual Trip	Financial costs	High	High	High
	Physical risk	None	None	High
	Risk of failed attempt	None	Low	High
	Risk of apprehension	None	Low	High
Life at destination	Difficulty finding housing	Low	Medium	Medium
	Difficulty integrating in legal labor market	Low	High	High

FIGURE 4: KAPLAN-MEIER FAILURE ESTIMATES OF MIGRATION TO EUROPE, BY LEGAL STATUS AT ENTRY

A. AUTHORIZED ENTRY



B. UNAUTHORIZED ENTRY

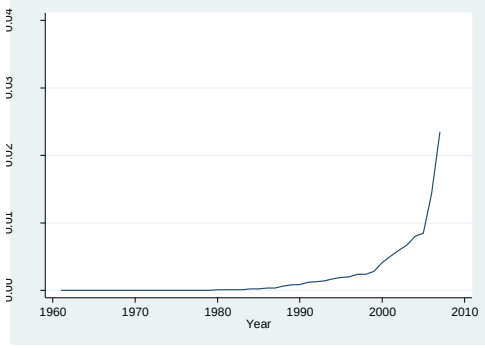
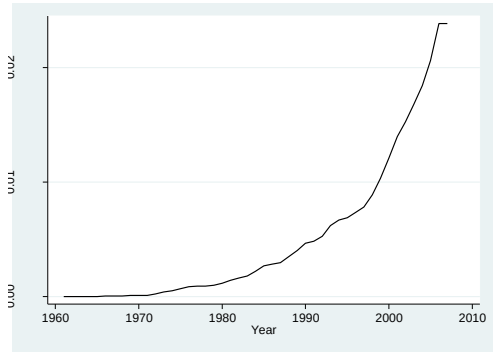
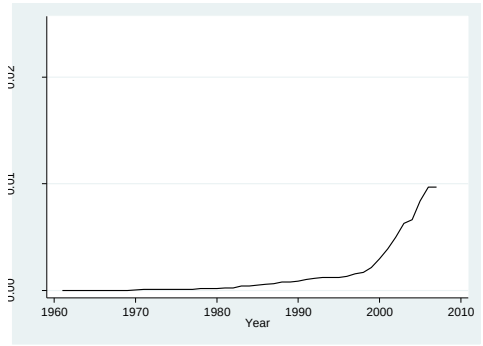


FIGURE 5: KAPLAN-MEIER FAILURE ESTIMATES OF MIGRATION TO EUROPE, BY LEGAL STATUS AT INITIAL STAY

A. AUTHORIZED STAY



B. VISA OVERSTAY



C. UNAUTHORIZED STAY

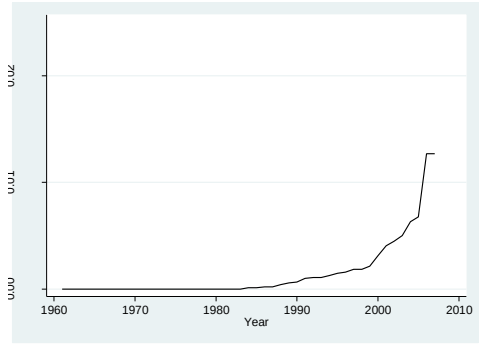


Table 1 Descriptive information of male migrants, by authorized and unauthorized status at 1st entry in the MAFE-Senegal data and non-migrants at time of survey (2008)

	Non-migrants		Authorized 1st time migrants		Unauthorized 1st time migrants		
Controls	Mean	SE	Mean	SE	Mean	SE	
Age	37.72	(0.97)	26.65	(0.41)	27.03	(0.66)	
Family of origin							
Urban origin	0.707	(0.033)	0.738	(0.034)	0.796	(0.053)	
Firstborn	0.218	(0.032)	0.315	(0.034)	0.268	(0.060)	
Number of siblings	8.667	(0.392)	6.864	(0.287)	6.743	(0.673)	
Father unknown or deceased at respondent's age 15	0.074	(0.019)	0.055	(0.018)	0.122	(0.042)	
Father's education							
No formal schooling	0.430	(0.034)	0.450	(0.036)	0.632	(0.062)	*
Primary school	0.119	(0.022)	0.238	(0.030)	0.119	(0.037)	*
Secondary and above	0.225	(0.030)	0.255	(0.031)	0.123	(0.041)	*
Religious affiliation							
Muslim							
Layene	0.029	(0.011)	0.008	(0.006)	0.008	(0.008)	
Khadre	0.029	(0.011)	0.026	(0.012)	0.057	(0.032)	
Mouride	0.259	(0.031)	0.352	(0.034)	0.610	(0.066)	***
Tidiane	0.349	(0.033)	0.330	(0.035)	0.168	(0.052)	**
Other Muslim	0.094	(0.021)	0.148	(0.025)	0.136	(0.050)	
Christian Catholic	0.062	(0.015)	0.067	(0.018)	0.022	(0.015)	P<.10
Individual Status							
Current household structure							
Married	0.610	(0.034)	0.758	(0.030)	0.735	(0.061)	
Has children	0.647	(0.033)	0.292	(0.032)	0.358	(0.061)	
Number of children	2.598	(0.304)	0.571	(0.073)	0.735	(0.141)	
Own education							
No formal schooling	0.149	(0.024)	0.132	(0.025)	0.288	(0.062)	*
Primary school	0.310	(0.033)	0.217	(0.030)	0.332	(0.062)	†
Lower secondary	0.156	(0.024)	0.196	(0.028)	0.211	(0.047)	
Baccalaureate and above	0.212	(0.028)	0.455	(0.036)	0.170	(0.053)	***
Current property ownership status							

Own land	0.162	(0.029)	0.065	(0.018)	0.031	(0.017)	
Own a house	0.133	(0.027)	0.054	(0.020)	0.134	(0.043)	†
Own a business	0.118	(0.025)	0.064	(0.017)	0.035	(0.028)	
Current occupational status							
Working	0.658	(0.032)	0.712	(0.032)	0.910	(0.033)	***
Studying	0.038	(0.013)	0.172	(0.026)	0.014	(0.014)	***
Unemployed	0.058	(0.017)	0.096	(0.022)	0.076	(0.030)	
Retired or Inactive	0.069	(0.020)	0.020	(0.011)	(omitted)		*
Migrant Network							
Having a nonhousehold migrant network	0.336	(0.033)	0.376	(0.035)	0.380	(0.099)	
No ties	0.698	(0.031)	0.625	(0.035)	0.762	(0.058)	*
Only strong tie	0.064	(0.016)	0.095	(0.021)	0.069	(0.033)	
Only weak tie	0.209	(0.028)	0.264	(0.031)	0.169	(0.020)	†
Both ties	0.029	(0.010)	0.016	(0.008)	(omitted)		*
Weak tie: stronger	0.050	(0.013)	0.052	(0.015)	0.021	(0.015)	
Weak tie: medium	0.085	(0.019)	0.085	(0.020)	0.032	(0.025)	†
Weak tie: weaker	0.154	(0.025)	0.179	(0.026)	0.130	(0.039)	
Having a household migrant network	0.166	(0.025)	0.331	(0.033)	0.351	(0.072)	
Individuals	478		231		71		

Note: Data are weighted. Differences between authorized and unauthorized migrants are significant at $^{\dagger}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Source: MAFE-Senegal 2008.

Table 2 Logistic estimation of the relative risk of being a first-time migrant in a year: by legal status at entry

	Model 1				Model 2			
	Authorized Entry		Unauthorized entry		Authorized Entry		Unauthorized entry	
	B	SE	B	SE	B	SE	B	SE
Migrant Network								
Having a non-household migrant network					1.96***	0.31	1.13	0.33
Having a household migrant network (different from spouse)	1.93***	0.32	1.42	0.42	1.95***	0.32	1.44	0.42
Control for Migration Spouse	0.19†	0.19	0.00	0.00	0.17†	0.17	0.00	0.00
Controls								
Age	0.54***	0.06	0.61**	0.10	0.55***	0.07	0.61**	0.11
ln(age)	1.99e7***	5.63e7	1.19e5*	5.65e5	1.38e7***	3.92e7	1.14e5*	5.40e5
Family of Origin								
Urban origin	1.14	0.20	1.89†	0.67	1.12	0.21	1.90†	0.67
Firstborn	1.38*	0.22	0.92	0.29	1.38*	0.22	0.92	0.29
Number of siblings	0.94**	0.02	0.97	0.03	0.94**	0.02	0.97	0.03
Father unknown or deceased	0.46*	0.18	1.61	0.63	0.48†	0.19	1.63	0.63
Father's education (ref. = no formal schooling)								
Primary school	1.74**	0.33	0.66	0.25	1.65**	0.32	0.65	0.25
Secondary and above	1.27	0.25	0.55	0.22	1.25	0.25	0.56	0.22
Religious affiliation (ref. = Tidiane)								
Muslim								
Layene	0.90	0.39	2.80	1.76	0.93	0.41	2.81	1.76
Khadre	0.50	0.37	2.06	2.23	0.53	0.38	2.07	2.24
Mouride	1.08	0.19	3.63***	1.33	1.10	0.19	3.61***	1.32
Other Muslim	1.32	0.29	1.91	1.01	1.32	0.29	1.89	1.00
Christian Catholic	0.56†	0.18	1.06	0.86	0.55†	0.18	1.05	0.85
Individual Status								
Current household structure								
Married	0.97	0.21	1.10	0.41	1.01	0.22	1.10	0.41
Polygynous	1.19	0.49	0.98	0.64	1.20	0.49	0.98	0.64

Number of children	1.07	0.09	1.14	0.18	1.07	0.09	1.14	0.18
Education (ref. = primary school)								
No formal schooling	1.00	0.27	1.44	0.53	0.99	0.27	1.46	0.54
Lower secondary	1.41	0.31	1.16	0.42	1.37	0.30	1.17	0.42
Baccalaureate and above	1.67*	0.37	0.53	0.24	1.55*	0.34	0.53	0.24
Property								
Land	1.10	0.33	1.57	0.87	1.08	0.33	1.55	0.86
House	0.56	0.18	1.70	0.71	0.54	0.18	1.68	0.71
Business	1.41	0.45	0.48	0.36	1.32	0.43	0.48	0.35
Current occupational status (ref. = working)								
Studying	1.13	0.25	0.54	0.36	1.20	0.27	0.54	0.36
Unemployed	1.33	0.42	2.92**	1.15	1.37	0.43	2.92**	1.15
At home	7.31**	4.18	0.00	0.00	7.10**	4.04	0.00	0.00
Inactive	1.58	0.95	1.96	1.49	1.53	0.93	1.97	1.50
Macro Factors								
Periods (ref: 1984-1993)								
Pre-1984	1.00	0.29	0.37	0.30	1.03	0.30	0.37	0.30
1994–1998	0.72	0.18	0.95	0.48	0.71	0.18	0.94	0.48
1999–2003	1.40	0.31	2.27†	1.09	1.33	0.30	2.25†	1.08
2004 and after	0.80	0.22	3.46*	1.69	0.75	0.21	3.40*	1.67
Urban population growth (%)	0.98	0.19	0.57	0.38	1.03	0.20	0.58	0.38
GDP growth per capita (%)	0.97	0.02	0.91†	0.05	0.97	0.02	0.91†	0.05
N (person-years)	13,366		13,366		13,366		13,366	

Notes: Results are presented in relative risk. Age, ln(age), marital status, polygynous, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth are time-varying indicators, and vary year by year.
Source: MAFE-Senegal 2008.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 3 Logistic estimation of the relative risk of being a first-time migrant in a year, by legal status at entry: Migrant networks and tie strength

	Model 1				Model 2			
	Authorized Entry		Unauthorized Entry		Authorized Entry		Unauthorized Entry	
	B	SE	B	SE	B	SE	B	SE
Having a Non-household Migrant Network								
Strong tie	1.01	0.23	0.55	0.27	1.03	0.24	0.57	0.28
Weak tie	2.28***	0.37	1.48	0.47				
Weak tie: stronger					1.02	0.34	1.02	0.76
Weak tie: medium					1.65†	0.42	0.69	0.43
Weak tie: weaker					3.21***	0.63	2.41*	0.88
Having a Household Migrant Network	1.99***	0.33	1.47	0.44	2.05***	0.34	1.43	0.43
N (person-years)	13,366		13,366		13,366		13,366	

Notes: Results are presented in relative risk. Controls include age, ln(age), *urban origin, religious affiliation, father's education, father unknown/deceased at respondent's age 15*, *firstborn, number of siblings, own highest level of education*, marital status, polygynous, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than those listed in italics are time-varying, year by year.

Source: MAFE-Senegal 2008.

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 4 Logistic estimation of the relative risk of being a first-time migrant in a year, by legal status at entry: Resources in migrant network (amount and diversity)

	(1)		(2)		(3)		(4)	
	Author	Unautho	Author	Unautho	Author	Unautho	Author	Unautho
Amount of Migration Experience								
Non-household migrant network	1.00	0.98	1.00	0.99				
	(0.01)	(0.02)	(0.01)	(0.02)				
Strong tie					0.99	0.92	0.99	0.93
					(0.01)	(0.07)	(0.01)	(0.07)
Weak tie					1.01†	1.00		
					(0.01)	(0.02)		
Weak tie: stronger							1.02	1.01
							(0.01)	(0.04)
Weak tie: medium							1.01	0.97
							(0.01)	(0.04)
Weak tie: weaker							1.09***	1.08*
							(0.02)	(0.04)
Household migrant network	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99
	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)
Diversity of migration experience								
Non-household migrant network			1.05	0.96				
			(0.06)	(0.15)				
Strong tie					1.05	-	0.97	-
					(0.17)		(0.16)	
Weak tie					1.01	0.95		
					(0.07)	(0.14)		
Weak tie: stronger							0.97	1.10
							(0.16)	(0.30)
Weak tie: medium							0.78	1.32
							(0.19)	(0.35)
Weak tie: weaker							0.97	-
							(0.10)	
Household migrant network			1.02	1.07	1.03	1.09	1.04	1.06
			(0.07)	(0.16)	(0.07)	(0.16)	(0.08)	(0.16)
N (person years)	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366

Table 5 Logistic estimation of the relative risk of being a first-time migrant in a year, by legal status of initial stay: Strength of Tie

	(1)			(2)			(3)		
	Authorized Stay	Overstay	Unauth. Stay	Authorized Stay	Overstay	Unauth. Stay	Authorized Stay	Overstay	Unauth. Stay
Having a Non-household Migrant Network	1.93*** (0.35)	1.95* (0.62)	1.18 (0.38)						
Strong tie				0.99 (0.27)	1.01 (0.47)	0.40 (0.25)	1.01 (0.27)	1.08 (0.50)	0.41 (0.26)
Weak tie				2.20*** (0.42)	2.50** (0.80)	1.73† (0.50)			
Weak tie: stronger							1.11 (0.41)	0.83 (0.64)	1.18 (0.90)
Weak tie: medium							1.84* (0.52)	0.97 (0.62)	0.85 (0.54)
Weak tie: weaker							2.96*** (0.70)	3.83*** (1.35)	2.56* (0.98)
Having a Household Migrant Network	1.86** (0.35)	2.24* (0.72)	1.43 (0.46)	1.90** (0.36)	2.31** (0.74)	1.48 (0.47)	1.96*** (0.70)	2.33* (0.76)	1.44 (0.46)
N (person-years)	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366

Notes: Results are presented in relative risk. Controls include age, ln(age), *urban origin, religious affiliation, father's education, father unknown/deceased at respondent's age 15*, *firstborn*, *number of siblings*, *own highest level of education*, marital status, polygynous, migrant spouse, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than those listed in italics are time-varying, year by year.
Source: MAFE-Senegal 2008.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 6 Logistic estimation of the relative risk of being a first-time migrant in a year, by legal status at initial stay: Resources in migrant network (amount and diversity)

	(1)			(2)			(3)			(4)		
	Authoriz. Stay	Over-stay	Unauth. Stay	Authoriz. Stay	Over-stay	Unautho. Stay	Authoriz. Stay	Over-stay	Unauth. Stay	Authoriz. Stay	Over-stay	Unauth. Stay
Amount of Migration												
Non-household migrant network	1.00	1.01	0.99	1.00	1.00	0.98						
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)						
Strong tie							1.00	0.96	0.86	1.00	0.97	0.87
							(0.01)	(0.05)	(0.10)	(0.01)	(0.05)	(0.10)
Weak tie							1.02*	1.02	1.01			
							(0.01)	(0.02)	(0.01)			
Weak tie: stronger										1.02	1.04	1.03
										(0.02)	(0.04)	(0.03)
Weak tie: medium										1.01	1.00	0.98
										(0.01)	(0.04)	(0.03)
Weak tie: weaker										1.11***	1.07*	1.09*
										(0.03)	(0.03)	(0.04)
Household migrant network	1.00	1.00	0.99	1.00	1.00	1.01	1.00	1.00	0.99	1.00	1.00	0.99
	(0.00)	(0.01)	(0.02)	(0.00)	(0.02)	(0.01)	(0.00)	(0.01)	(0.02)	(0.00)	(0.02)	(0.02)
Diversity of migration												
Non-household migrant network				0.99	1.17	1.00						
				(0.08)	(0.12)	(0.24)						
Strong tie							1.02	1.19	-	1.03	1.19	-
							(0.20)	(0.33)		(0.20)	(0.33)	
Weak tie							0.99	1.10	0.90			
							(0.09)	(0.13)	(0.17)			
Weak tie: stronger										1.00	0.71	-
										(0.18)	(0.35)	
Weak tie: medium										0.81	-	1.31
										(0.21)		(0.36)
Weak tie: weaker										0.69	1.21	-
										(0.17)	(0.16)	
Household migrant network				0.98	1.09	1.19	0.99	1.13	1.06	1.00	1.14	1.05
				(0.09)	(0.13)	(0.24)	(0.09)	(0.13)	(0.17)	(0.10)	(0.13)	(0.17)
N (person years)	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366	13,366

Notes: Results are presented in relative risk. Controls include age, ln(age), *urban origin*, *religious affiliation*, *father's education*, *father unknown/deceased at respondent's age 15*, *firstborn*, *number of siblings*, *own highest level of education*, marital status, polygynous, migrant spouse, number of children, occupational status, landownership, homeownership, business ownership, period effects, % urban population growth, and % GDP per capita growth. All indicators other than

those listed in italics are time-varying, year by year. *Source:* MAFE-Senegal 2008. $^{\dagger}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$

Chapter 4. Social capital and context: investigating Congolese, Ghanaian and Senegalese migration to Europe, 1971-2008

Introduction

Influenced by a few dominant migration theories (for review, see Massey *et al* 1994), quantitative migration scholarship exploring how context molds migration has had segregated focuses on the economic aspects (neoclassical economics and the new economics of labor migration models) and social aspects (social capital theory, cumulative causation) of context. Meanwhile, other theoretically and empirically relevant interests (*e.g.* war and armed conflict, political instability, colonial history) have received far less attention. Most importantly, however, the different empirical accounts of migration are kept largely separate, and little evidence exists on how they may interact.

Given the rich influential literature of migrant social capital and international migration, understanding under what conditions and contexts migrant social capital can play different roles is important for advancing both migration theory and understanding throughout time and different geographical contexts. Given the theorized fungibility of the different economic, cultural and social resources, we expect that an individual's chances of migration depends on the particular combination of varied migration-related resources they can access, as well as how these interact with the specific macro-economic and political context and trajectory the individual finds themselves in. This dissertation chapter aims to explore whether and how networks play different roles in different contexts.

This article is motivated by three apparent opportunities in the literature. First, although migrant networks are a key link between the micro

(individual) level and the macro level of migration systems, theoretical and empirical exploration of networks has so far been largely "decontextualized". The key exception is cumulative causation theory (proposed by Massey, Goldring and Durand in their 1994 paper) and the work it has inspired. Massey and colleagues proposed that international migration tends to build a feedback loop through migrant networks, accruing momentum and becoming less dependent on the initial, primarily economic, drivers of migration. Massey and colleagues utilize "migration prevalence" (roughly, the proportion of migrants) to characterize a community's stage in this process, but, as they themselves recognize, this strategy tends to "dehistorize migration" from other contextual events and factors (1994: 1507). Second, most literature is segregated between economic migration on one hand, and refugee or asylum flows (political migration) on another. Finally, the great bulk of micro-level empirical study of migration and theory development has been situated in the Mexico-U.S migration context. As a result, our knowledge of Mexico-U.S. migration is considerable, but we understand far less about other topics: international migration in other parts of the world; how universally dominant theories can be applied; and how context influences migration behavior. Study in other country contexts, particularly multi-country comparative contexts, will help remedy this.

In other words, our paper aims to make a three-fold contribution: first, explicitly account for different migration theories, including those related to historical-structural trends, and explore how these interact with the migrant network hypothesis; second, study migration all along the political-economic motivation continuum; third, contribute to the growing field of comparative cross-country micro-studies of international migration.

Our paper builds on prior work and extends this discussion to account for other aspects of context: political instability and armed conflict. To do so, the paper is organized into several sections: first, the current theoretical discussion concerning migration, context and social capital; second, our analytical strategy which includes a description of the three migration contexts, our research hypotheses, data and methods; and finally, results and conclusions.

Background

Theoretical perspectives

Dominant migration theories

Scholars have traditionally utilized three theoretical lenses to investigate the complexity of individual migration behavior. The neoclassical economics tradition proposes that individuals engage in cost-benefit calculations to decide whether to migrate; key to these calculations are differences in wages and employment likelihood between origin and destination (e.g. Todaro 1969). The new economics of labor migration scholarship suggests that relative deprivation and household migration strategies are essential for understanding migration behavior (see Stark and Bloom 1985); and a primary motivation for migration is a household's desire to diversify risk and overcome credit constraints (e.g. Taylor 1986). Social capital theory emphasizes that individuals can access valuable information and resources through their relationships with others; and that a person's social capital depends on the relationships, as well as the amount and quality of the resources (Bourdieu 1986). Social capital may be converted to economic, cultural or other forms of capital (Bourdieu 1986: 251), although it is not completely fungible and can even be specific to certain activities (Coleman 1988), like migration (Massey *et al* 1987). Portes (1998) advocated for distinguishing among three

dimensions of social capital: 1. possessors (those claiming social capital); 2. sources of social capital; and 3. the resources themselves.[31]

Although most scholarship considers these classical migration models to be complementary (for an exception, see Palloni *et al* 2001), empirical work exploring their interconnectedness is extremely limited and has been theorized and tested primarily for the Mexico-U.S. context.[32] In general, micro-level studies find that economic and social models play consistent and significant roles in international migration (*e.g.* Gónzalez-Ferrer et al 2013, Liu 2013, Massey and Espinosa 1997). In their seminal work, Massey and Espinosa (1997) found strong parallel influences of neoclassical economics, new economics of labor migration and social capital theories on Mexico-U.S. migration. In the case of social capital theory, previous studies have contrasted differing social capital influences on internal and international migration (*e.g.* Taylor 1986), migration from urban or rural areas (*e.g.* Fussell and Massey 2004), and migration by men and women (*e.g.* Cerutti and Massey 2001, Curran and Rivero-Fuentes 2003, Kanaiaupuni 2000, Toma and Vause 2011), but do not appear to have explicitly tested interactions with other theories or country-level contexts.

Migrant Networks

With regards to migration behavior, the migrant network hypothesis predicts that the migration of a person directly affects the migration

[31] All these authors have characterized social capital as an individual good. Putnam's perspective of social capital as a collective asset (2000) is not applicable here.

[32] Outside this context, empirical findings question the limits of these classical models (*e.g.* Garip 2014), particularly since nearly all assume a unitary household decision-making model which appears to be inaccurate, even in the case of Mexico (Hondagneu-Sotelo 1994).

likelihoods of those in their social network. Nearly all existing literature has theorized and analyzed how ties to migrants can facilitate migration by providing information and resources that lower the costs or risks of the migration trip (e.g. Donato et al 2008) and life at destination (e.g. Hondagneu-Sotelo 1994), while increasing its potential benefits, particularly access to higher quality jobs (e.g. Amuedo-Dorantes and Mundra 2007, Munshi 2003). The literature, especially the quantitative, has shied away from exploring how migrant networks can *dissuade* migration by decreasing its benefits by investing and making life at origin more attractive; by increasing its costs or risks by communicating negative (and perhaps more accurate) migration accounts.

The various effects of social capital on international migration are well-documented. The literature has found strong and consistent effects for strong kinship ties (e.g. Cerrutti and Massey 2001; Curran et al. 2005; Espinosa and Massey 1999; Kanaiaupuni 2000), varying effects for weak kinship ties and strong effects for friendships (Liu 2013), and variable effects for weak non-personal community ties (e.g. Curran et al. 2005; Garip 2008: Massey and Espinosa 1997). There is ample evidence that network effects are gendered (e.g. Curran and Rivero-Fuentes 2003). While the literature is still susceptible to critiques that it relies on proxies (Gonzaléz-Ferrer and Liu 2012) or largely fails to account for alternative explanations, significant progress has been made both in terms of the measurement of migrant networks (Garip 2008, Liu 2013) and alternative explanations (Palloni et al 2001, Liu 2013).

Literature exploring Migrant Social Capital and Context

Existing micro-level quantitative studies of how context and migrant social capital affect migration behavior cluster around two areas of interest: intra-country studies exploring cumulative causation (*e.g.* Fussell

and Massey 2004, Lindstrom and Lauster 2001, Massey *et al* 1994) and the growing body of cross-country quantitative migration studies. Thus far, the latter is dominated by studies that have emerged from the Mexican Migration Study (MMP), the Latin American Migration Project (LAMP) (*e.g.* Alvarado and Massey 2010, Cerrutti and Gaudio 2010, Donato 2010, Fussell 2010, Hiskey and Orces 2010, Lindstrom and Lopez Ramírez 2010, Massey *et al* 2006, Massey and Riosmena 2010) and the Migration between Africa and Europe project (MAFE) (*e.g.* Castagnone *et al* 2013, González-Ferrer *et al* 2013, Mazzucato *et al* 2013, Toma and Vause 2011). The intra-country cumulative causation studies have explored differences among communities in Mexico (Massey et al 1994, Lindstrom and Lauster 2001, Fussell and Massey 2004) and Thailand (Curran et al 2005, Garip and Curran 2010). Massey *et al* (1994) found that growth in "community migration prevalence" (the proportion of migrants in each community) was accompanied by the multiplication of kinship links to U.S. migrants (parent, grandparent or sibling) in Mexico. The cumulative causation theory proposes that as migration flows mature, migrant networks expand and their influence on subsequent migration grows, as the key socio-economic determinants of the initiation of migration flows become less influential (Massey 1990, Massey et al. 1993). Later, in their study of Mexico's Zacatecas state, Lindstrom and Lauster (2001) found networks appeared to moderate the influence of local economic conditions (wage growth) on international migration: agricultural wage growth appears to deter individuals without household networks, but not those with them. Finally, in their study of international migration from urban and rural areas in Mexico, Fussell and Massey (2004) found that family-based migrant networks were especially important for urban areas, while community-based networks were only influential in rural areas.

Comparative studies of migration appear to be a growing field. Figure 2 displays a summary of the major comparative micro-level studies of international migration to-date. Of these, only a few have considered specific context variables (Alvarado and Massey 2010, Gónzalez-Ferrer *et al* 2013, Massey and Riosmena 2010), and none have explicitly investigated how different theories may interact to explain migration. First, while evidence confirms that structural economic change leads to increased violence and migration in certain contexts (Nicaragua); for others (Mexico, Costa Rica and Guatemala), evidence does not confirm the theorized link between economic change and violence, while violence appears to reduce U.S. migration likelihood (Alvarado and Massey 2010). Second, in a study investigating the consequences of U.S. immigration enforcement efforts (Massey and Riosmena 2010), mixed effects were found for these policies, while no effects were found for relative GDP per capita. Growing numbers of deportations appeared to increase the likelihood of Mexicans entering without inspection but decreased the likelihood of Central Americans doing so; increased U.S. Border Patrol line watch hours weakly decreased the likelihood of Mexican's doing so. Third, macro-economic effects in Sub-Sahara African migration to Europe were mixed (González-Ferrer *et al* 2013): economic growth only weakly suppresses migration from DR Congo, while it unexpectedly promotes Senegalese migration. Devaluation appears to suppress Senegalese migration.

Besides the comparative migration studies, several country studies have successfully investigated different theories and context variables (see Figure 4). Massey and Espinosa 1997, many others have included at least GDP per capita growth and inflation. They have almost become mandatory control variables. However, to our knowledge, no study has

explicitly investigated the connections among the different theories or contextual variables.

Literature exploring Migration and Contexts of Violence and Politics

Beyond the economic and social contexts of migration, some quantitative micro-scholarship has explored other aspects of context, including violence and politics. Many of these studies focus primarily on refugee and asylum migration flows (Engel and Ibáñez 2007, Hiskey and Orces 2010, Williams *et al* 2012) and reflect the academic segregation of economic migration studies on one hand, and refugee and asylum migration studies on another. However, a singular focus on either "type" suffers from the empirical ambiguities of placing individuals on a "purely economic migrants" to "purely political migrants" continuum (Richmond 1988, Lundquist and Massey 2005). Most migration is situated somewhere in the middle. At the same time, unifying study of migration across these types is further strengthened by evidence that individual and household determinants of migration during conflict are similar to those in a conflict-free setting (*e.g.* Bohra-Mishra and Massey 2011).[33]

Violence and migration are clearly linked.[34] [35] Current evidence suggests that violence suppresses migration at low and moderate levels, while

[33] We explicitly avoid situations of forced displacement, such as the case of Colombia where evidence shows that key determinants are of an opposite effect as for other migration (Engel and Ibáñez 2007, Ibáñez and Vélez 2008)

[34] Here, as in the rest of the paper, we focus on micro-level studies, although a wealth of macro-level studies document this relationship in country studies (*e.g.* Tolnay and Beck 1992) and cross-country studies (*e.g.* Schmeidl 1997).

[35] For clarity's sake, we focus on state or civil conflict-related violence, rather than crime per se, although the latter may also be relevant. Alvarado and Massey (2010) found links between structural adjustment, homicide rates and out-migration from Costa Rica, Guatemala, Mexico, and Nicaragua (see Figure 3).

increasing migration when violence reaches high levels. This has been confirmed for Nepal during its civil conflict between 1996-2006 (Bohra-Mishra and Massey 2011) and is consistent with findings for Nicaragua during the 1980's Contra War where migration was largely suppressed until U.S. involvement escalated violence (Lundquist and Massey 2005). In fact, Lundquist and Massey (2005) found that migration to both Costa Rica and U.S. were sensitive to economic trends; migration to the U.S. was especially sensitive to Contra War violence; and households with family ties were even *more* likely to migrate to the U.S. during periods of violence.[36] Other studies find a generally positive relationship for violence and migration (Williams et al 2012 for Nepal, Stanley 1987 for El Salvador).

While most studies focus only on violence or threat of harm, we follow in the footsteps of Williams and colleagues (2012) and account for both violence *and* political instability.[37] Until now, very few studies have investigated the link between political instability and migration. For Nepal's Chitwan region, violence appears to increase international migration, while politics (political instability) slow it (Williams et al 2012). For U.S. migration from Peru, Nicaragua, and parts of Mexico, migrant profiles become more heterogeneous (older, more female, less selected) in times of political instability and increased constraints (Hiskey and Orces 2010). In a MAFE-based study on migration from the DR

[36] Fussell (2010) investigated the influence of cumulative causation in migration to the U.S. from the Dominican Republic, Costa Rica, Mexico, Nicaragua and Puerto Rico. Except in Contra war-torn Nicaragua, she found that, in all other countries, as more community members gained U.S. experience, non-migrants were more likely to migrate. However, her study did not explicitly model for the interaction between (community) social capital and violence.

[37] Again (as noted previously) we focus exclusively on micro-level studies, although macro-level studies have explored the relationship between political instability and migration (*e.g.* Campos and Lien 1995, Karemera et al 2000).

Congo, Schoumaker and colleagues (2010) found that the educational selectivity of Congolese migration to Europe fell during times of political instability. Our study aims to explore explicitly the social selectivity of migration in contexts of varying violence and political situations.

Analytical Strategy

Developing Research Hypotheses

Economic climate Both neoclassical economics theory and the new economics of labor migration anticipate that the macro-economic context of origin is a key factor in determining migration and its selectivity. For example, economic growth is often associated with a greater demand for labor and possibly better working conditions, while economic stagnation and uncertainty is often associated with a falling demand for labor and poorer working conditions. We also expect that poor economic conditions will give an added value to social capital, or that social "privilege" will particularly stratify migration likelihood when conditions are otherwise difficult. This expectation can be related to Lindstrom and Lauster's (2001) finding for the Mexican state of Zacatecas that positive macro-economic trends (agricultural wage growth) deterred individuals without household migrant networks, but not those with them.

> H1. We expect that the likelihood of migration will decrease during time of economic growth, and increase during times of economic crisis, all else equal.
>
> > H1a. We expect that social capital becomes more important during periods of economic crisis and uncertainty (and poor labor market conditions) at origin

and less so during periods of economic growth.[38]

Climate of violence Violence has received ample attention from scholars. Williams and colleagues (2012) propose that violence influences behavior through threat of harm and political events through insecurity. Scholars studying violence find that violence is related to international migration (Bohra-Mishra and Massey 2011; Davenport et al. 2003; Engel and Ibanez 2007; Moore and Shellman 2004; Morrison and May 1994; Schmeidl 1997). In their study of Nepal's Chitwan region, Bohra-Mishra and Massey (2011) found a curvilinear effect of violence on migration: at low to moderate levels of violence, the odds of migration decreased; while at high levels of violence, the odds of migration increased. Comparing local, internal and international moves, Bohra-Mishra and Massey found that the effect of violence was greatest for international migration. In their individual-level event-centered study of the Chitwan region of Nepal, Williams and colleagues (2012) found that violent events (gun battles) raised the likelihood of international migration. Furthermore, we expect to validate the findings of Lundquist and Massey (2005) for Nicaraguan migration to the U.S.: migrant networks grow in importance during periods of violence. Building on this literature, we develop two hypotheses related to a climate of violence:

> H2. We expect that migration will become more likely during periods of violence and when citizens experience threat of harm.

> H2a. We expect that migrant networks grow in

[38] However, we recognize the intrinsic difficulty in interpreting all interactions of our analysis. For example, a negative coefficient on the interaction network*economic growth may also be read as: the more networks increase, the lower the effect of economic growth. Whereas we would interpret it as: the more economic growth there is, the less important are networks.

> importance during periods of violence and when citizens experience threat of harm. In other words, migration will become more selective socially during periods of armed conflict.

Political climate Several studies have linked political instability and migration. Hiskey and Orces (2010) focused on a few political shocks, and analyzed how migrant profiles differ before and after political shocks in Peru, Nicaragua and Mexico. They found that, in Peru, the migrant profile became more heterogeneous with the increase in political instability, while there were mixed results (higher prevalence of unemployed and low-income, but no relationship with age) that political stability in Nicaragua had brought about a more traditionally economic-migrant profile. Hiskey and Orces also tested two cases in Mexico: Guerrero's migrant profile (upon experiencing a political shock) became much more heterogeneous, while Oaxaca (which did not experience a shock) did not. Distinguishing between violent and political events in Nepal, Williams and colleagues (2012) found that political instability (as proxied for by political events like strikes, protests, etc.) appeared to lower the likelihood of international migration. Although scholars have found that profiles of Congolese migrants to Europe (Schoumaker et al 2010) and Peruvian, Nicaraguan and certain Mexican migrants to the U.S. (Hiskey and Orces 2010) become more heterogeneous during times of political instability, neither study explicitly explores social selectivity. Given the extremely large geographical and economic barriers in the cases of Congolese, Ghanaian and Senegalese migration to Europe and the longer-term, more significant international movement and networks with neighboring African countries, we expect that migration to Europe will become *more* socially selective during times of political instability. Our final set of hypotheses test for the influence of political climate:

H3. Given the wide range of historical socio-economic and cultural ties between our sub-Saharan African countries and Europe (particularly the former colonial power), we expect that sub-Saharan African-Europe migration will increase during periods of political instability. Since this migration is extremely costly for individuals and families, we expect that these flows may be positively selected in terms of education, economic capital and social capital.

H4. We expect that migrant networks will become more important during times of political instability. In other words, migration will become more selective socially during periods of political instability.

Contexts of Migration in Democratic Republic of Congo, Ghana and Senegal

The Democratic Republic of Congo, Ghana and Senegal provide a rich backdrop for exploring migration behavior. First, each has its own history of migration to Europe, related in part to its ex-colonial ties. Second, each has its own economic and social history since independence (1957 for Ghana, 1960 for DR Congo/Zaire and Senegal).

Overall, the contexts of migration are impacted by factors both at origin and destination. In an analysis of migration patterns from 1975-2008 using MAFE household survey data, Schoumaker *et al* (2012) found that migration to neighboring African countries dominated initial migration flows from Ghana and Senegal, with the share falling as migration to Europe grew. The opposite pattern is seen for DR Congo: greater initial and then falling share of flow to Europe and less initial and then growing

flow to other African countries. Flows appear to favor migration to the ex-colonial power (Belgium for DR Congo, UK for Ghana and France for Senegal), although this is less the case for DR Congo. Since the 1990s, flows have intensified towards northern destinations (Europe and North America) from Ghana and Senegal, in part due to economic crises at origin, anti-immigrant policies in traditional African destinations and new labor market opportunities in Europe. For DR Congo, growing opportunities in Africa (specifically Angola and South Africa) have led to decreased flows to northern destinations. Also, northern destinations have diversified for Ghana and Senegal, while they appear to be stable for DR Congo.

DR Congo has had a tumultuous history since independence from Belgium in 1960. Hesselbein (2007: 15-16) identifies different periods of state formation and collapse: state formation (1960-1964); state building (1964-1973); 'Things fall apart' (1974-1990) when there was a drastic and continual economic decline, as well as the negative effects of structural adjustment; 'The road to collapse' (1990-1997) when the situation worsened even more once international aid flows stopped and nearly 1 million refugees from Rwandan's civil war (1994) flowed in. Two wars (1996-1997 and 1998-2002) further devastated RD Congo with a peace accord signed in 2002, and elections held in 2006.

Before and after independence from the United Kingdom in 1957, Ghana had a prosperous and stable economy and received many migrants from neighboring countries in Africa (Anarfi *et al* 2003). However, the economic situation started to fail in the mid 1960's and worsen still in the 1970's (Anarfi *et al* 2003). This was associated with a tumultuous political period, which included several regime changes from 1978 until a military coup d'état in December 1981 and thereafter an enduring military

dictatorship (Kraev 2004). In 1983, Nigeria expelled all foreigners, including 900,000 to 1.2 million Ghanaians (Anarfi *et al* 2003), which worsened an already bleak economic situation. That same year, the Ghana government accepted a standard structural adjustment reform package from the World Bank, and with the capital inflows, high GDP growth resulted (Kraev 2004). A process of democratization resulted in national elections in 1992, 1996 and 2000. Nevertheless, inflation rates remained high and the economy stagnated in the 1990's (Kraev 2004: 26). Anarfi *et al* (2003: 8) write that there has been a "diasporisation" since the mid-1990's, with Ghanaians migrating to the UK, U.S., Canada among many other countries.

Senegal has been relatively stable politically and economically since its independence from France in 1960. The first Senegalese migrants to Europe were members of the French army who found work in the port of Marseilles (Gerdes 2007) in the early 20th century and later individuals recruited to work in the French automobile industry in the 1960's (Jabardo Velasco 2006). With the oil crisis in 1973 and the recessions that preceded it, France essentially closed its borders to further labor migration (Jabardo Velasco 2006). In the 1970's and early 1980's, the groundnut crisis, faltering prospects in Senegal and growth in labor-intensive agriculture led new Senegalese migrants to move to Italy and Spain (Jabardo Velasco 2006; Lacomba and Moncusi 2006). Pressures to migrate increased as Senegal's economic crisis deepened in the 1980's with the first round of structural adjustment programs (SAP), which affected Senegal society adversely and perhaps permanently (Lopez and Hathie 1998), and then again in the 1990's, with the crippling SAP II from 1990-1994 (African Development Bank Group 2001) and the devaluation of the currency on January 1st, 1994 (Gerdes 2007).

A summary of the major time periods for the three countries are in Figure 1:

Figure 1. Economic and Social History summarized for DR Congo, Ghana and Senegal 1960-2009

Time Periods	DR Congo	Ghana	Senegal
1960-1973	State forming or state building	Economic situation failing	Free migration to France
1974-1982	'Things fall apart', Structural adjustment programs	Economic and political turmoil	Groundnut crisis and failing economic prospects
1983-1989	'The road to collapse' politically, socially and economically	Structural adjustment program, In-flow of a million returnees from Nigeria, economic woes	First structural adjustment programs (SAP), economic woes
1990-1995		Democratization, stagnating economy	1990-1994. SAP II 1994- devaluation of the CFA
1996-2002	Armed conflict	Democratization and diasporisation, some economics growth	Economic recovery
2003-2009	Recovery from conflict	Steady economic growth	

Data

This paper will use longitudinal data from the three flows of the Migration between Africa and Europe (MAFE) project (2008-2010)[39] and is a first

[39] The MAFE project is coordinated by INED (C. Beauchemin) and is formed, additionally by the Université catholique de Louvain (B. Schoumaker),

effort to develop a comparative study of migrant networks. Individuals were interviewed at origin (DR Congo, Ghana, Senegal) and at destination (Belgium, France, Italy, Netherlands, Spain and the U.K.). In the countries of origin, non-migrants and return migrants were interviewed. In the countries of destination, Congolese migrants were interviewed in Belgium and the U.K.; Ghanaian migrants were interviewed in the Netherlands and the U.K; and Senegalese migrants were interviewed in France, Italy and Spain. Nearly identical individual questionnaires were utilized in each survey location. Figure 2 illustrates these three migration systems.

The data is based on a retrospective individual biographical questionnaire with housing, union, children, work and migration histories documented. Detailed information is recorded for each union, child, and period (*e.g.* housing, work). Additional time-varying information about migrant networks, documentation status, remittances and properties is available. About 1200 current Congolese, Ghanaian and Senegalese migrants in Europe and nearly 3000 residents in the Democratic Republic of Congo, Ghana and Senegal were interviewed.

Measuring Migrant Social Capital

MAFE collects information about the respondent's migrant network, including all parents, siblings, partners or children who had lived at least

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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/.

one year abroad, as well as other family members and friends on whom the individual counted or could have counted on for help migrating. A full and complete migration trajectory (countries, years) was then recorded, starting from the first year this person lived outside of their country of origin. The network member's sex, relationship to the respondent, name (optional), the year they met (in case of friends and partners) and year of death (when applicable) were also recorded.

Given the importance of weak ties and accounting for social capital resources (Liu 2013), this paper's social capital indicators capture both the sources (strong/weak ties, gradient tie strength), and amount of social capital. Inspired, in part, by Espinosa and Massey (1999), we follow Liu (2013) in terms of which relationships to include. A kinship chart (Figure 3) illustrates which relationships are related to which source of social capital. In general, we distinguish between strong ties (siblings and parents) and weak ties (extended family members and friends). Only non-household network members are included in these measures. Spouses and children are excluded from all migrant network measures, although spouses are included in the family reunification alternative explanation (see below). Only years lived by network members in Europe are included. To avoid possible endogeneity challenges, migrant friendships were rigorously treated: friend and respondent must have met before *either* ever lived abroad; only longer-term (at least three years old) friendships are included; friendships where date of meeting is unknown are excluded. The "size of migrant network" indicators report the number of individuals in the network in Europe in a given year. In terms of the amount of social capital resources, I use the cumulative network experience in Europe, as measured in years, in order to capture the amount of migrant social capital. All network indicators are lagged by one year.

Measuring Context

Data requirements for context indicators are high: annual information for the entire period of study (1971-2008) for each origin country (DR Congo, Ghana and Senegal). Fortunately, we are able to account for macro-economic context (growth and inflation), violence or threat of harm (number of battle-related deaths) and political instability. We include two macro-economic indicators: GDP per capita growth (annual %) and inflation in consumer prices (annual %). These were gathered from the World Bank's World Development indicators and are available from at least 1968 for all three countries of origin. Both indicators have been widely used in the literature (e.g. Espinosa and Massey 1997): GDP per capita growth usually proxies for economic growth, while inflation restricts household and individual spending power and increases the need to diversify risk.

To capture violence or threat of harm, we utilize the Uppsala Conflict Data Program's reputable data on battle-related deaths (UCDP 2013) for the 1989-2008 period and the Peace Research Institute Oslo's documentation on battle-related deaths (Lacina and Uriarte 2009, Lacina and Gleditsch 2005) for the 1971-1988 period. The earlier period includes 4 armed conflicts: violence in Ghana related to the 1981 military coup and 1983 attempted coup; violence in DR Congo related to the Front for the National Liberation of the Congo in 1977 (Shaba I) and 1978 (Shaba II); and none in Senegal. Best PRIO estimates were taken wherever possible. Since these were unavailable for Ghana's 1981 military coup, we decided to take the top of the official death toll (40). Overall, the UCDP/PRIO data appears to be our best option. Alternative large-scale, event-specific data collection efforts (Social Conflict in Africa Database; the Kansas

Events Data System; Global Database on Events, Language and Tone) do not cover our entire period of study (1971-2008).[40]

In order to capture politics or political instability, we use the Polity IV Project's political regime characteristics and transitions database (Marshall and Jaggers 2012) and Freedom House's (Freedom House 2013) measures of liberal democracy. While the Polity IV Project is the academic benchmark in international studies for measuring liberal democracy (Norris 2013), the Freedom House indicators (political rights, civil liberties) are useful since they capture both electoral politics and participation (political rights), as well as a wider range of rights, like the freedom of expression, religion, association (civil liberties). Time series of these indicators are available for our entire period of study (1971-2008) for all three counties. Specifically, we identify political change (change in polity2) by using the Polity IV Project's polity2 indicator which ranges from +10 (strongly democratic) to -10 (strongly autocratic). Polity2 is adequate for time series analysis since it has re-coded cases of anarchy or "interregnum" to a neutral polity score of 0, and cases of transition are prorated across the span of the transition (Polity IV Project 2012, 17).[41] Freedom House's measures for political rights and civil liberties range from 1 (the highest degree of freedom) to 7 (the lowest degree of freedom). Since political instability is more often first expressed in the restriction or granting of civil liberties, we expect civil liberties to be an especially good proxy for political instability.

[40] An alternative measure would be number of battles or violent incidents per year, but this does not provide as much variability as the selected measure.
[41] However, the polity indicator has a couple weaknesses: primarily, as a composite of two different scales (level of democracy, level of autocracy), its operationalization actually runs contrary to the original theory. Another possible critique is its failure to account for human rights (Norris 2013).

Complementary (or alternative) hypothesis

This paper accounts for one alternative hypotheses: family reunification. The concept is based on Liu (2013). The promise of legal family reunification also creates a specific and special link between certain individuals at origin and destination. This is especially true for legally married spouses with one spouse at destination and another at origin, as well as minor children at origin whose parents live at destination. Since legal family reunification has a separate series of bureaucracy, costs and benefits than other kinds of migration and our focus is only on adult migration, we will follow in the footsteps of Liu (2013) to account for the migrant spouse explanation separately and to measure migrant network effects independent of it. For this alternative explanation, we use a proxy for spousal reunification at destination. Specifically, we measure whether Ego already had a spouse in Europe in the year previous (*t-1*) to the year of analysis *(t)*.

Covariates

In all models, we account for a range of time-varying and static covariates. These include: age, age squared, gender, *firstborn*, *number of siblings*, *own highest level of education* (no formal schooling; primary; lower secondary; Baccalaureate and above), having a child, occupational status (working, studying, unemployed, at home, retired, otherwise inactive), land ownership, home ownership and business ownership. Where period effects are used, we operationalize the key periods identified in the Contexts of Migration section and Figure 1: pre-1983, 1983-1995, 1996-2002, 2003-2008.

All indicators other than those listed in italics are time-varying, year by year.

Model

Nested discrete-time event history analysis is employed to predict first migration to Europe. Only direct first-time migration from the origin country (DR Congo, Ghana or Senegal) to Europe will be considered. All other migration (to other countries in Africa, to the U.S.) will be censored in the year of first migration. Individuals enter the risk pool at age 17, with first possible migration to Europe at age 18.

Both pooled and origin-country-specific models will be utilized. We will run interaction models to account for possible interactions between context and migrant networks.

Results

Descriptive statistics

Table 1 displays some descriptive statistics for migrants and non-migrants. There are differences among migrant from the three countries. This is seen most starkly in terms of education. While all groups of migrants are more highly-educated than their non-migrant compatriots, this is particularly the case for the Congolese and Ghanaians. In contrast, Senegalese migrants are far less educated: 37% had a primary school education or less, while 0% of Congolese and only 1% of Ghanaian migrants fell into this category. In terms of migrant networks, in all three countries, migrants are more likely than non-migrants to have migrant networks, and migrants' networks are larger. Congolese and Ghanaian migrants are older (average ages 29.4 and 28.1, respectively) than Senegalese migrants (26.9). Senegalese migrants are mostly male (0.69), while the other two groups are more sex-balanced. In terms of migrant networks, Congolese migrants are more likely to have (non-household) migrant networks and migrant spouses than either their Ghanaian or Senegalese counterparts, and their networks are larger.

Pooled empirical analysis

Overall, migrant networks play a key role in raising an individual's likelihood of migrating to Europe. This is true for both non-household migrant networks (Table 2, Models 1 and 3, $p<0.001$) and household migrant networks (Table 2, Models 1 and 3, $p<0.001$). The main determinants of sub-Saharan Africa migration to Europe support previous theoretical and empirical literature: migration is stratified by sex, origin family conditions, current occupational status, and property status, as well as migrant networks. Men are more likely than women to migrate (Table 2, Models 1 and 3, $p<0.01$). Parents are less likely to migrate than non-parents (Table 2, Models 1 and 3, $p<0.001$). People whose origin families had resources distributed among more siblings are less likely to migrate (Table 2, Models 1 and 3, $p<0.01$). Students ($p<0.01$), the unemployed ($p<0.10$) and retired people ($p<0.01$) are more likely to migrate to Europe (Table 2, Models 1 and 3). There is evidence that migration to Europe requires a certain amount of resources: homeowners are more likely to migrate (Table 2, Models 1 and 3, $p<0.01$). At the same time, there is evidence that migrants do weigh their prospects at both origin and destination before deciding to migrate. The fact that business owners are less likely to migrate (Table 2, Models 1 and 3, $p<0.05$ and $p<0.10$, respectively) may indicate that migrants with good employment prospects at origin or whose social and economic capital are more tied to origin are less likely to migrate.

Overall, there is mixed support for our context hypotheses. In terms of economic context, economic growth does not have a significant influence overall, although inflation appears marginally to *decrease* migration likelihood (Table 2, Model 1 and 3, $p<0.10$). We had expected that families would heighten migration strategies during times of economic hardship, while this may still be true in the long-term, inflation instead

appears to surprisingly dampen migration in at least the short-time. This may signal that if inflation increases abruptly, the costs of reaching European destinations are similarly increased.

In terms of political context, we find the hypothesis for political climate confirmed, while the influence of violence runs contrary to expectations. Political instability is related to higher likelihood of migration to Europe. This is confirmed both for our measure of political instability using Polity IV Project data (Table 2, Model 1, $p<0.05$), as well as Freedom House's Civil Liberties measure (Table 2, Model 3, $p<0.01$). Also, violence appears to have an overall dampening effect on migration (Table 2, Model 1 and 3, $p<0.001$). The small and contrary effect of violence may be due to the relative absence of violence in Ghana during the years of study, and the relative distance between battles and major population centers in Senegal and DR Congo. In Senegal, violence was mostly contained to the Casamance region in the south, while DR Congo's violence was mostly situated in the Shaba (Katanga) province near the Angolan border, far away from the capital city Kinshasa.

Finally, none of the interactions between networks and context are statistically significant. This may be due to contrary effects in the three different countries, and the pooled model capturing much heterogeneity. The country-specific models should help clarify this.

Country-specific analysis

We find evidence to support the hypotheses related to macro-economic climate. Changes in the macro-economic climate affect individual's calculation of the costs and benefits of migration. Economic growth dissuades Congolese migration to Europe (Table 3, Model 1, $p<0.001$), affirming results previously found (González-Ferrer et al 2013). Curiously

enough, we do not find significant effects for either Ghana or Senegal, unlike previous studies that find that economic growth either dampen Senegalese migration (Liu 2013) or heighten it (González-Ferrer et al 2013). It is possible that the other contextual effects included here capture or disperse some of the previously-found influences of economic growth.

However, there is evidence that in times of economic growth, networks influence migration less. This is true in both Ghana and Senegal (Table 3, Models 4 and 6, $p<0.10$). In other words, as opportunities increase at origin, international migration to Europe appears to become less selective in terms of social capital. This is evidence that the different migration theories are clearly linked, and that during good economic times, migration becomes less selective.

In times of political instability, the likelihood of Senegalese migration to Europe falls (Table 3, Model 5, $p<0.10$). The effects appear to be in the same direction for the other countries, but the effects are not statistically significant. Our hypothesis predicted the opposite, but these findings fall in the direction of Williams et al's (2012) conclusions that political instability dampens migration in the case of Nepal.

During times of political instability, the influence of networks on Congolese migration to Europe grows (Table 3, Model 2, $p<0.001$). The same effect is not seen for Ghana and Senegal, where results are not statistically significant. A possible explanation is the tumultuous history of DR Congo, where there was great political instability and civil conflicts during the period of study. In seasons of political instability, it appears that migration becomes more selective, more determined by social capital (migrant networks). Given the high costs and barriers of migration for migration from DR Congo to Europe, a stressed origin environment may

create the conditions for increased selectivity of migration to Europe, while less socially privileged migrant may opt for internal or intra-continental migration.

The models were re-run with an alternative measure of politics and political instability, using the Freedom House political rights and civil liberties measures (its counterintuitive scale runs from 1 – highest freedom to 7- lowest freedom). These results confirm the suppositions above that DR Congo is a particular case due to its recent history of armed conflict, and different from Ghana and Senegal. In general, increasing civil liberties appears to dissuade migration. Results support this in Ghana and Senegal (Table 4, Models 3 and 5, $p<0.05$ and $p<0.01$ respectively), but DR Congo differs. In DR Congo, decreasing civil liberties appear to be related to dampened migration, although the effect is not statistically significant (Table 4, Model 1).

All in all, this may be evidence that decreasing civil liberties increases migration in a context free of armed conflict, but does not do so in a context with recent armed conflict.

As civil liberties weaken, networks become less important for Congolese migration to Europe (Table 4, Model 2, $p<0.10$). This is evidence that migration becomes less selective socially (as measured by the use of social capital) as civil liberties weaken in DR Congo. Decreased civil liberties is associated with an increased level of social control by the government. One possible explanation is that certain social groups are privileged by association with such a more authoritarian government (one kind of privilege may be social, or having migrant networks in Europe) and are more likely to benefit materially and socially by staying in the country. If so, these individuals will be less likely to migrate out. At the

same time, other individuals will see rights and privileges heavily restricted, and the opportunity cost of migration decrease.

Conclusion

This paper is motivated by three theoretical opportunities in the literature. First, it is yet unexplored how the dominant migration theories may jointly influence international migration. Second, it seeks to link the two large families of studies: one primarily focused on economic migration, and the second focused on refugee and asylum or so-called political migration. We argue that all migration has both economic and political components, and that migration scholarship ought to reflect this. We aim to contribute to the growing family of studies which consider such diverse contexts of violence and political instability, and GDP per capita growth. Finally, we seek to strengthen the literature on migrant networks and its mechanisms by explicitly linking it to contextual variables.

Overall, there is evidence that context impacts the influence of migrant networks, or as we term the social selectivity of migration flows. During times of economic growth, migration becomes less socially selective during periods of economic growth in both Ghana and Senegal. The role of migrant networks in Congolese migration is particularly sensitive to politics. During times of political instability (with violence, economic growth and inflation held steady), Congolese migration appears to become more socially selective: migrant networks gain influence during these times. At the same time, as civil liberties weaken, Congolese migration to Europe becomes less socially selective.

Nevertheless, this paper has certain limitations. First and foremost, the paper does not explicitly deal with destination contextual factors, including migration policies, which are important for both theoretical and

empirical reasons. The nature of the data (single origin – double or triple destinations) limits our ability to account for destination variables, but this should be explored more. Second, country-level indicators for violence and political instability may be a stretch for mechanisms, especially when compared to studies which use local or district-level indicators of violence, Nepal Chitwan studies. Alternative measures ought to be explored exhaustively. Third and importantly, some differences among determinants of migration to Europe from the three countries may reflect different family cultures, migration stage, rather than the contextual effects targeted in this paper. In their MAFE-based study, Mazzucato and colleagues (2013) argue that the patterns of transnational family arrangements are especially related to policies regarding family reunification, legal status, and the age of the migration flow. Finally, the analysis may suffer from a problem of multi-collinearity. The different economic, political and violence contextual indicators may be correlated through the years in each country context.

Future work should aim to remedy these.

Tables and Figures

Table 1. Descriptives of the Sample, Migrants vs. Nonmigrants for DRC, Ghana and Senegal

		D.R. Congo				Ghana				Senegal			
		Migrants		Nonmigrants		Migrants		Nonmigrants		Migrants		Nonmigrants	
Network variables	Non-household migrant network												
	Having network	0.47	(0.08)	0.17	(0.01)	0.32	(0.04)	0.12	(0.01)	0.36	(0.03)	0.29	(0.02)
	Size of network	1.15	(0.17)	0.31	(0.03)	0.48	(0.06)	0.16	(0.02)	0.69	(0.06)	0.52	(0.05)
Alternative Explanations	Household migrant network												
	Having network	0.16	(0.03)	0.11	(0.01)	0.24	(0.04)	0.03	(0.01)	0.31	(0.03)	0.17	(0.02)
	Size of network	0.39	(0.09)	0.19	(0.03)	0.51	(0.11)	0.04	(0.01)	0.49	(0.04)	0.25	(0.03)
	Migrant Spouse	0.18	(0.08)	0.00	(0.00)	0.09	(0.02)	0.02	(0.01)	0.09	(0.01)	0.02	(0.00)
CO-VARIATES	Age	29.4	(0.9)	39.6	(0.6)	28.1	(0.5)	39.2	(0.6)	26.94	(0.31)	38.94	(0.66)
	Male	0.47	(0.08)	0.40	(0.02)	0.52	(0.05)	0.35	(0.02)	0.69	(0.03)	0.46	(0.02)
Origin Household	Firstborn	0.17	(0.03)	0.23	(0.02)	0.26	(0.04)	0.24	(0.02)	0.27	(0.02)	0.24	(0.02)
	Number of Siblings	7.2	(0.5)	7.3	(0.1)	6.1	(0.3)	6.0	(0.2)	7.24	(0.24)	8.33	(0.27)

Father's	No schooling	0.06	(0.02)	0.11	(0.01)	0.14	(0.04)	0.21	(0.02)	0.45	(0.03)	0.45	(0.02)
Education	Primary	0.10	(0.02)	0.19	(0.02)	0.07	(0.02)	0.20	(0.02)	0.21	(0.02)	0.15	(0.02)
	Lower secondary	0.47	(0.08)	0.43	(0.02)	0.40	(0.05)	0.37	(0.02)	0.27	(0.02)	0.20	(0.02)
	Baccalaureate & above	0.25	(0.04)	0.11	(0.01)	0.32	(0.04)	0.09	(0.01)	na		na	
	Father Unknown	0.04	(0.01)	0.08	(0.01)	0.08	(0.02)	0.07	(0.01)	0.07	(0.01)	0.09	(0.01)
Own household & situation													
	Number of Children	1.4	(0.2)	3.4	(0.1)	0.9	(0.1)	2.4	(0.1)	0.77	(0.07)	2.97	(0.16)
	Have a child	0.52	(0.08)	0.79	(0.02)	0.49	(0.05)	0.77	(0.02)	0.37	(0.03)	0.74	(0.02)
Own	No formal schooling	0.00	(0.01)	0.02	(0.00)	0.00	(0.00)	0.07	(0.01)	0.16	(0.02)	0.27	(0.02)
Education	Primary school	0.00	(0.00)	0.04	(0.01)	0.01	(0.01)	0.03	(0.01)	0.21	(0.02)	0.32	(0.02)
	Lower secondary	0.04	(0.01)	0.17	(0.02)	0.04	(0.01)	0.09	(0.01)	0.24	(0.03)	0.14	(0.01)
	Baccalaureate & above	0.94	(0.01)	0.66	(0.02)	0.72	(0.04)	0.68	(0.02)	0.39	(0.03)	0.15	(0.02)
Occupational Status	Working	0.20	(0.08)	0.58	(0.02)	0.54	(0.05)	0.71	(0.02)	0.63	(0.03)	0.54	(0.02)
	Studying	0.49	(0.08)	0.06	(0.01)	0.38	(0.05)	0.04	(0.01)	0.18	(0.02)	0.03	(0.01)
	Unemployed	0.12	(0.02)	0.13	(0.02)	0.04	(0.01)	0.03	(0.01)	0.08	(0.01)	0.04	(0.01)
	At Home	0.10	(0.02)	0.10	(0.01)	0.02	(0.01)	0.05	(0.01)	0.10	(0.01)	0.21	(0.02)
	Retired	0.01	(0.00)	0.00	(0.00)	0.01	(0.01)	0.05	(0.01)	-		0.03	(0.01)
	Other Inactive	0.09	(0.02)	0.01	(0.00)	0.01	(0.01)	0.01	(0.00)	0.01	(0.01)	0.02	(0.01)
Property ownership	Land	0.08	(0.02)	0.14	(0.02)	0.07	(0.02)	0.13	(0.02)	0.05	(0.01)	0.09	(0.01)
	House	0.08	(0.02)	0.13	(0.01)	0.04	(0.01)	0.06	(0.01)	0.07	(0.01)	0.10	(0.01)
	Business	0.06	(0.01)	0.23	(0.02)	0.06	(0.02)	0.26	(0.02)	0.04	(0.01)	0.08	(0.01)
	N	327		1739		372		1293		585		1083	

Note: Data are weighted. Migrant values from year of migration, Nonmigrant values from survey year

Source: MAFE 2010.

Table 2 Logistic regression of the odds of being a first-time migrant in a year: Pooled Models of Economic and Political climate

	Migration to Europe		Migration to Europe	
	M1	M2	M3	M4
Having a Network	3.178***	3.158***	3.033***	3.234***
Macro-economic indicators				
GDP per capita growth (%)	1.015	1.019	0.996	1.005
Inflation rate (%)	1.000†	1.000	1.000†	1.000
Political and Violence indicators				
Political Instability	1.072*	1.093†		
Political Rights			0.988	0.984
Civil Liberties			0.782**	0.789**
Violence	1.000***	1.000***	1.000***	1.000***
Interactions				
Networks x GDP growth		0.969		0.959
Networks x Inflation		1.000		1.000
Networks x Political Instability		0.982		
Networks x Civil Liberties				0.982
Control for household migrant network	3.678***	3.667***	3.669***	3.656***
Other Controls				
Sex (reference: male)^	0.690**	0.687**	0.681**	0.679**
Age	1.435***	1.439***	1.417***	1.418***
Age x Age	0.994***	0.994***	0.994***	0.994***
Firstborn^	1.042	1.037	1.047	1.043
Number of Siblings^	0.958**	0.958**	0.961**	0.961**
Own education^ (ref: lower secondary)				
Primary or lower	0.993	0.984	0.987	0.982
Upper secondary	1.167	1.165	1.258	1.254
Tertiary	0.775	0.774†	0.885	0.882
Have a child	0.790***	0.789***	0.812***	0.812***
Occupational Status (ref: working)				
Studying	2.106**	2.126**	2.253***	2.274***
Unemployed	1.348†	1.360†	1.567*	1.579*
At home	1.079	1.082	1.103	1.103
Retired	8.780**	9.026**	8.226**	8.431**

Other inactive	1.273	1.273	1.282	1.286
Property Ownership				
Land	1.071	1.067	1.065	1.066
House	1.817**	1.821**	1.809**	1.812**
Business	0.644*	0.649†	0.655†	0.657†
Number of Person Years	100452	100452	100452	100452

Notes: Results are presented in odds ratios.
^Time-invariant indicators. All other indicators are time-varying, year by year.
Source: MAFE 2012. †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 3 Logistic estimation of the odds of being a first-time migrant in a year: Economic and political climate, Polity IV Project measures

	Migration from DR Congo		Migration from Ghana		Migration from Senegal	
	M1	M2	M3	M4	M5	M6
Having a Network	3.690**	2.345**	3.501***	5.773***	1.904***	1.978**
Macro-economic indicators						
GDP per capita growth (%)	0.933***	0.926**	0.970	0.984	1.012	1.034
Inflation rate (%)	1.000	1.000	0.992	0.994	0.994	0.991
Political and Violence indicators						
Political Instability	1.170	0.940	1.084	1.123	1.047†	1.055†
Violence	1.000	1.000	1.021	1.023	1.000	1.000
Interactions						
Networks x GDP growth		1.032		0.926†		0.929†
Networks x Inflation		1.00		0.988		1.009
Networks x Political Instability		1.489***		0.862		0.981
Control for household migrant network	3.311***	3.434***	7.974***	7.911***	2.456***	2.446***
Number of Person Years	37628	37628	27810	27810	28540	28540

Notes: Results are presented in odds ratios. Controls include age, age sq, gender, *firstborn, number of siblings, own highest level of education*, having children, occupational status, landownership, homeownership, business ownership, period effects. All indicators other than those listed in italics are time-varying, year by year.
Source: MAFE 2010. †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

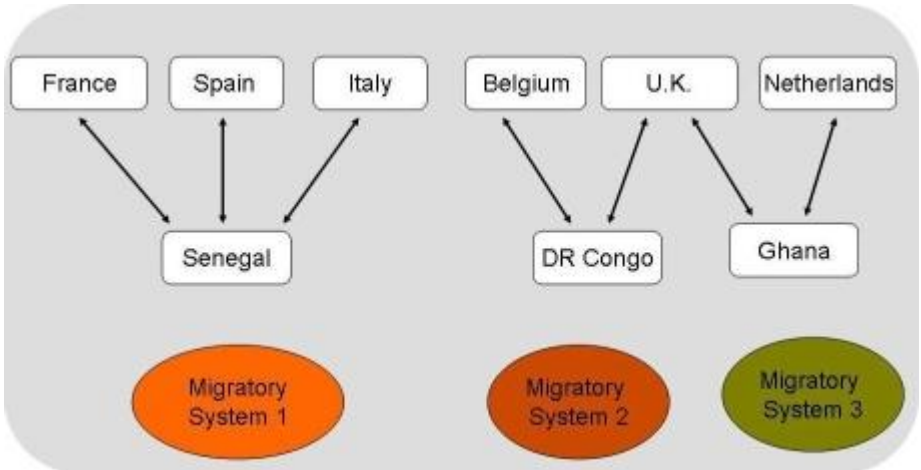
Table 4 Logistic estimation of the odds of being a first-time migrant in a year: Economic and political climate, Freedom House measures

	Migration from DR Congo		Migration from Ghana		Migration from Senegal	
	M1	M2	M3	M4	M5	M6
Having a Network	3.649**	9.52 e4*	3.732***	11.401***	2.009***	1.059
Macro-economic indicators						
GDP per capita growth (%)	0.924*	0.922†	1.000	1.021	1.008	1.029
Inflation rate (%)	1.000	1.000	0.990	0.992	0.971***	0.970**
Political and Violence indicators						
Political Rights	0.932	0.972	0.764	0.759	1.112	1.104
Civil Liberties	0.658	1.159	1.904*	2.01**	1.414**	1.350*†
Violence	1.000	1.000	1.001	1.008	0.998	1.000
Interactions						
Networks x GDP growth		1.029		0.890*		0.930†
Networks x Inflation		1.000		0.991		0.999
Networks x Civil Liberties		0.178†		0.822		1.203
Control for household migrant network	3.306***	3.493***	8.515***	8.585***	2.607***	2.594***
Number of Person Years	37628	37628	27810	27810	28540	28540

Notes: Results are presented in odds ratios. Controls include age, age sq, gender, *firstborn, number of siblings, own highest level of education*, having children, occupational status, landownership, homeownership, business ownership, period effects. All indicators other than those listed in italics are time-varying, year by year.
Source: MAFE 2010. †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Figures

Figure 2: The three migration systems of the MAFE project



Source: http://www.mafeproject.com/

Figure 3: Literature review of cross-country micro-level studies of international migration

Article	Data[42]	Countries	Findings	Migration Measure	Country Context Measures	Social capital indicator
Alvarado, S. and D. Massey (2010)	LAMP & MMP	Guatemala, Costa Rica, Mexico and Nicaragua	Violence (homicide rate) significantly decreases out-migration in Mexico and Costa Rica, while increasing it from Nicaragua and having no significant effects in Guatemala. Nicaraguan migrant households appear to be richer: business-owners and those with well-educated spouses are more likely to migrate.	1st Male Household migration to U.S.	**GDP relative to U.S.**, economic openness (total trade as share of GDP), **violence** (homicide rate)	Family in U.S. (nº immediate family ties)
Cerrutti, M. and M. Gaudio (2010)	LAMP & MMP	Mexico-USA, Paraguay-Argentina	Mexican women with a migrant husband were more likely to migrate to the U.S. and no such effect for neither Mexican men, nor Paraguayan women and men.	1st female U.S. migration	none	Location of husband or partner (destination, origin, no partner)
Donato, K. (2010)	LAMP & MMP	Costa Rica, Dominican Republic, Mexico, Nicaragua, Puerto Rico	It appears that Mexico-U.S. migration can be characterized as male-led undocumented migration, while in the Dominican Republic, migration appears to be female-led and documented. Migration from Costa Rica and Nicaragua fall in-between, while migration from Puerto Rico does not vary significantly by gender.	Cumulative likelihood that men and women will migrate to U.S. by age 50, with and without documents	none	None
Fussell, E. (2010)	LAMP & MMP	Costa Rica, Dominican Republic, Mexico, Nicaragua, Puerto Rico	There is evidence for a cumulative causation of migration explanation (that individual migration likelihood increases as the migratory experience in one's origin community grows) of migration from DR, Costa Rica, Mexico and Puerto Rico. The only exception is Nicaragua: migration from Nicaragua was driven primarily by the Contra War and U.S. political asylum granted during this period.	1st male U.S. migration	none	Migrant parent, migrant brother, migrant sister, Community migration prevalence ratio
González-Ferrer, A., E. Kraus, P. Baizán, C. Beauchemin, R. Black	MAFE	Democratic Republic of Congo, Ghana, Senegal	African migration to Europe is positively selected in terms of education; this is particularly true for return migration. Having personal connections to Europe is a great resource, especially partners in Europe, for migration from all three countries. Age and gender had inconsistent effects. Senegalese women are less likely to migration to Europe, but gender does not stratify migration from DR Congo or Ghana. Younger people are more likely to migrate from Ghana and Senegal, the same is not true	1st migration to Europe	**GDP growth at origin** (lagged 2 years), Devaluation	Partner in Europe, partner at origin, partner in other countries; Child in Europe, child at origin, child in other countries; other relatives/friends in Europe

[42] We use abbreviations for brevity's sake: MAFE refers to the Migration between Africa and Europe Project; MMP refers to the Mexican Migration Project; and LAMP refers to the Latin American Migration Project.

and B. Schoumaker (2013)			for DR Congo.			
Hiskey, J. and D. Orces (2010)	LAMP & MMP	Mexico (Guerrero and Oaxaca), Nicaragua, Peru	PERU & NIC 1. In Peru and Nicaragua, older migrants and women, as expected, are more likely to migrate in an era of increased constraints on opportunities. However, results are mixed in Nicaragua. After the shock (end of war), there is - as expected - a higher prevalence of unemployed and low-income first time migrants. Contrary to expectations, age is also significant, while gender is not. GUERRERO & OAXACA (control). 1. Having undergone the political shock (electoral violence), the post-1989 Guerrero first-time migrant are more likely to be female, older, more highly educated than their predecessors. The same is not seen for Oaxacan migrants.	1st U.S. migration, before and after political shocks	none	None
Lindstrom, D. and A. Lopez Ramírez (2010)	LAMP & MMP	Costa Rica, Dominican Republic, Guatemala, Mexico, Nicaragua	Pioneers and followers differ in terms of migrant network: followers' network size doubles that of pioneers; and while a quarter of pioneers have migrant siblings, nearly half of followers do. Pioneers are a bit younger and less likely to be married than followers. They are also less likely to own businesses or agricultural land. However, Mexican pioneers are more likely to have legal documents than followers; this could be a remnant of the *Bracero* program.	1st U.S. migration, pioneers and followers	None	Size of migrant network, migrant siblings,
Massey, D. and F. Riosmena (2010)	LAMP & MMP	Costa Rica, Dominican Republic, Mexico, Nicaragua	Undocumented migration by tourist visa is positively selected by education, while those crossing without inspection are negatively selected. This selection is driven by Mexican migration. Costa Ricans (and Nicaraguans) are more likely to migrate with a tourist visa than Mexicans and Dominicans. Social Capital effects (migrant parent or sibling) are particularly strong for non-Mexican migrants crossing without inspection. Non-Mexicans are less likely to migrate without inspection than Mexican. Rising deportations has opposite effects, greater migration likelihood by Mexicans and less by non-Mexicans	1st un-documented U.S. trip, on tourist visa OR without inspection	**Relative GDP per capita**; U.S. Border Patrol Linewatch hours; Deportations; Nº Legal U.S. visas per capita + Community population	Migrant parent, or migrant sibling
Massey, D., M. Fischer and C. Capoferro (2006)	LAMP & MMP	Costa Rica, Dominican Republic, Mexico, Nicaragua, Puerto Rico	Males with a migrant spouse were more likely to migrate from patriarchal countries (MX and CR), while females with a documented migrant spouse were much less likely to migrate from matriarchal countries (DR and NIC).	U.S. migration in last three years, patriarchal or matrifocal country	none	Migrant spouse, documented or not documented; Relatives in the U.S.
Mazzucato, V., D. Schans, K. Caarls and C.	MAFE	Democratic Republic of Congo, Ghana, Senegal	There are differences among DR Congo, Ghana and Senegal. Senegal's traditions of polygamy and spatial separation of couples appear to facilitate transnational couple formation upon migration. At the same time, legal status play a key role: more Senegalese in Italy have transnational family structures than France's Senegalese, and (undocumented) legal status plays a	Belonging to a transnational family	None	None, apart from the d.v.

Beauchemin (2013)			role in this. Congolese and Ghanaian migrants are less likely to be in a transnational family arrangement in the UK, compared to Belgium and the Netherlands, respectively. Finally, family structures are dynamic, gendered with reunification happening both at origin and destination.			
Sana, M. and D.S. Massey (2005)	LAMP & MMP	Dominican Republic and Mexico	Migration from Mexico is consistent with expectations from NELM, while migration from the DR appears to be powered by fulilling basic needs. The study investigated household composition, family migration and community context. Nuclear households are less likely to receive remittances, but this is more the case in the D.R. than Mexico. Also, having a female householder abroad drastically lowers chances household receives remittances (authors argue that family reunification abroad is outside the realm of NELM). In Mexico, remittances were more likely in more developed community contexts, while in DR, they were more likely in less developed community contexts.	Whether household receives remittances	none	Female householder abroad, Male householder abroad, Migrant son, Migrant daughter, other relative abroad
Toma, S. and S. Vause	MAFE	Democratic Republic of Congo, Ghana, Senegal	Senegalese female migration is powered by geographically-concentrated and closely tied networks, while Congolese female migrants are more likely to be "pioneers" and benefit especially from extended family and friend networks.	1st out-migration	none	Partner abroad, partner location, close family abroad (count), friends + extended family abroad (count), men abroad (count), women abroad (count), return migrants, network experience (cat.), size of current network (cat.), geographical concentration (cat.)

Figure 4: Literature review of context-focused country studies of migration

Article	Data	Country	Findings	Migration Measure	Context Measures	Social capital indicator
Bohra-Mishra and Massey (2011)	Chitwan Valley Family Study	Nepal	Low to moderate levels of violence reduce migration, while high levels of migration increase migration. Most individual and household-level characteristics were consistent with expectations of major migration theories	Local, internal and international migration	**Violence index** (factor analysis of 6 indicators of violence in Chitwan, and surrounding districts); **Indexes of Household ownership** (farmland, goods, livestock, amenities)	Household migrant in Chitwan district; Household migrant in other districts; Household migrant abroad
Lundquist and Massey (2005)	LAMP		Economic growth suppressed migration to both the U.S. and Costa Rica, while Contra War violence increased U.S. migration and decreased Costa Rica migration. U.S. family ties appeared to be even more important during periods of Contra War violence.	Migration to U.S.; migration to Costa Rica	**GDP**; **Contra War violence** (annual count of articles about the Contra War in South, Central and North American press resources)	Number of family members with previous U.S. migration experience; Number of family members with previous Costa Rican migration experience
Massey and Espinosa (1997)	MMP	Mexico	Mexico-U.S. migration is influenced by three processes that feedback on themselves and one another: "social capital formation, human capital formation, and market consolidation" (Massey and Espinosa 1997: 939)	U.S. migration	**Macroeconomic context** (expected wage ratio, peso devaluation, MX inflation rate, U.S. employment growth, growth in foreign investment, MX real interest rate); **U.S. policy context** (availability of visas, probability of apprehension, employer sanctions enacted); **Community infrastructure** (prep school, paved road, bank); **Expected value of U.S. services** (welfare, medical care, education), **Community economic context** (% earning 2x min. wage, % self-employed, % females in manufacturing); **Community agrarian context** (agrarian economy, agrarian pop. Density, proportion of arable land, *Eijdo* established)	U.S. migrant parent; Number of U.S. migrant siblings; % of U.S. migrants in community
Williams, Ghimire, Axinn, Jennings and Pradhan (2012)	Chitwan Valley Family Study	Nepal	Violence appears to suppress migration, while political instability increases migration.	International migration	**Threat of harm** (major gun battles); **Political instability** (political events); Ceasefires	none

Chapter 5. Conclusion

Introduction

Migrant kin and friends in destination countries can influence migration by providing information and resources to potential migrants. Scholars tend to study networks and migration from distinct perspectives. Demographers and economists have largely focused on close kinship networks and community-level networks. Anthropologists have researched the role of extended family structures and transnational households. Overall, the scholarship has been limited in exploring the full range of personal ties; the potential links between different motivations for migration and the resources individuals mobilize to migrate; and how the role of social capital may be sensitive to context. Lacking this information, we are left hobbled in our effort to explain the social determinants of international migration, especially for under-researched regions like sub-Saharan Africa.

In this dissertation, I have deeply examined the role of social capital in international migration and attempt to respond to three theoretically and empirically relevant questions. First, I seek to understand the role of personal weak ties. Second, I analyze how the role of social capital varies for migrations of varying legal status. Third, I explore how contextual factors may influence the role of social capital in migration. Specifically, I focus on differential migration patterns between sub-Saharan Africa and Europe from 1970 to 2008 - a setting which provides a novel data source for researchers. The Migration between Africa and Europe (MAFE) surveys, analyzed in this dissertation, contain decades of retrospective

information for individuals surveyed in three countries in Africa (Democratic Republic of Congo, Ghana and Senegal) and in six countries in Europe (Belgium, France, Italy, the Netherlands, Spain, UK).

Theoretical Framework

International migration is complex, and its study has benefited from several theoretical perspectives. For understanding individual-level and family-level migration behavior, three theoretical viewpoints are particularly salient: the neoclassical economic perspective, the new economics of labor migration perspective, and the social capital perspective. The neoclassical economic perspective (*e.g.* Todaro 1969) first emerged from studies of rural-urban migration and has suggested that individuals' primary motivation to migrate is to maximize income. The new economics of labor migration (*e.g.* Stark and Bloom 1985) has proposed that households and families, rather than individuals, play the key role in decision-making about migration and that migration is motivated by a desire to distribute economic risk and access to credit and capital across different markets. Finally, the social capital perspective has argued and explored the importance of social networks that link potential migrants to destination (*e.g.* Boyd 1989, Massey and Espinosa 1997, Curran and Rivero-Fuentes 2003). This doctoral dissertation joins previous studies (Massey and Espinosa 1997, Munshi 2003, Palloni et al 2001, Stecklov *et al* 2010) in an effort to integrate and build on all three perspectives.

The role of social capital in migration can also be considered from a theoretical perspective of resource utilization. In his highly influential 1986 work, Pierre Bourdieu distinguished among three kinds of capital: economic, cultural (or human) and social. Bourdieu argued for the fungibility (or convertibility) of the different forms of capital (1986:251). Other scholars argued that social capital is not completely fungible and is, in fact, specific to certain activities (Coleman 1988; S98), for example migrant networks in the case of migration (Massey et al 1987: 170). In terms of migration, behavior is found to be strongly influenced by all three forms of capital. The necessary economic resources depend on the type, route and destination of migration. Migration often depends on paid third parties: migration brokers (*e.g.* Alpes 2011 for Cameroon), *passeurs* in the Senegal-Europe context (see Poeze 2010) or *coyotes* in the Mexico-U.S context (Garip and Asad 2013). The role of human capital resources (for example, education) depends on the returns to education at origin and the anticipated returns to education at destination. This doctoral dissertation explores the mobilization of social capital resources in migration, how these may be related to diverse migration strategies or motivations, and how political and social contexts of origin are related to these.

Main Contributions

This dissertation aims to offer several theoretical contributions. The second chapter's ("Testing Weak Ties") contribution is several-fold. First, it tests the migrant network hypothesis, while controlling for several complementary explanations which have been largely neglected by

previous studies. Second, the chapter helps decrease the gap between the "strength of tie" theory and the international migration literature, by exclusively focusing on a wide range of *personal* network ties. Third, the chapter clarifies the role of personal migrant networks by distinguishing among source, amount and diversity of migrant social capital. Finally, the study compares, for the first time, cumulative and dynamic measures of migrant networks.

The third chapter ("Legal status at migration and migrant networks") proposes certain contributions to the current state of the art. First, the study reveals evidence for a potential link between the motivations for migration and the (social) resources an individual mobilizes for such migration. Different migration strategies and motivations appear to employ different migrant social capital resources. Second, the study appears to support the idea that while most international migrations do appear to be family or household-driven, some migrations may be more aptly conceived as "individual-driven". Third, the study distinguishes for "visa overstay" strategy, and finds that it mobilized different social capital resources than either more "authorized" or "unauthorized" strategies.

The fourth chapter ("Social Capital and Context") ventures into a little-explored area of how migrant social capital and contextual effects interact. Although migrant networks are a key link between the micro (individual) level and the macro level of migration systems, theoretical and empirical exploration of how context affects the action of migrant networks has been scarce. This chapter proposes to contribute in various

ways. First, while most quantitative literature is segregated between either economic migration and political migration (refugee or asylum flows) studies, this dichotomy has been criticized as artificial (*e.g.* Richmond 1988, Lundquist and Massey 2005), and this chapter analyzed the economic, political and social determinants of migration together for the three decades of history of the three origin countries. Second, the chapter explicitly theorizes and then tests whether and how migration is socially selective. Finally, the chapter explores how the social selectivity of migration is influenced by economic and political contextual factors.

Main Findings

In the second chapter ("Testing Weak Ties"), I test the strength of tie theory and disentangle the role of social capital from complementary explanations for migration. Of special theoretical interest is the role of weak ties. Here, I explore how the full range of personal kinship and friendship ties influences migration between Senegal and Europe and decompose networks into sources and resources. Through event history analysis, I find that weak ties are highly influential; that individual migration behavior is influenced by the amount and diversity of social capital resources; and that network influences appear to be gendered, especially when network resources are considered.

The third chapter ("Legal status at migration and migrant networks") proposes a comprehensive risk and social capital framework for explaining migrations of different legal statuses and examines the shifting role of social capital. Motivated by the economic and anthropological

literatures and equipped with complete legal status histories for Senegalese migrants, I propose new measures of migrant legal status: legal status at entry *and* legal status during initial stay in Europe. Integrating these measures into the framework, I find that the social capital determinants of migration vary according to legal status and that visa overstay is a strategy that highly mobilizes use of migrant social capital.

In the fourth chapter ("Social Capital and Context"), I investigate how the role of social capital may be sensitive to context. The conceptualization of origin contexts and migrant social capital as interrelated phenomena is both theoretically important and empirically relevant. To this end, this research analyzes heterogeneity among the economies, politics, and armed conflicts of the Democratic Republic of Congo, Ghana and Senegal in recent decades and explores how context and migrant networks influence migration to Europe. Overall, there is evidence that context impacts the influence of migrant networks, or as we term the social selectivity of migration flows. During times of economic growth, migration becomes less socially selective during periods of economic growth in both Ghana and Senegal. The role of migrant networks in Congolese migration is particularly sensitive to politics. During times of political instability (with violence, economic growth and inflation held steady), Congolese migration appears to become more socially selective: migrant networks gain influence during these times. At the same time, as civil liberties weaken, Congolese migration to Europe becomes less socially selective.

Limitations of the Dissertation

There are a number of limitations in this dissertation. First, the entire dissertation focuses exclusively on initial direct migration between origin country and destination country and is unable to comment on more complex or subsequent migration strategies, such as step-wise migration (Paul 2010), transit migration (Baldwin-Edwards 2006), return migration (Flahaux 2013), repeat and failed (Mezger Kveder 2012) migrations. Exploring the role of migrant social capital in these is crucial for understanding the complex social determinants of migration.

A second limitation is the dissertation's treatment of "Europe" as destination. There is a two-fold difficulty. On one hand, while understandable given existing data limitations, the empirical strategy could only proxy for key contextual factors, which largely influence migration: border, immigration and social welfare policies at destination; destination labor market; cultural, economic and historical links between origin and destination. Current efforts to collect and create time-series contextual databanks on immigration policy (Mezger and González-Ferrer 2013) and labor market (International Labour Organization 2013) should help this situation. On the other hand, utilizing Europe as a single destination likely hides much heterogeneity, over space and time.

A third limitation is the limitations of how migrant social capital is measured. While the dissertation may have made certain improvements by accounting for alternative sources of social capital and accounting for resources that networks may provide, the measures used are still not measured of actual use of social capital. Future migration surveys may

consider including additional questions about networks (*e.g.* legal status) or eliciting network information in different ways. Certainly, more in-depth qualitative study of how individual's social surroundings impact their decision-making about migration and other aspects of life will surely help clarify network mechanisms.

A final limitation is the treatment of household in this dissertation. Although considerable steps have been made to distinguish among household strategies and other influences, much work is still to be done. Indeed, the critiques of the unitary household decision-making model are valid here: specifically that this model simplifies and obscures the inherent heterogeneity and complexity of decision-making and families (*e.g.* Coltrane 2000, Hondagneu-Sotelo 1992, Kofman et al 2013). In the migration decision-making process, family hierarchies and roles, bargaining, individual factors, and history all contribute. A more realistic treatment of household would allow for migration decision-making to reflect more its actual non-unitary complexity.

Future Work

In quantitative migration scholarship to date, studies of origin social capital (*e.g.* household structure, strategies) and destination social capital (*e.g.* migrant networks) are largely segregated. Yet, qualitative migration scholarship has shown that potential migrants are swayed by a complex and geographically-distributed web of kin and friends. Future research should investigate how social capital influences are mediated by gender, generation and familial culture. A related idea is to refine the concept of household in migration research. In a context of migration, the traditional

co-resident definition is unsatisfactory since migrants, by definition, are not co-residents, although they may still participate in household decision-making, financing, etc. Cross-country comparative study here will help to clarify the most promising strategies and alternatives.

An additional promising option is to use social demographic methods to examine the determinants of stepwise, transit and failed migrations. Most international migration scholarship focuses on successful direct migration. Prior work on these complex migrations has utilized in-depth interviews to learn the specific motivations and experiences that can lead to stepwise and transit migrations. Since social demographic methods can identify migration's determinants and relate its timing to other life events, they enable us to complement previous study by contextualizing and theorizing about complex migration strategies and outcomes.

Finally, I believe more attention ought to be dedicated to how empirical study and theory connect. While nearly all the dominant migration theories emerged from and were tested in the Mexico-U.S. migration context, much more study is needed to discern how much migration scholars can generalize from that migration flow and its particularities and traits. Theories from more than a generation ago still dominate the field, and as international migration has exploded in geography and complexity, it is a good historical moment to strategize about developing new, renewed migration theories emerging from and applicable to current times and contexts; and testing these theories rigorously with broad empirical study.

Potential Implications for Policy

This dissertation could have several possible implications for policy. First, contrary to what is advertised by the popular press and politicians, the large bulk of migration (at least in the Senegal-Europe case) is *authorized* by European officials. Although externalizing migration control responsibilities and investing in high-technology border control may be convenient politically and institutionally, the reach of these policies are very limited, and policymakers ought to recognize and respond to the complicated dynamic nature of migration. Second, while close family members remain important in influencing migration, a key role is played by weaker personal ties, especially friends. As a result, the reach of European policymakers' recent efforts to restrict legal family reunification will be limited. Finally, there is evidence that the selectivity of migrant flows is sensitive to economic, political and social changes at origin. Broad and systematic understanding of complex migration systems and how these are dynamic is necessary for effective policy-making.

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