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# Embeddedness, entrepreneurs' social networks and members' attributes in African informal economy's outcomes

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## **1. Introduction**

‘The first paradox of the informal economy is that the more it approaches the model of the “true market”, the more it is dependant on social ties for its effective functioning’. Although this assertion of Portès (1994: 430) has strong resonances in the field of African urban informal economy, it called for examination. What are these social ties, what are their characteristics and what are their effects on informal economy dynamics and outcomes? The important thing is not to say that social relations and networks matters, but to investigate how they matter.

Since its introduction by anthropologist Keith Hart (1973), informal economy has been the object of a wide literature, particularly in development economics. Described as an extremely heterogeneous collection of activities partly conducted on the fringe of state rules, it constitutes core livelihoods strategies for many people in the developing world. Informal economy has shown rapid growth in the developing countries during last decades, especially in urban African cities where it contributes on average for 61% of employment (Xaba and al., 2002). Theoretical debates on informal economy have been structured for a long time around the opposition between ‘sector-based dualism’ and ‘dependence of petty commodity production’ (Moser, 1978). At the end of the eighties, this opposition has shift between the ‘legalist approach’ (de Soto, 1987) and the ‘structuralist informalization’ one (Portès and al., 1989, Meagher, 1995). Since the nineties, several critics have been addressed to these major theoretical frameworks, regarding their ability to consider endogenous social dynamics and

actors' strategies or rationalities. The priority task thus became the construction of a fine knowledge of actors' logics, organizations, and multiple social frames of insertion. One little-known aspect of these dynamics is the role of social networks as a major form of social regulation. Thus, many authors have considered social networks as a pertinent level for analyzing informal entrepreneurial dynamics.

Indeed, social networks and relations may facilitate access to diverse useful resources for entrepreneurs, as for example information, ideas and knowledge (about markets, activities, and skills) or financial and material support (notably in time of crisis). From an economic standpoint, social networks reduce transaction costs. It can also improve social control, trust, and reinforce collective action. In an African context of states and modern institutions failure, social networks and personal relations inevitably play an important role in structuring economic activities. Regarding informal activities, it is of special importance as it also compensates for the weakness of small firms internal resources. Two interrelated perspectives coexist in studies of social networks in African informal economy. The first one focuses on inter-firm networks, as in clusters and industrial districts studies. Some interesting works have been conducted on the role of social networks in the dynamics of such small firms clusters in Africa (McCormick, 1996, 1999; Brautigam, 1997, Meagher, 2007). Nevertheless, such clusters remain quite rare in Sub-Saharan Africa. Our approach is thus firmly rooted in the second perspective. This one focuses on entrepreneurs' social and personal networks (Kristiansen, 2004). Although often confused with the first perspective, it mainly differs by considering 'informal' links, like kinship or friendship ties (social support ties), in addition to 'formal' links (business ties between firms). Indeed, observed networks go through usual frontiers of social institutions and categories. The present article explores the role of entrepreneurs' social networks in the informal economy of Bobo-Dioulasso, the second city of Burkina Faso. In such urban context, rapid social changes question the configuration of entrepreneurs' social network and its impact on economic outcomes. Our definition of entrepreneurs' social networks refers to their social relations conveying resources needed for activities' current exploitation (tangible and intangible). Here, we especially focus on socio-economic characteristics of entrepreneurs' social network members. This dimension represents a crucial and complex aspect of social networks economic impact. It has been essentially studied under the framework of 'social resource theory' (Lin, 2001), which considers that social status of network's members is a predictor of the quality of resources conveyed by social relations. According to Lin, access to high social status by his network permits more efficient instrumental action.

In order to challenge this problematic, we propose an approach structured around Granovetter's (1985) 'reticular embeddedness' conceptual framework. It is both theoretically and empirically well defined to evolve an economic sociology of African urban informal entrepreneurship. However, Granovetter structures its economic sociology of small firms and entrepreneurs in developing countries from ethnic communities. Here, it is associated with an 'ego-centered' conception of social networks that define personal network as one person's set of connections with others (Wellman, 2007a). Such approach necessitates specific personal networks data (Wellman, 2007b). We consequently conducted an original survey on a representative sample of 317 Bobo-Dioulasso's entrepreneurs from February to July 2007. In addition to socio-demographic and economic data, personal networks data have been collected on a sub-sample of 278 entrepreneurs. That part of the questionnaire is based on an adaptation of the name generators method (Fischer, 1982; Burt, 1984; Campbell et Lee, 1991; Marsden, 2005). The explanatory power of this approach rests on its ability to produce rich quantitative statistical information about the complex nature of informal entrepreneurs' networks in regard to their members' socio-economic attributes. Quantitative measures of

networks composition and heterogeneity are then computed. They are used to describe the nature of social networks in the informal economy of Bobo-Dioulasso and to compute earnings functions specifically designed to test and discuss the effects of social networks on informal entrepreneurs' income.

This paper is organized as follows. In section 2, a brief overview of theoretical perspectives on social networks in African informal economies precedes a definition of the reticular embeddedness conceptual framework. Section 3 reviews the alleged role of social networks members' attributes in economic performances of African informal firms. Data and survey methodology, especially the name generators method, are discussed in section 4. Section 5 explores the configuration of networks members' attributes, as established in our sample, and then tests its potential effects on informal entrepreneurs' income. Finally, discussion is presented in section 6.

## **2. Embeddedness, social networks and African informal economies: theoretical perspectives**

The nature and role of social networks in African societies have been widely studied by anthropologists, historians and sociologists (Mitchell, 1969; Cohen, 1969), notably concerning wide trading networks from pre-colonial to contemporary periods (as Juula, Hausa, Igbo or Mourides trading networks; see for examples Meillassoux, 1971; Amselle, 1977; Grégoire and Labazée, 1993). From an economic standpoint, the study of contemporary social networks in urban entrepreneurship and informal economy has developed within different theoretical framework. Some are in continuity with major theoretical frameworks on informal economy that opposed neo-institutional to historic-institutional approaches (1.1.). But others socio-economic perspectives emerged. Among these, the 'reticular embeddedness' framework defined by Granovetter (1985) in the field of economic sociology provides a suitable theoretical umbrella, articulated with a clear empirical methodology. It shows especially relevant for a valuable quantitative approach of urban informal entrepreneurship, when associated with an 'ego-centered' conception of social networks (1.2.).

### *1.1. Neo-institutional and historic-institutional perspectives*

Neo-institutional and historic-institutional perspectives on social networks are respectively in connection with 'legalist' (de Soto, 1989) and 'structuralist informalization' (Portès and al., 1989, Meagher, 1995) approaches of informal economy.

On the one hand, neo-institutional perspective considers social relations and networks as a 'social capital' (or 'social network capital') useful to reduce transaction costs (Fafchamps, 1992, 1996, 2001, 2006; Fafchamps and Minten, 1999, 2002; Barr, 2000, 2002). Imperfect markets, like African 'flea markets' (Fafchamps, 2001), are characterized by high transaction costs (information asymmetries, search and screening costs, contract enforcement and conflicts resolution). The importance of trading relations and networks can thus be explained without reference to any pre-existing sociological characteristics, but only according to entrepreneurs' rational behaviour. As game theory demonstrates, relations can emerge from a repeated exchange between agents pursuing their self interest (Fafchamps, 1992, 2001, 2006). Short-term cheating gains are then compared to long-term costs of the re-establishment of a new relationship. As these relations are valuable in a context of imperfect market<sup>1</sup>, it increases

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<sup>1</sup> The trust conveyed by these relations facilitate the flow of reliable information on prices, markets conditions and opportunities, agents' behaviour, technologies and new practices (Greif, 1993; Fafchamps, 1996; Barr, 2002; Bigsten et al., 2000).

cheating costs so that agents may optimally choose to preserve them. This cooperative behaviour for minimizing transaction costs is limited by the number of participants. When it is important, the mechanism of reputation intervenes. It consists on coordination and information sharing in groups, or communities, which makes sanction possible. Finally, social networks are seen in this perspective as an intermediary level that ‘successfully filled the gaps left by failures of both the market and the state’ (Brautigam, 1997: 1065). Empirical evidences of social network capital effects in African entrepreneurship suggest a positive impact on economic outcomes (Fafchamps and Minten, 1999; Barr, 2002).

On the other hand, historic-institutional perspective proposes to open the black box of social networks. It fits in the ‘structuralist informalization approach’ but integrates local, social and historical specificities, like social networks. These networks are generally defined as business networks or ‘informal forms of economic organization’ (Meagher, 2006:557). Meagher’s (2005, 2006, 2007) works set out three dimensions: ‘legacies, linkage and localities’. The notion of ‘legacies’ focuses on the institutional practices embedded in particular networks (social rules, norms and institutions of economic life). The problematic of ‘linkages’ refers to the strategies of networks restructuring in a context of social changes (urbanization, economic crisis and structural adjustment)<sup>2</sup>. The notion of ‘localities’ refers to the fact that the organizational capacities of networks are shaped by the informal and formal institutions framework. The role of state matters, at the national as well as local level. The approach developed by Lourenço-Lindell (2002), named ‘politics of support mobilisation’, fits in the second dimension. Lourenço-Lindell stresses how social networks are a field of cooperation and struggle, contradiction and manipulation. It is a complex mix of actors’ agency (capacity to influence the rules, for example) and social constraints. Finally, the purpose of this approach is to underline the importance of the institutional and historical framework (political and economical) in which networks are embedded. The diversity of regulation forms and the distribution of power in these networks constitute another important point of discussion. Thus, this is in line with Fine (2001) critics of ‘social capital’ concept and his political economy perspective. From an empirical standpoint these studies rest on qualitative methods. It shows how, in African informal economies, social networks and their organizational capacity tend to be disintegrated or fragmented in a context of urbanisation, economic crisis and state neglect. Consequently, actors are more or less vulnerable, according to their ability to implement social restructuring strategies.

### *1.2. A socio-economic approach: embeddedness and egocentered networks*

Others socio-economic perspectives on social networks in African informal economy have also been developed. Most sympathise with the ‘historic-institutional’ critics towards some kind of reductionism in the ‘social-capitalist’ approach. Some proposed an actor-oriented approach. This is the case of the sustainable livelihood approach of social capital in urban African markets (Lyons and Snoxell, 2005). However, this one is not clearly defined theoretically, but seems rather a methodological tool to study actors’ agency. Others approaches tend to define a ‘social economic theory of social relations’. According to Staveren and Knorringa (2007:111), this one is based on two main pillars: a more nuanced understanding of both intended and unintended effects of social relations on economic outcomes, and a more complete and precise empirical operationalization (often combining quantitative and qualitative methods). Here, we consider that this perspective is consistent with that of Granovetter’s ‘reticular’ or ‘structural’ embeddedness (Granovetter, 1985, 1992a,

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<sup>2</sup> Among those strategies, she identifies: decoupling (development of new ties that permit actors to escape communities’ social obligations), diversifying (increase access to assistance) and globalisation (concerns informal long-distance trading and flows of remittances).

b) in the field of economic sociology. Concerning entrepreneur's social networks, this is one of the most convincing approaches. It is both theoretically and empirically well defined to evolve an economic sociology of African urban informal entrepreneurship.

In Granovetter's conceptual framework the notion of embeddedness is used to overcome the problem of atomism of social action. Embeddedness means that economic action is socially constructed by the network of ongoing social relationships in which actors are embedded (Granovetter, 1985, 1992a, b). Such a view differs from rational perspectives that consider that entrepreneurs mobilize and deliberately build their network to access useful resources. The embeddedness perspective assesses that entrepreneurs cannot actively, rationally, and without any consequence choose their personal relations for a given objective (Anderson and Jack, 2002). Social relations are also a by product of sociability and entrepreneurial agency is shaped and influenced by the social constraints of the network (social rules and norms embedded in the networks). In concrete terms, reticular embeddedness is composed of a relational aspect (actor's dyadic relations) and a structural one (the structure of the overall network of relation) (Granovetter, 1992a). This methodological standpoint clearly specifies the empirical elements by which economic action is linked to social structure. Thus, the embeddedness concept falls under an objective of empirical knowledge whose purpose is to illustrate and analyse the influence of social embeddedness on economic dynamics.

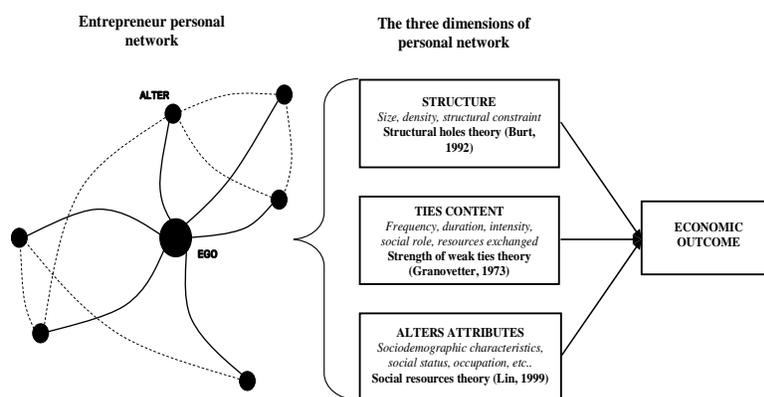
In this framework, Granovetter proposes an economic sociology of small firms and entrepreneurs in developing countries (Granovetter, 2000)<sup>3</sup>. Based on secondary analysis of surveys conducted in Java, Bali, Philippines, Thailand and Africa, he develops a theory of entrepreneurs' communities decoupling. This theory explains the entrepreneurial success of some ethnic or immigrant communities like overseas Chinese (see also in another context Portès and Sensenbrenner, 1993). These communities benefit from a complex articulation of positive effects of embeddedness (the trust inherent to the community permits cooperation, solidarity and sanction) and decoupling (community boundaries limit social claims and constraints to members). The density and circumscribed size of these communities or diasporas favour the efficiency of social network regarding entrepreneurial development. This is the case of Lebanese diaspora in West Africa and Asian or Indian in East Africa. These ethnic or migrant communities in Africa mainly develop their activities in large enterprises and wide trading circuits. In urban African informal economy the communitarian perspective is thus problematic. Although some wide trading networks are informal (as 'Nana Benz' in Togo), it remains little representative of the small urban entrepreneurship of African informal economy, especially in West Africa. Moreover, social fragmentation under urbanisation and economic pressure tend to encourage interpersonal relations, within and outside communities, and so favours the development of more personalized networks (Marie and al., 1997; Lourenço-Lindell, 2002; Meagher, 2006).

In order to analyse the influence of social embeddedness for small entrepreneurs in African urban informal economy, it seems relevant to associate the reticular embeddedness framework with an 'egocentered' conception of entrepreneurs' social networks. An egocentered (or 'personal') networks is defined as one actor's set of relations with others (Wellman, 2007a, b). It is composed of a focal actor (named ego), a set of ego's direct social contacts (named alters) and the ties between them. This perspective is particularly appropriate to analyze actors' networks whose composition is diversified and not limited by some geographical,

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<sup>3</sup> The 'small firms approach' of the informal economy (Cheng and Gereffi, 1994) and articles related to the industrial districts in industrialized countries (notably on the 'Third Italy') also reflects a pervasive concern with economic sociology and with the notion of social embeddedness of economic activities (Bagnasco and Trigilia, 1988; Cappecchi, 1989, Mingione, 1991).

**Figure 1.** Configurations of entrepreneur’s personal network and economic outcomes



organizational or community boundaries. Indeed, informal entrepreneurs’ networks are often composed of a mixture of business, friend and kin ties. Moreover, as Kristiansen (2004: 1154) highlights, ‘a main function of social networks is to demolish and traverse contextual demarcation lines’<sup>4</sup>. Though literature mainly focuses on business ties and inter-firm networks, we consider entrepreneurs’ personal network. More precisely, in our approach, the social network of an informal entrepreneur refers to its regular social relations conveying resources needed for activities’ current exploitation (both tangible and intangible)<sup>5</sup>. Finally, such an approach is relevant to analyse and describe the nature of social relations. Moreover, it allows to evaluate how different configurations of personal network influence economic outcomes of entrepreneurs. These configurations can be described by three salient dimensions: network structure, content of ties, and members’ attributes (see figure 1). Each of it has been subject of discussion and theories in the literature. In this paper, we focus on the configuration of personal networks regarding alters’ attributes.

### 3. Network members’ socio-economic attributes and economic outcomes

Lin’s social resources theory (Lin, 1999a, b, 2001) can be considered as the most notorious approach concerning alters’ attribute dimension. Lin’s idea is that social resources exert an important and significant effect on the realization of individual instrumental actions, and in particular permit individuals to improve their social status attainment<sup>6</sup>. Theory takes place in a hierarchical vision of social structure and concludes on three propositions (Lin, 1999, 2001a): (i) the ‘social resources proposition’: access to and use of better social resources permits more efficient instrumental actions; (ii) the ‘strength of position proposition’: initial social position influence access to social resources and their use; (iii) the ‘strength of ties proposition’: weak ties more than strong ones tend to give access to better social resources (Granovetter, 1973). Optimal strategy for instrumental action would be therefore to reach contact with better resources that is to say with high social status. Several empirical investigations have confirmed the propositions of the social resources theory except for the ‘strength of ties

<sup>4</sup> This assertion has strong resonance with one of the core arguments of the pioneer definition of personal network within the social anthropology’s works of the Manchester school (Mitchell, 1969, 1974). In their studies of migrant’s personal networks in urban areas of the Copperbelt in Southern Africa (Mitchell, 1969), one of their objective was to explore configuration of ‘personal order’ that go through frontiers of institutions and constituted groups. ‘Social networks ramify across and between institutions’ (Mitchell, 1969:49).

<sup>5</sup> These resources can be ideas, advices, information, capital, business partnership, ‘bureaucratic goodwill’ or administrative support, financial support in time of crisis or for investment, etc.

<sup>6</sup> Social resources are distinct from personal ones as they belong to social relations which can be accessed through social network.

proposition' (see Lin, 1999: 74). In our study, we do not exclusively consider the resources possessed by alters, but also their characteristics, or attributes (whether they are demographic, professional, social, geographical, etc). We thus consider the heterogeneity of entrepreneurs' personal networks regarding their members' various attributes in order to avoid a too restrictive hierarchical vision of social structure. These attributes can be considered as 'revealers' of resources possessed by alters, their quality, and the social constraints that shape them.

The role and influence of social networks members' attributes remain few analysed in the literature on African informal economy. Nevertheless, some studies conducted in different theoretical perspectives reach rather similar results. Barr (2002), studying Ghanaian manufacturing sector, and Meagher (2006), analyzing Nigerian clusters, distinguish what they respectively call 'solidarity' or 'survival' networks from 'innovative' or 'accumulation' ones. According to Barr (2002), the first one characterizes small businesses located on the fringe of formal institutions, whereas the second is representative of enterprises with access to formal institutions. Survival networks tend to be small, dense, locally concentrated and with poorly resourced personal relations (with no access to advantageous economic position or privileged commercial groups). Barr shows that it is very homogeneous in terms of members attributes. On the contrary, innovative or accumulation networks are wide, geographically dispersed, and much diversified and heterogeneous. They are composed of advantageous ties with privileged access to resources (ties with privileged social classes, civil associations, and big success traders, notably internationals ones). Though solidarity networks reduce risks and incomes variability, it has little impact on economic performances and tend to undermine rather than enhance profits (Barr, 2002). Brautigam (1997, 2003) finds similar results in her studies of the role of 'ethnic business networks' in clusters dynamics in Nigeria and Mauritius. Kristiansen (2004) in his studies of small scale entrepreneurs in the wood business in Tanzania also defines high-quality social networks as those characterized by a variety of relations. In the footwear industry in Ethiopia, Staveren and Knorringa (2007) find that in small scale entrepreneurs' social networks, 'bonding ties' are prevalent<sup>7</sup>. Such bonding relationships do not appear to reduce transaction costs.

Finally, these results underline that core determinants of networks' positive impact on economic performances are alters' attributes heterogeneity as so as access to high social position. Nevertheless, some studies also highlights that relations with most powerful actors can also lead to unequal exchange relations of subordination and domination (Lourenço-Lindell, 2002). Some actors are in such positions that they can dictate the rules governing social relations and access to merchandise (becoming what she calls 'informal regulators'). Relations with higher social position can even turn into political manipulation and clientelism (Meagher, 2006). Considering these empirical conclusions, we can suggest several hypotheses about the consequences of network composition (regarding alters' attributes) on economic outcomes. First, the presence of privileged high social contacts in entrepreneur's network may imply access to high quality resources (and so enhance entrepreneur's performances). Second, the diversity of alters' professional occupations may increase the probability to access all necessary resources for any problem, and so favour entrepreneurial efficiency. Last, networks' homophily, that is network's social homogeneity or level of social closure may affect entrepreneurs' performances.

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<sup>7</sup> 'Bonding ties' are distinct from 'bridging ties'. Whereas the first refers to intra-community ties (generally strong as those developed in family or ethnic groups), the second refers to generalized social relationships across groups (and so are generally weak).

## 4. Data and survey method

### 4.1. The data

The data have been collected in the informal economy of Bobo-Dioulasso in Burkina Faso. From February to July 2007 we have conducted a survey on a representative sample of 317 entrepreneurs<sup>8</sup>. Firstly, sociodemographic and economic data were collected concerning entrepreneurs features, type of activity, employment, economic capital and outcomes. Secondly, that statistical information has been completed few weeks later by collecting personal networks data on a sub-sample of 278 entrepreneurs. The survey focused on small urban private economic activities carried on apart from fixed homes. Only owners, or real managers of activities, have been interviewed. The boundaries of the informal economy have been empirically defined according to three aspects: (i) administrative registration (commercial register, fiscal register, national social security fund); (ii) activity's size defined by the number of employees (with a five paid employees threshold); (iii) accountancy's type (quite formal, personal notes, no accountancy). According to our definition, an informal activity is an activity that doesn't fall under the formal institutional framework for at least two of these selection criteria. The sample is representatively distributed by economic sectors (production, trade and services) and sub-sectors, and by geographical area, regarding the results of the last exhaustive census of economic activities carried out in Bobo-Dioulasso (Fauré, Soulama, and al., 2000). Entrepreneurs were mainly selected in an anonymous way according to our movements in the city, whether in some dense activity locations (marketplaces, major roads) or in more isolated places.

### 4.2. The multiple name generators method

For social networks measures and data collection, we distinguish methods based on social networks proxies from those drawn on the specific toolkit of social network analysis. In the first, social network is proxied by the number of contacts that an agent maintain with others categories of agents (family, close friend, others entrepreneurs, customers, suppliers, etc; see Fafchamps and Minten, 2002; Barr, 2002). In the second framework (Marsden, 1990, 2005, Wasserman et Faust, 1994), different methods of personal networks data collection are conceivable (name generators, rosters, observations, archival records, contact diaries). The name generators method is the most commonly-used in the field of entrepreneurship. It is structured around individual questionnaires that can be easily integrated in traditional quantitative survey (Burt, 1984).

Name generators consist of one or several questions inviting respondent (ego) to recall and elicit peoples (alters) with whom he maintains certain types of direct relationships. They are usually followed by questions, called 'name interpreters', that gather information on alters' attributes, on the relationships between ego and each alter, and on the relationships between alters. Name generators' purpose is obviously not to obtain the total number of alters existing in entrepreneurs' personal network, but to elicit a representative sample of them as to delineate the core members of the network (Marsden, 2005)<sup>9</sup>. Thus, in order to identify ego's

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<sup>8</sup> The whole field work has been grant-aided by the scientific and academic international mobility financial program of the AUF (Agence Universitaire de la Francophonie), and benefited the financial support of the GREThA (UMR CNRS 5113 - University of Bordeaux) and the partnership of CEDRES (University of Ouagadougou). We have also conducted, from April to June 2006, a pre-survey which has served to the questionnaires' construction and tests. And a complementary qualitative survey based on fourteen informal entrepreneurs' life histories has been implemented from May to July 2008 (results are not used here).

<sup>9</sup> The objective is to give a real image of the differences between respondents' networks' structure and characteristics.

relationships, several criteria can be used as a basis for the construction of the generators (Campbell and Lee, 1991). Criteria of specific social exchange (persons involved in regular relations of material or intangible support) have the advantage of being clear and unequivocal, as it is less likely to be interpreted differently across respondents. Name generators method has already been implemented in studies of women's social support network in rural Africa. It has revealed a reasonable reliability, particularly in its capacity to delineate the core of personal networks (White and Watkins, 2000; Bignami-Van Assche, 2005; Adams and al., 2006). In the field of entrepreneurship, it has been very commonly-used in studies about industrialized societies (Greve and Salaff, 2003; Renzulli, Aldrich and Moody, 2000)<sup>10</sup>, but it remains rarely-used in Sub-Saharan Africa.

In our approach, eight name generators are used. They are defined on the basis of a criterion of interdependency or regular interaction of people involved in social relations conveying resources needed for informal activity's current exploitation. Seven types of exchanges, or resources, are used to construct the first seven generators: (i) advices, information and ideas (concerning markets, management, investment, partners); (ii) support in administrative or bureaucratic relationships (with local institutions, to obtain favours concerning tax payments, local placement or conflict resolution); (iii) regular suppliers (access to goods and raw materials); (iv) faithful customers; (v) cooperation or partnership (entrepreneurs who assist each other, sometimes pooling resources and contacts); (vi) financial support (in time of crisis for example); and (vii) contact for recruitment (access to employment). Lastly, a 'contextual name generator' (Bidart and Charbonneau, 2007) has been inserted. It refers to important support relations at the moment of business start-up (whether it is material, financial or advices supports) which are always active in entrepreneurs' network. So as to restrain interviews' duration, the number of alters cited for each generator was limited at three (two for the second generator)<sup>11</sup>. Moreover, in addition to the eight generators, a final name eliciting question has been added for additional important contacts that may have been forgotten. Once the entire name list elicited, it was asked respondents to characterize each relation from a social role standpoint (kin, friend, neighbour, business tie, acquaintance). Then, for a representative sub-sample of relations, complementary name interpreters were focused on tie's content (duration, contact frequency, trust intensity, context of creation), alters' attributes (age, gender, ethnics, level of schooling, occupation, status), and ties between alters (none, acquaintance, especially close)<sup>12</sup>.

## 5. Empirical analysis

The data collected during our survey divides in two datasets. The 'entrepreneurs dataset' (N=317) is made of variables concerning entrepreneurs features and economic activities. The 'ties dataset' (N=1324) concerns the data collected through name generators and

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<sup>10</sup> In an 'action set' network perspective that is quite different from our 'role set' perspective (Aldrich and Zimmer, 1986). The last consist of all relations a focal entrepreneur has direct contact with because of his status of entrepreneur (suppliers, customers, partners, friends, kin, acquaintances, etc.). As a subset of the role-set, the first is defined by a group of actors who have gathered together temporarily with a specific common interest in mind (business creation, investment, etc.).

<sup>11</sup> It is quite important to consider that this constraint does not prevent from estimating the differences between individuals network's size.

<sup>12</sup> The sub-sample is made of the firsts quoted names at each generator, as Fischer (1982) proposed in his survey on personal network support in San Francisco.

interpreters<sup>13</sup>. These data provides individual profiles of respondents' personal network members. They can be aggregated into measures of network configuration according to its three dimensions, and here especially in respect with members' attributes. These measures can then be integrated in entrepreneurs' dataset as personal network variables and used to compute earnings functions specifically designed to test and discuss the effects of social networks on informal entrepreneurs' income. But before we investigate the impact of social relations on economic performance, we will first describe their nature in the informal economy of Bobo-Dioulasso, notably concerning members' attributes.

### *5.1. An overview of small scale entrepreneurs and their personal network in the informal economy of Bobo-Dioulasso*

Burkina Faso is one of the poorest countries in the world. Real GNI per capita is estimated at US\$ 430 in 2007 (World Bank, 2008). The country is ranked 176<sup>th</sup> out of 177 countries on the basis of Human Development Index (PNUD, 2008) and 46.4% of its population lives under poverty line (INSD, 2003). Thus, although Burkina Faso knew considerable economic growth since 1990 (more than 4% per year in average) it had to support a strong increase of urban poverty. This phenomenon, common in most West-African countries, has led informal economy to become a major source of earnings and livelihoods for urban population. In Burkina Faso, the importance of informal economy matches regional tendencies (Gaufryau and Maldonado, 2001)<sup>14</sup>. In Bobo-Dioulasso, informal economy represents 49.5% of local value added and 68.2% of employment (Fauré, Soulama, and al., 2000). Its structure reflects the historic weight of trade activities in the city (74 % of informal activities compared to 16 % for services and 10 % for production and craft industry). General characteristics of entrepreneurs and activities sampled in our survey globally matches the tendencies observed in others urban African cities. Yet, some interesting nuances shall be discussed (see table A1). In Bobo-Dioulasso as in most informal economies, the dominant form of business is the individual one. Though entrepreneurs are relatively young (average of 35.5 years), their households are still composed in average by 7.5 members. Only 26% of them have a higher level than primary education. These last are more represented in the sector of services and notably in catering activities. In the informal economy, training is essentially ensured through traditional on-the-job apprenticeship. Most of entrepreneurs followed a mainly informal route (from familial assistant to apprentice and owners). The average duration of activities testifies of their relative youth (average of 7.6 years), with some significant differences according to sectors of activities. In particular, production activities have a much higher average longevity (9.5 years) than others. Regarding legality, 11% of the enterprises are registered in an official commercial register (mostly trade activities). The localization of economic exchanges confirms the autarkical confining of informal activity, as it mainly concentrates in the perimeter of the city for both customers and suppliers. The measure of economic performances reveals that earnings are higher in trade and catering activities than in production and other services. However, the production sector is the most important in terms of employment and wage distribution. Trade and production clearly dominate other sectors

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<sup>13</sup> These 1324 ties correspond to the sub-sample extract from the entire name list elicited (1964 ties). In other words, we have two ties dataset. The first contain 1964 ties but is only informed on social role and resources exchanged, the second contains 1324 ties and have more information on ties and alters.

<sup>14</sup> According to Webster and Fidler (1996), informal sector in West Africa contributes between  $\frac{1}{3}$  and  $\frac{1}{2}$  of national GDP and between  $\frac{1}{2}$  and  $\frac{3}{4}$  of urban employment. Results of the *I-2-3 surveys* carried out during 2001-2002 in the economic capitals of seven WAEMU (West African Economic and Monetary Union) countries show that informal sector ensures 76.2% of urban employment (Brillaud and al., 2004). Concerning the influence of the informal economy in secondary West African cities, ECOLOC studies reveal that it contributes from 37% to 50% of local value added and from 65% to 80% of local employment (Yatta, 2003).

regarding the average value of economic capital. Finally, note that the main difficulties encountered by informal entrepreneurs in Bobo-Dioulasso are demand weakness and financial problems (cash flow problems).

Some general characteristics of entrepreneurs' social relations and personal networks can be derived from the tie datasets. Entrepreneurs have each quoted an average of 7.06 names (average size of personal networks)<sup>15</sup>. Concerning the social role of relations, we mainly identify business ties (57.3% of all quoted ties) and sociability ties (close friendship, acquaintance, labour colleague) (52.6%)<sup>16</sup>. Kinships relations represent only 24.5 % of the total. This result suggests that informal entrepreneurs in Bobo-Dioulasso are not totally embedded in 'bonding ties' (intra community and family ties) as Staveren and Knorringa (2007) find in Ethiopia<sup>17</sup>. Moreover, about a half of all business ties are strictly business ones, and the other half is also often described as sociability's ties (labour colleagues and close friends especially). So, when business relations (mainly customers, suppliers, and partners) are embedded in another social relationship that the labour relationship itself, it is rarely in kinship ones. Regarding the resources that flow within social relations, the most important are faithful customers and advices. Bureaucratic support is a more rare and so probably more discriminant resource between entrepreneurs. The context of ties' creation is mainly professional (42.6%). Entrepreneurs' relations are essentially created within the framework of their current activity (with clientele, suppliers, employees, intermediaries, in the workplace as well as in marketplaces). However, a third of all ties have been created in past labour contexts (during apprenticeship in particular). The family circle also widely contributes to ties' constitution (almost 30%). Generally speaking, quoted relations are long-term ones (37.8 % date from more than 15 years, while only 12.6 % are less than 2 years old), and of very frequent contact as so as strong spatial proximity (near a half meet daily and 90 % are concentrated in the perimeter of the city). However, all these relations do not necessarily imply a high level of trust. On a three levels scale estimating trust intensity, 38.4 % of the relations belong to the top and 29.5 % to the bottom.

### 5.2. Members' attributes in entrepreneurs' personal networks

Our analysis of alters attributes in entrepreneurs' personal networks focuses on three different aspects. The first one is social status. We distinguish between alters according whether they enjoy a *lower status* than the entrepreneur (that is to say informal employees and apprentices, small farmers, and non-working population), a *comparable status* (small scale entrepreneurs and regular employees of the informal sector), an *intermediate status* (informal big-sized business owners, formal small and medium-sized enterprises owners and workers and non qualified employees of private formal and public sector), or an *higher status* (executives, managers and officers of private formal and public sector, intellectual and intermediary professions of private formal and public sector). The second aspect concerns the professional occupations of network's members. It is appreciated through alters' sub-sector of activity and the fact that they belong or not to the same guild, or trade association, as ego. Thus, this dimension simultaneously considers the professional diversity of entrepreneurs' networks, but also its opening onto other occupations. The last aspect is the socio-demographic similarity between ego and his alters (homophily, or its reverse, heterophily). This similarity is evaluated considering four socio-demographic characteristics (age, ethnicity, religion, and

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<sup>15</sup> Due to technical constraints, a maximum list of 24 names was authorized for each generator.

<sup>16</sup> Note that each relation can possibly be classified in two social role categories (a parent who is also a client for example), which explains that the total percentage exceeds 100%.

<sup>17</sup> This confirms tendencies already underlined by other authors on the social transformations at work in urban West African cities (Marie, 1997).

geographical proximity)<sup>18</sup>. In other words, this last dimension reflects the socio-demographic opening of entrepreneurs' network. The descriptive analysis of these three dimensions follows two distinct steps.

Firstly, at ties' level, we combine alters attributes and ties characteristics to discuss Lin's (2001) 'strength of ties proposition'. Table 1 shows that among all ties 15% concerns alters with much higher status than ego, 21% alters with intermediate status, and 14% alters with lower status. Thus, 50% of ties quoted by entrepreneurs concerns alters whose status is comparable to ego's. Moreover, 28% of ties refer to alters working "in the same guild", and so in the same sub-sector of activity than ego. Regarding socio-demographic similarity, only 27% of all ties are strongly heterophile. These observations confirm the fact that in the informal economy of Bobo-Dioulasso, entrepreneurs are seldom embedded in 'bonding ties'. A possible explanation is that youngest entrepreneurs have many ties with older alters, notably because of the oldest/youngest stratification of African society. Another one refers to the great diversity of ethnic groups in Burkina Faso and their relative successful integration (Coquery-Vidrovitch, 2000 ; in our sample, 56% of all ties are inter-ethnics). Analyzing table 1 in detail, we note that alters with *lower status* than ego are significantly more used for recruitment purpose by entrepreneurs. This suggests that most of recruitments are made according to social solidarity principles<sup>19</sup>. Ties with lower status alter are more often than not long-term strong kinship ties (see trust intensity and reciprocity). Partnership or cooperation relations (so as labour colleague relations) are more specifically developed with alters of *comparable status*, whereas alters with *intermediate status* often provide suppliers and financial support ties. Point out that those ties are more 'multiplex' (that is to say that one tie provides several resources) and also geographically distant. Ties with alters enjoying *higher status* than ego significantly provide more administrative support or faithful clientele and less suppliers or business partners. They are also more spatially distant and less frequent. Although strong ties seem to be more important with lower status members, important dimensions of ties' strength (social role, length, including anteriority to activity's creation, reciprocity, and trust intensity) are not significantly linked with access to *higher status* alters. This observation confirms the difficulty to empirically demonstrate the 'strength of ties proposition' (Lin, 2001) asserting that weak ties (or 'bridging ties') favour access to alters enjoying higher social status. Concerning alters' professional occupation, table 1 shows that relations developed in the same guild as ego's are oftentimes business links of partnership. These are also characterized by neighbourhood proximity and some forms of sociability (colleagues, friendships). Finally, socio-demographic heterophily is obviously negatively linked with the different aspect of ties' strength. Heterophilic relations seem to be significantly associated with 'market' resources such as suppliers or customers ones

Secondly, regarding personal networks, alters' attributes can be crossed with entrepreneurs' (enterprises) characteristics. This allows discussing Lin's (2001) 'strength of position proposition'. Table 2 confirms the fact that ties involving alters with comparable status represent on average 50% of entrepreneurs' personal network, and that the average proportion of heterophilic ties barely represents 27%. Detailed analysis of table 2 reveals that the most educated entrepreneurs are embedded in networks with a significantly larger proportion of alters enjoying higher social status. As a consequence, their networks are also more diversified regarding alters socio-demographic characteristics (more heterophile). Experience

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<sup>18</sup> Ties are considered homophiles when alters are similar to ego for at least three of the four socio-demographic characteristics. Conversely, ties are considered heterophiles when alters are similar to ego for at most one of the four characteristics.

<sup>19</sup> For example, the recruitment of household members enduring financial difficulties.

**Table 1: Strength of ties and alters' attributes\***

<b>Strength of ties</b>	<b>Alters' attributes</b>					
	Lower status than ego	Comparable to ego's status	Intermediate status	Higher status than ego	Intra-guild tie	Heterophilic tie
<b><i>Resources conveyed</i></b>						
Advices	.159	.470	.199	.173	<b>.340</b>	<b>.196</b>
Administrative support	.101	<b>.329</b>	.195	<b>.376</b>	<b>.154</b>	.242
Suppliers	<b>.032</b>	.518	<b>.391</b>	<b>.059</b>	.259	<b>.336</b>
Customers	.126	<b>.407</b>	.275	<b>.232</b>	<b>.084</b>	<b>.386</b>
Cooperation	<b>.055</b>	<b>.871</b>	<b>.060</b>	<b>.014</b>	<b>.820</b>	<b>.203</b>
Financial support	.097	<b>.420</b>	<b>.333</b>	.150	<b>.217</b>	<b>.203</b>
Recruitment	<b>.309</b>	<b>.423</b>	.206	<b>.063</b>	.246	.229
Start-up support	.159	.444	.230	.167	.281	<b>.211</b>
<b><i>Spatial proximity</i></b>						
Same neighbourhood	.168	<b>.590</b>	<b>.154</b>	<b>.088</b>	<b>.331</b>	<b>.076</b>
Others neighbourhoods	.119	<b>.420</b>	<b>.263</b>	<b>.198</b>	<b>.244</b>	<b>.439</b>
<b><i>Reciprocity</i></b>						
Yes	<b>.176</b>	.502	.189	.132	.298	<b>.246</b>
No	<b>.085</b>	.488	.254	.173	.260	<b>.319</b>
<b><i>Social Role</i></b>						
Kinship	<b>.229</b>	<b>.411</b>	<b>.197</b>	.163	<b>.213</b>	<b>.088</b>
Sociability	.122	<b>.542</b>	.191	.145	<b>.345</b>	.294
Professional	<b>.070</b>	.505	<b>.288</b>	.137	<b>.232</b>	<b>.474</b>
<b><i>Length of ties</i></b>						
Less than 5 years	.116	<b>.550</b>	.192	.142	.299	<b>.381</b>
5 to 15 years	.106	.517	.234	.143	.304	<b>.348</b>
More than 15 years	<b>.190</b>	<b>.435</b>	.218	.158	.253	<b>.124</b>
<b><i>Preexisting ties</i></b>						
No	.115	<b>.541</b>	.185	.158	.300	<b>.371</b>
Yes	.160	<b>.465</b>	.234	.141	.271	<b>.204</b>
<b><i>Contact frequencies</i></b>						
Everyday	.145	<b>.576</b>	.182	<b>.096</b>	<b>.320</b>	<b>.185</b>
Once a month and more	.121	<b>.446</b>	.239	<b>.194</b>	<b>.250</b>	<b>.386</b>
Less than once a month	.205	<b>.248</b>	.291	<b>.256</b>	<b>.205</b>	.316
<b><i>Multiplexity</i></b>						
One resource	.159	.512	<b>.181</b>	.148	.272	<b>.302</b>
Several resources	.104	.466	<b>.281</b>	.148	.306	<b>.216</b>
<b><i>Trust intensity</i></b>						
Low	.110	<b>.546</b>	.218	.126	.272	<b>.369</b>
Intermediary	.115	.535	.207	.143	.312	.310
Strong	<b>.187</b>	<b>.427</b>	.217	.169	.268	<b>.171</b>
<b>Total</b>	<b>.141</b>	<b>.497</b>	<b>.214</b>	<b>.148</b>	<b>.283</b>	<b>.274</b>

\* The first value in the table means that 15.9 % of ties conveying advices are with alters whose status is lower than ego's. Significantly different frequencies (independent samples t-tests) are in bold type in the table. Thus, this result shows that relations conveying advices are not "marked" regarding lower status than ego, but we can also see on the same row that these relations are significantly more intra-guild and less heterophilic ones than others.

**Table 2: Enterprises / entrepreneurs' characteristics and social networks members' attributes<sup>1</sup>**

	Proportion of lower status relations in network	Proportion of same status relations in network	Proportion of intermediate relations in network	Proportion of higher status relations in network	Proportion of heterophilic relations in network	Number of distinct occupations represented in network per relation	Proportion of intra-guild relations
<b>Characteristics</b>							
<i>Sector</i>							
Production	<b>.127</b>	<b>.526</b>	.191	.157	.264	<b>.439</b>	.303
Trade	.143	<b>.545</b>	.240	<b>.072</b>	<b>.216</b>	<b>.433</b>	<b>.433</b>
Catering	.144	<b>.332</b>	<b>.282</b>	<b>.241</b>	<b>.329</b>	<b>.505</b>	<b>.054</b>
Other services	<b>.204</b>	.464	<b>.158</b>	.173	<b>.328</b>	<b>.485</b>	<b>.182</b>
<i>Localisation</i>							
Historic Centre	.145	<b>.468</b>	<b>.232</b>	.155	.284	<b>.433</b>	.300
Peripheral circle	.161	<b>.527</b>	<b>.180</b>	.132	.258	<b>.486</b>	.263
<i>Length of activities</i>							
Less than 5 years	.147	.512	.223	<b>.123</b>	.268	.452	.294
5 years and more	.158	.474	.189	<b>.178</b>	.279	.459	.273
<i>Owner's age</i>							
Less than 25 years	<b>.232</b>	.525	.187	<b>.056</b>	.228	.444	.359
25 to 35 years	.138	.528	.202	.132	<b>.303</b>	.440	.269
35 to 45 years	.140	.487	.218	.155	.269	.448	.316
More than 45 years	.164	<b>.338</b>	.236	<b>.262</b>	<b>.195</b>	<b>.563</b>	<b>.163</b>
<i>Length of presence</i>							
Native from Bobo <sup>2</sup>	.161	<b>.525</b>	<b>.176</b>	.138	.274	.450	.291
Others	.142	<b>.461</b>	<b>.244</b>	.153	.271	.452	.276
<i>Education</i>							
Secondary and more	.144	<b>.422</b>	.222	<b>.211</b>	<b>.332</b>	.450	<b>.197</b>
None / Primary	.154	<b>.519</b>	.205	<b>.122</b>	<b>.251</b>	.458	<b>.315</b>
<b>Total</b>	<b>.152</b>	<b>.494</b>	<b>.209</b>	<b>.145</b>	<b>.272</b>	<b>.456</b>	<b>.284</b>

Notes: (1) The first value in the table shows that the mean proportion of ties with alters whose status is lower than ego's is 12.7% in the production sector. Significantly different means (independent samples t-tests) are in bold type in the table. Thus, this result also shows that relations with lower status alters are significantly less frequent in the production sector than in others ; (2) Born in Bobo or arrived at the latest at the age of 10 years old.

and owner's age also seems to be an important characteristic of entrepreneurs accessing alters with higher social status. Conversely, youngest entrepreneurs have an important proportion of alters with lower status in their personal network. Another aspect is that the more experienced the entrepreneur, the more diversified his relations, so that his network involves more extra-guild ties and more distinct occupations. Yet, these relations appear to be more homophilic with experience. Entrepreneurs born outside of Bobo-Dioulasso have a stronger proportion of alters with intermediate status. One may consider that these entrepreneurs are less subjects to social constraint of their initial group, contrary to natives. Localization in the historic centre of the city (in or around *Hamdalaye* central market place) also favours the development of ties with intermediate status alters. Sectorial specificities appear. Production entrepreneurs' networks look 'poor' regarding alters status and diversity. Trade ones are very 'compact', i.e. involves few distinct occupations, comparable status alters and a large proportion of intra-guild ties. Catering networks are noticeable regarding their wide diversity and the status they give access to. The peculiarity of catering activities is not surprising as far as informal catering is a dynamic sector in the city (cf. earnings and wages in table A1), and also a popular place of meeting (where all social categories meet themselves, including the highest). In other services, entrepreneurs' networks stand out regarding the proportion of heterophilic relations. Their status poorness is consistent with the fact that they are small scale survival activities with weak economic performances (as small cycle repairers; table A1). Altogether, these descriptive results are in line with the 'strength of positions' hypothesis which considers that ego's initial social position influences access to alters with higher social status. Indeed, level of schooling and experience may proxy for entrepreneur social background.

### *5.3. Alters' attributes in entrepreneur's personal network and economic outcomes*

We are now able to test the relevance of network members' attributes as a predictor of entrepreneurs' economic outcomes. Hierarchical linear regression (HLR) was conducted to investigate how well inputs, business and entrepreneurs characteristics, but also especially member's attributes of entrepreneurs' network predict informal business earnings. The regression coefficients give the change in earnings corresponding to a unit change in the appropriate explanatory variable, conditional on the other variables remaining constant. Thus, we can assess the impact of social networks on earnings, whatever the value of other explanatory variables.

Earnings are computed on a monthly basis as the difference between sales turnover (adjusted for seasonal variations) and global monthly expenses, including raw materials and intermediate consumptions, current charges (of which rents) and financial and administrative charges. Earnings are expressed in francs CFA and their logarithms are introduced in the model in order to smooth the impact of extreme values.

Two blocks of predictors have been implemented, that is to say usual predictor variables of informal earnings (inputs, business and entrepreneurs characteristics) and predictor variables standing for members' attributes of entrepreneurs' network. With respect to the usual independent variables in the model, the following remarks can be made. Firstly, capital input is a monetary estimation of the value of the machinery, tools, equipment and stocks owned by entrepreneurs at the time of the survey. Labour input is measured by the monthly monetary value of wages paid to business employees, whatever their status. The effective contribution of labour to earnings is then better appreciated, as the usual 'number of employees' variable is likely to suffer serious productivity bias. For independent workers, the value of log (labour input), which should normally be  $-\infty$ , has been arbitrarily set to 3.17 in order to ensure the continuity of the variable. Secondly, business characteristics capture the impact on earnings of

carrying on retail trade, catering, or production activity rather than another. It also considers the alleged positive impact of administrative registration and that of favourable economic situation during present year. Thirdly, entrepreneurs' characteristics bring together variables describing entrepreneurs' human capital (primary education and on-the-job experience) and professional organisation membership.

The second block aims at introducing information about entrepreneurs' social network as predictors of earnings. Doing so, we will be able to test the impact of network members' attributes on earnings, *ceteris paribus*. We therefore introduce four additional variables in the model, whose purpose is to describe ego's network regarding its members' attributes. The first two variables in that block measure the proportions of network members enjoying a respectively intermediate or higher status than ego. The third variable is a composite dummy variable that characterizes the professional homogeneity of ego's network (see table 3 note 7). Finally, the fourth variable considers the socio demographic opening of ego's network (its heterophily) by pointing out the proportion of heterophilic ties (regarding age, ethnicity, religion, and geographical proximity) in ego's network.

The results of HLR are shown in table 3<sup>20</sup>. Means and standard deviations are presented at table A.2, in appendix. Standard modelization (1) significantly predicted earnings  $F(11, 258) = 10.646$ ,  $p < .01$ , adjusted  $R^2 = .283$ , meeting usual accuracy of such modelization of informal earnings<sup>21</sup>. Note that geographical localization and primary school do not significantly alter earnings. On the basis of this standard earnings function, the next step demonstrates that alter's attributes in entrepreneurs' social network matters. Indeed, the introduction of the second block of variables significantly improves the quality of informal earnings prediction above standards,  $F(15, 254) = 9.117$ ,  $p < .01$ , adjusted  $R^2 = .312$ ,  $R^2$  change = .038,  $F(4, 254) = 3.692$ ,  $p < .01$ . Note that  $R^2$  changes in table 3 show that the second block has even more explanatory power than entrepreneurs' characteristics, regarding earnings. As shown in model (2), the biggest the proportion of network's members enjoying an intermediate status, the highest the earnings. But it also appears that a high proportion of network's members enjoying a higher status than ego has no significant effect. Furthermore, professional homogeneity has a significant positive impact on earnings, whereas socio demographic opening has a significant negative impact. Thus, it seems that a profitable network hinges on relative proximity between ego and alters, regarding status and branches of activity. More generally, alter's attributes in entrepreneurs' network may be an important aspect of entrepreneurial success.

Yet, in that kind of econometric analysis, the direction of causality between network member's attributes and entrepreneurial success may be doubtful. Standard econometrics use the method of instrumental variables to estimate causal relationships. It allows consistent estimation when the explanatory variables are correlated with the error terms, which may occur when the dependent variable causes at least one of the explanatory variables ("reverse" causality). In this situation, ordinary linear regression generally produces biased and inconsistent estimates. If an instrument is available, consistent estimates may still be obtained. An instrument is a variable that does not itself belong in the explanatory equation and is correlated with the endogenous explanatory variables, conditional on the other explanatory variables. Moreover, the instrument cannot be correlated with the error term in the explanatory equation, that is, the instrument cannot suffer from the same problem as the original predicting variable. In our case, suitable instruments are scarce and those who may be relevant, as for instance entrepreneurs' parents' social status or social relations, are

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<sup>20</sup> The assumptions of linearity, normally distributed errors and uncorrelated errors were checked and met.

<sup>21</sup> See for example Kuegie, Nordman and Roubaud (2006), Gindling and Terrell (2005) or Funkhouser (1996).

**Table 3: Hierarchical multiple regression analysis summary for variables predicting earnings (N = 269)**

Outcome variable : log (monthly earnings) Predictors	Model <sup>1</sup>		
	(1)	(2)	(3)
<b>Constant</b>	3.244 (13.639)***	3.277 (13.823)***	3.337 (13.579)***
<b>Inputs</b>			
Log (capital input)	.110 (2.628)***	.098 (2.329)**	.094 (2.228)**
Log (labour monthly input) <sup>2</sup>	.128 (2.684)***	.122 (2.574)**	.119 (2.503)**
<b>Business characteristics</b>			
Retail trade <sup>3</sup>	.297 (3.888)***	.214 (2.706)***	.210 (2.656)***
Catering <sup>3</sup>	.554 (5.828)***	.543 (5.724)***	.539 (5.663)***
Production <sup>3</sup>	-.005 (-.069)	-.017 (-.222)	-.015 (-.191)
Activity's geographical localization <sup>4</sup>	-.042 (-.777)	-.056 (-1.040)	-.054 (-.998)
Administratively registered activity <sup>5</sup>	.173 (1.877)*	0.202 (2.172)**	.199 (2.139)**
Activity has experienced a favourable economic situation this year <sup>5</sup>	.174 (2.963)***	.169 (2.926)***	.174 (2.984)***
<b>Entrepreneurs characteristics</b>			
Primary education or more	.045 (.790)	.062 (1.124)	.057 (1.017)
Conducting this business at least since 5 years <sup>6</sup>	.096 (1.715)*	.131 (2.347)**	.132 (2.263)**
Membership of one or several professional organisation <sup>5</sup>	.172 (2.273)**	.188 (2.500)**	.191 (2.540)**
<b>Network members' attributes</b>			
Proportion of network's members enjoying an intermediate status	--	.332 (2.604)**	.323 (2.512)**
Proportion of network's members enjoying a higher status	--	-.053 (-.322)	-.049 (-.293)
'Compact' network <sup>7</sup>	--	.110 (1.939)*	.118 (2.048)**
Proportion of heterophilic ties in network	--	-.177 (-1.679)*	-.163 (-1.540)
<b>Causality issues</b>			
Network set up prior to activity's creation <sup>8</sup>	--	--	-.036 (-.576)
Network set up after activity's creation <sup>9</sup>	--	--	-.079 (-1.087)
F (sig)	10.646 (.000)	9.117 (.000)	8.088 (.000)
R <sup>2</sup>	0.312	0.350	0.353
Adjusted R <sup>2</sup>	0.283	0.312	0.309
R <sup>2</sup> change (sig F change) :			
Inputs	0.091 (.000)	0.091 (.000)	0.091 (.000)
Business characteristics	0.196 (.000)	0.196 (.000)	0.196 (.000)
Entrepreneurs characteristics	0.025 (.026)	0.025 (.026)	0.025 (.026)
Network members' attributes	--	0.038 (.006)	0.038 (.006)
Causality issues	--	--	0.003 (.553)

Notes : (1) unstandardized estimated coefficients are shown, t tests are in brackets, \*\*\*p < .01, \*\*p < .05, \*p < .1 ; (2) for independent workers, log(labour monthly input) is standardized to 3.17 for continuity purpose ; (3) dummy variable, 0 stands for other tertiary business ; (4) dummy variable, 1 stands for activities located in the historical centre of the city, 0 is for outlying activities ; (5) dummy variable ; (6) dummy variable, 0 stands for entrepreneurs conducting their business since less than 5 years ; (7) dummy variable, 1 stands for entrepreneurs whose network is numerically limited, essentially made of intra-guild ties and whose extra-guild ties concentrate on few distinct occupations ; this variable has been computed using factorial analysis (multiple component analysis and hierarchical cluster analysis) on three variables : number of distinct occupations, number of distinct ties and proportion of intra-guild ties in ego's network ; (8) dummy variable, 1 stands for networks in which more than 2/3 of ties were set up prior to activity's creation ; (9) dummy variable, 1 stands for networks in which more than 2/3 of ties were set up after activity's creation.

unavailable in the database. Therefore, we above all suggest to control for the actual significance of a possible « reverse » causality problem.

If such causality exists and is significant, then entrepreneurs' earnings partly explain the constitution of such or such type of network. In this case, earnings of entrepreneurs whose network have been largely set up prior to activity's creation should be, all things being equal, significantly different from others... and it should be the same for entrepreneurs whose network have been largely set up after activity's creation. Thus, the significance of variables controlling for the precedence or posteriority of network constitution regarding activity's creation is likely to test the significance of « reverse » causality. Note that it is also possible to run two distinct earnings regressions, for entrepreneurs whose network have been largely set up prior to activity's creation and for others, and to compare their possible structural difference using Chow test. Such difference would also indicate that « reverse » causality is significant.

Yet, we show in model (3) that the two variables controlling for causality issues are not significant. Furthermore, the Chow test computed between the two separate regressions mentioned above (not shown here), is neither significant. Thus, it appears that the « reverse » causality, although likely, is not significant in our analysis, so that we can rely on model (2) estimations to implement our discussion.

## 6. Discussion

The first important outcome of this paper is that the proportion of alters with a high social status in entrepreneur's networks has no significant positive impact on earnings, contrary to the proportion of alters with an intermediate status. Such an issue is of particular interest. Literature has more often than not underlined the fact that access to privileged social status ensures access to high quality resources and so enhances entrepreneurs' economic performances. This is the core argument of the social resource theory of Lin (2001). Indeed, one could easily imagine that having relations with persons in high social classes of the society ensures important financial sustain, administrative support or relevant advices, informations and ideas.

So, why is it is not the case in the informal economy of Bobo-Dioulasso? One explanation rests on the idea that resources possessed by privileged social classes are not that useful for entrepreneurs in the urban African informal economy (and more specifically in Bobo-Dioulasso). Indeed, regression parameters suggest that whatever the resource, those conveyed by intermediate status alters are of better quality, or at least of better utility for informal entrepreneurs. For example, this is especially relevant for supplier relationships. Organisation and dynamics of private formal large firms are generally not adapted to those of informal activities. These last requires a high degree of flexibility for their economic transactions because of the uncertainty that characterizes informal economy in a context of economic crisis and structural adjustment. It is thus more useful to work with informal suppliers or small and medium size formal ones. The same kind of argument can be applied to partnership and cooperation relations, but, this idea is not limited to market-based relations. We can spin out this one by considering that alters with intermediate status than ego are in an intermediary position in the social structure (between informal entrepreneurs and the top of the social scale). They thus hold a particularly strategic position, and fill what Burt (2001) calls 'structural holes'. They are also of particular importance for the circulation of information and ideas. Yet, they can be precious for administrative support. For example, it is more useful for informal entrepreneurs to have relations with some field agents of the fiscal administration rather than with managers or executives. These last are in a position that strongly constraints their possibilities of action, contrary to the firsts. Moreover, alters with intermediate social

status are probably more easily approachable than those with higher ones. Considering the high uncertainty and flexibility of the informal economy, approachability is of prior importance, as for example, when instant access to financial sustain is required, in time of crisis. Lastly, these ties are also less asymmetrical. Qualitative studies of Lomnitz (1988), Lourenço-Lindell (2002), and Meagher (2005, 2006) have stressed that relations with most powerful actors can lead to unequal relations of subordination and domination. As Lomnitz (1988:48) suggests: 'The symmetry of the relationship depends on social distance: the closer the social relation, the greater the *confianza* and consequently the balance of the exchange'. Power, or capacity, of reciprocity for small entrepreneurs in their relations with much higher social status alters is quite limited. The support that they can require of them is more limited. Thus, when the differential of power between the two partners is important, reciprocity tend to be transformed into 'patron-client' relation. Supports and resources offered by the most powerful are returned by the beneficiary through demonstrations of gratitude and loyalty. In other words, social distance between partners favours subordination. Therefore, the positive impact of the presupposed quality of resources possessed by such type of alters may be cancelled by the negative consequences of subordination, dependence and domination.

The second salient result is the significant and positive impact of network's professional homogeneity. Thus, contrary to Barr's (2002) conclusion, we find that social network homogeneity, regarding professional occupation, does not undermine informal earnings but rather improve it. This is also in contradiction with Lin's insights which consider that both contact resources (alters' status) and networks resources (diversity) positively impact economic outcomes. We can suggest that for the case under study, the diversification of available competences is not that useful. For informal entrepreneurs, network professional proximity and cohesion seem to be more important. Notably, the circumscribed aspect of network's professional composition largely improves approachability (ego knows each alter and its competences more precisely). Another explanation is based on the fact that ties with intermediate social status are also significantly more multiplex (see table 1). That means that it often simultaneously conveys several resources, reducing *de facto* the importance of network professional heterogeneity. Moreover, we may consider that network's professional homogeneity and proximity (or complementarity) with ego's activity highlight the importance of inter-firm cooperation in the informal economy of Bobo-Dioulasso (obviously material but also immaterial as knowledge or skills transfers). Indeed, intra-guild ties are often cooperation and advices ones (table 1). This importance of professional homogeneity and complementarity in entrepreneurs' networks is supported by the significant and positive effect of the professional organisation membership dummy variable in the model (table 3). The significant negative effect of networks socio-demographic heterophily is another aspect of the importance of social proximity.

Finally, we conclude that in the informal economy of Bobo-Dioulasso, entrepreneurs' social network and relations matters from an economic standpoint; but not any social relations or networks and not anyhow. We find that entrepreneurs' personal network are not entirely embedded in bonding ties or communitarian social relationships. On the contrary, business and sociability's ties develop beyond kinship's framework and represent a major part of their networks. Social networks are also characterized by their social closeness. Half of all entrepreneurs' ties concern alters with comparable social status and those developed with alters enjoying higher status do not systematically depend on weak ties, contrary to the 'strength of ties proposition' (Granovetter, 1973; Lin, 2001). Regarding their economic impact, our results do not confirm the importance of relations with high privileged social status alters, but rather with intermediate ones. Nevertheless, access to this type of relations is not equally distributed. For example, city-natives entrepreneurs seem to have more difficulties to break away from kinships structure and to develop such market based and sociability's ties. From a political standpoint such inter-business relations with big informal entrepreneurs and

small and medium size formal ones have to be encouraged. Contrary to social status, professional occupations and socio-demographic characteristics of alters are not that homogeneous. However, professional and socio-demographic homogeneity appears to be an important determinant of economic outcomes. Thus, social network diversification, often praised as a core determinant of performances (Lin, 2001; Barr, 2000), does not seem to be of great relevance here.

To conclude, from a methodological standpoint, we strongly recommend to combine both quantitative and qualitative methods to study social networks in African informal economies, as our main results confirm other qualitative approaches.

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## Appendix

**Table A1 : Average principal characteristics of activities and entrepreneurs by sectors. (N=270; Bobo-Dioulasso, 2007)**

	Sectors of activities				Total
	Production	Trade	Catering	Other services	
<i>Activities' Characteristics</i>					
Monthly balance of primary incomes (K FCFA)	60	107	171	50	<b>85</b>
Monthly wage bill (K FCFA)	45	11	34	20	<b>28</b>
Capital at resale price (K FCFA)	579	680	332	326	<b>521</b>
Activities' duration (years)	9,5	7,5	5,1	6,3	<b>7,6</b>
Commercial registration (%)	7	21	0	10	<b>11</b>
<i>Entrepreneurs' Characteristics</i>					
Age (years)	37,5	34,2	37,1	33,4	<b>35,5</b>
Household size (numbers of individuals)	8,5	7,8	6,9	6,0	<b>7,5</b>
Higher level than primary school (%)	14	23	42	34	<b>26</b>

**Table A.2: Means and standard deviations for log(earnings) and predictor variables (N = 269)**

Variables	Mean	S.D.
<b>Log (monthly earnings)</b>	<b>4.649</b>	<b>.504</b>
<b>Inputs</b>		
Log (capital input)	5.269	.740
Log (labour monthly input)	3.997	.676
<b>Business characteristics</b>		
Retail trade	.300	.459
Catering	.122	.328
Production	.348	.477
Activity's geographical localization	.560	.497
Administratively registered activity	.110	.315
Activity has experienced a favourable economic situation this year	.318	.467
<b>Entrepreneurs characteristics</b>		
Primary education or more	.648	.478
Conducting this business at least since 5 years	.537	.499
Membership of one or several professional organisation	.160	.363
<b>Network members' attributes</b>		
Proportion of network's members enjoying an intermediate status	.209	.213
Proportion of network's members enjoying a higher status	.145	.190
"Limited" network	.422	.495
Proportion of heterophilic ties in network	.272	.258
<b>Causality issues</b>		
Network set up prior to activity's creation	.459	.499
Network set up after activity's creation	.230	.421