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Ties configuration in entrepreneurs' personal network and economic performances in African urban informal economy

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Composition relationnelle du réseau personnel des entrepreneurs et performances économiques dans l'informel urbain africain

Résumé

Ce papier s'inscrit dans le cadre conceptuel granovetterien de l'encastrement réticulaire afin d'analyser le rôle et l'influence des réseaux sociaux des petits entrepreneurs au sein de l'économie informelle africaine. Notre objectif est d'étudier l'impact effectif de la configuration relationnelle des réseaux, en approfondissant l'analyse de la force des liens. Une base de données collectée à cet effet nous permet d'établir de quelle manière les réseaux sociaux au sein desquels sont encastrés les entrepreneurs influencent les revenus tirés de leurs activités. La méthode des « générateurs de noms multiples », utilisée pour collecter des données de « réseau personnel », permet d'obtenir une information conséquente sur le contenu des relations sociales. Celle-ci peut alors être traitée en statistique multidimensionnelle afin de décrire et de catégoriser efficacement les différents types de réseaux existants. Enfin, nous montrons que, plus encore que la prépondérance des liens d'affaires, ce sont certaines configurations particulières en terme de force des liens au sein des réseaux qui permettent un accroissement significatif des revenus informels. Néanmoins, ces configurations relationnelles questionnent les perspectives de développement à long terme des activités informelles.

Mots-clés : Economie informelle ; encastrement ; réseaux sociaux ; revenus informels

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Abstract

As to explore social networks influence in African informal economy, this paper fits in the conceptual framework of reticular embeddedness. By going into the analyse of ties strength, our purpose is to question the real influence of ties content. We use a recent original dataset to evaluate how entrepreneurs' networks influence their activities economic outcomes. 'Multiple name generators' method provides a vast amount of information about ties content, which can be treated by factor analysis to describe and categorize networks. Finally, we show that not only business ties but the particular configuration of ties strength in networks improve informal earnings.

Keywords: Informal economy; embeddedness; social networks; informal earnings

JEL : O17 ; Z13

I. 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'. This assertion of Portès (1994: 430) has strong resonances in the field of African urban informal economy. In an African context of states and modern institutions failure, social networks and personal relations inevitably play an important role in structuring economic activities, and especially in informal ones. From a broader theoretical and empirical standpoint, sociologists and more recently economists have also demonstrated the influences of such social dynamics on economic action and outcomes (see Granovetter, 2005; Burt, 1992; Fafchamps, 1996, 2001, 2006). Social networks and relations facilitate the circulation and quality of information (on suppliers, partners, market or job opportunities, technologies) as well as the access to other diverse resources (financial, material, emotional). It can also improve social control and trust (norms adhesion, punishment of cheaters, contract enforcement). The overall effect of networks on economic performances may finally be considerable. In the informal economy, social relations are more crucial as they compensate for the weakness of small firms internal resources. The strong personalization of these firms explains why entrepreneurs' social networks are an important matter. Nevertheless, the literature concerning the role of social networks in urban African informal economies seems to have been more focused at the household level, notably through the problematic of social capital, than at the level of entrepreneurs (see however Fafchamps and Minten,1999, 2002; Barr, 2002; Meagher, 2006).

The present article fills this lacuna by exploring the role of entrepreneurs' social networks in informal economy of Bobo-Dioulasso, second city of Burkina Faso. In such urban context, individualist strategies rise and community solidarities weaken. Those rapid social changes question the configuration of entrepreneurs' social network in its relational dimension, and its effects on economic outcomes. The content of social relations, and more specifically the strength of ties, is one of the most crucial and complex aspect of social networks economic impact (Granovetter, 1973, 1983). In order to challenge this question, we propose an approach structured around the 'reticular embeddedness' conceptual framework of Granovetter (1985). It is associated with an 'ego-centered' or 'personal' conception of social networks (Wellman, 2007a). Personal network is then defined as one person's set of connections with others. It refers here to entrepreneurs' social relations conveying essential resources for activities' current exploitation. 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 sociodemographic 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 benefit from the analytical toolkit of social network analysis. It can produce rich quantitative statistical information about the complex nature of informal entrepreneurs' networks. The computation of such personal networks indicators then let us test the impact of social relations on informal earnings.

The paper is divided into six sections. Section II presents the conceptual approaches to social networks in African informal economy and defines our reticular embeddedness conceptual framework. Section III reviews the alleged role of networks ties strength in economic performances of African informal firms. The data and the survey methodology, especially the name generators method, are discussed in section IV. An indicator of relational configuration of entrepreneurs' personal network is computed in section V and its potential impact on earnings is tested. Discussion is presented in section VI.

II. Social networks and urban African informal entrepreneurship: personal network and reticular embeddedness

Literature about the role of social networks in African economic activities seems to be divided in two main perspectives. The first is the one we call social-capitalist. It is drawn on neo-institutional economic framework. Its application to the field of informality shows some affinities with the works of De Soto (1989). The second is the one we call historic-institutional. It widely relies on the 'structuralist informalization approach' (Portès et al., 1989; Meagher, 1995). Our approach stands out from both and is structured around the reticular embeddedness conceptual framework of Granovetter in the field of New Economic Sociology (Granovetter, 1985, 1992a, b, 2002).

Social-capitalist and historic-institutional perspectives

According to the social-capitalist perspective, in a context of imperfect markets and modern institutions failure, networks and social relations are seen as a social capital, or social network capital, useful to reduce transactions costs (Fafchamps, 1996, 2001, 2006; Fafchamps et Minten, 1999, 2002; Barr, 2000, 2002). Rationale entrepreneurs pursue their self interest by forming relations with others in order to reduce the high transaction costs arising on 'flea market' economies[1]. The social network capital allows firms to reduce transaction costs in various ways. It is here defined as an individual productive asset. Fafchamps (2001, 2006) identifies two principal mechanisms. Firstly, personal long-term trading relationship, notably the trust it conveys, facilitate the flow of reliable information on prices, markets conditions and opportunities, agents' behaviour, technologies and new practices. This reduces information asymmetries, search and screening costs and improves contract enforcement and conflicts resolution (Fafchamps, 1996; Barr, 2002; Brautigam, 1997; Bigsten et al., 2000). These relationships are valuable because they are not easily replaceable. Secondly, the sharing of information in networks or business communities affects the commercial reputation of entrepreneurs. Fafchamps stresses that this mechanism does not necessarily lead to enforcement contract because collective and coordinated exclusion of cheaters is not present in African markets. However, it creates network or discrimination effects (barriers to entry),

[1] 'Flea markets' is opposed to ideal 'free markets' (Fafchamps, 2001). Exchanges in African markets largely take a rudimentary form. Transactions are simple and limited, made in person and primarily on a cash and carry basis. The buyers inspect directly the goods on the spot, pay cash, and leave. No invoicing, no warranty, no delayed obligations, etc. This form of exchange is particularly representative of the informal economy and generates high transaction costs: time to inspect the quality of goods, transport costs, search costs on suppliers' reliability, etc.

like ethnic or gender bias in access to supplier credit in Kenya and Zimbabwe manufacturing sectors (Fafchamps, 2000). Groups can also serve as basis for collective action (Brautigam, 1997). Regarding the economic performances of this social network capital for entrepreneurs, several empirical studies highlight its positive effects (Fafchamps and Minten, 1999; Brautigam, 1997). Nevertheless, small entrepreneurs also seem to be characterized by 'solidarity networks' that reduces incomes variability but has little impact on economic performances (Barr, 2002).

The historic-institutional perspective proposes to open the black box of social networks. Social networks are considered as 'informal forms of economic organization' (Meagher, 2005: 217). Meagher (2005) defines this perspective as structured around the analysis of three dimensions: 'legacies, linkage and localities'[2]. The work of Lourenço-Lindell (2002) on the process of informalization in Guinea Bissau is also close to this perspective. The notion of 'legacies' brings into focus the institutional practices embedded in particular networks. For example, Igbo communities are prominent in two informal manufacturing clusters in city of Aba in Nigeria (garment and shoes production). They are famous for sharing social rules, norms and institutions of economic life: institutions of long-distance trade, hometown-based occupational specialization, common system of market regulation, unique apprenticeship system, and institutions of credit (Meagher, 2006). The problematic of 'linkages' highlights the way social networks are deployed and transforms themselves in the process of social change. It refers to the strategies of networks restructuring in a context of urbanization, economic crisis and structural adjustment. Meagher (2005) identifies three strategies: (i) decoupling involves the development of new ties that permit actors to escape communities' social obligations; (ii) diversifying social relations allow actors to increase access to assistance; (iii) globalisation concerns informal long-distance trading and flows of remittances. She stresses how the traditional communities' social institutions tend to be disintegrated. Entrepreneurs are induced to develop social relationship outside these traditional social organizations. Thus, they differ in their ability to implement distinct social restructuring strategies. Lourenço-Lindell (2002) suggests that some actors are vulnerable because of their social network homogeneity which prevent them from combining different types of relationship. Finally, the notion of 'localities' refers to the fact that the organizational capacities of networks are shaped by the informal and formal institution framework. The role of state matters, at the national as well as local level. A context of state neglect or institutional chaos intensifies social and economic burdens on communities, thus increasing their fragmentation.

Reticular embeddedness and informal entrepreneurs' personal networks

In Granovetter's conceptual framework the notion of embeddedness is used to overcome the problem of atomism of social action. This last is common to 'over-' and 'undersocialized' conceptions of human action in sociology and economics. He proposes a theory of economic action in rupture with these twin fallacies. Embeddedness means the exact contrary of atomism, that is to say 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 of embeddedness inevitably raises an epistemological position towards human behaviour and economic action. Granovetter (2002) stresses the plurality of motivations in economic action as so as their complex articulation inside social relations (trust, power, norms, interest). Then, this perspective adopts a methodological standpoint empirically anchored on social network.

[2] These dimensions take from the work of Grahber and Stark (1997) on social networks' transformation in post-socialist societies.

It thus clearly specifies the elements by which economic action is linked to social structure. Social network is defined by the concrete ongoing system of social relations between individuals or groups of individuals[3]. The reticular embeddedness is thence composed of a relational aspect (actor's dyadic relations) and a structural aspect (the structure of the overall network of relation) (Granovetter, 1992a: 33)[4]. With such a definition, embeddedness concept falls under an objective of empirical knowledge aiming at contextualize economic action, outcomes and institutions by considering the various social conditions on which they are based.

Nevertheless, the notion of social network can be integrated in this framework from two different perspectives. It corresponds to the two main conceptions that structure the field of social network analysis. The first one, dominant in this field, is that of the structural analysis. Social network is here defined from a socio-centered standpoint as a finite set of actors and the relations between them (Wasserman and Faust, 1994: 20). It is called 'whole network' or 'complete network'. This perspective evinces a form of strong structuralism, in which structural aspect of networks is by itself sufficient to explain social outcomes. It can be defined as a 'structural' or 'positional' embeddedness (see Krippner and Alvarez, 2007). The second one defines social network from an egocentered standpoint as one actor's set of relations with others (Wellman, 2007a, b). What is often called 'personal' or 'egocentered' network is thus composed of a focal actor (named ego), a set of ego's direct social contacts (named alters) and the ties between them[5]. Compared to complete network analysis, this approach has the advantage that when studying ego's network, it allows the exploration of personal relationships beyond frontiers of traditional social institutions and across pre-defined social groups. This perspective is thus particularly appropriate to study actors' networks whose composition is diversified and not limited to a certain geographical, organizational or community boundary. Such is the case for entrepreneurs' networks, often consisting of a mixture of business, friend and kin ties. In African urban informal economy, rapid social changes conduce to the fragmentation of traditional social groups, communities and institutions, and induce the development of more personalized social networks (Meagher, 2006; Lourenço-Lindell, 2002). The personal network of an informal entrepreneur refers in our approach to its regular social relations conveying essential resources for activities' current exploitation. These resources can be both tangible (financial capital, material resources) and intangible (advice, information, and so forth). This definition of entrepreneurs' personal network is consistent with what is called 'role-set' network in entrepreneurship literature (Aldrich and Zimmer, 1986: 11-12)[6].

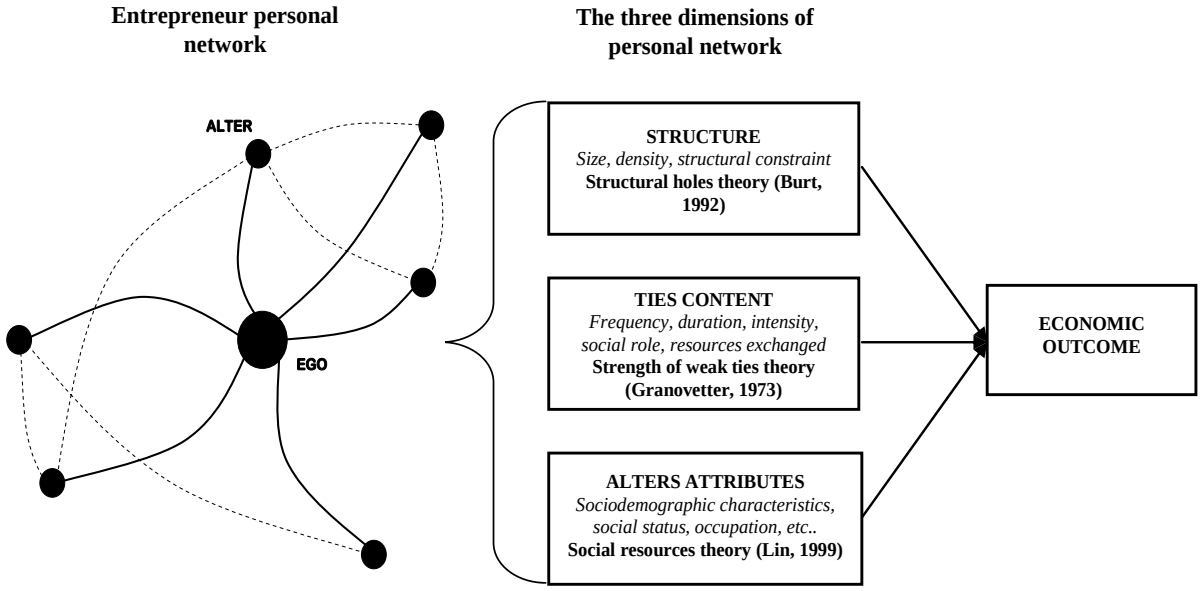
[3] Here, the notion of social network has to be clearly distincted from those of community, group and organisation (such collective forms can be called 'circles', picking up an old expression of Simmel's, as do Degenne and Forsé, 1994). Obviously, this is not always the case in the literature (see the definition of Meagher above). However, if a social circle can always be considered as a social network, the opposite proposal is not true. A circle is different from a network because of a collective consciousness, frontiers, a name, a culture, specific norms and institutions (admittedly they are in permanent change and redefinition, but they are real). On the contrary, in a social network, the members do not necessarily have a common conception of a frontier, of membership's criteria, or even the consciousness of being member of the network.

[4] Note that Granovetter adds to these two aspects the temporal inscription of relations.

[5] The origin of the concept of personal network goes back to the social anthropology works of the Manchester school (Mitchell, 1969).

[6] The 'role-set' network is defined by all relations a focal entrepreneur has direct contact with because of his status of entrepreneur (suppliers, customers, partners, or even friends, kin, acquaintances).

Figure 1. Configurations of entrepreneurs' personal network and economic outcomes



Such an approach allows to evaluate how different configurations of informal entrepreneurs' personal network influence their economic outcomes. These configurations can be described by three salient dimensions: network structure, content of ties, and members' attributes (see figure 1)[7]. Each of it has been subject of discussion and theories in the literature. The focus is here stressed on the configuration of personal networks in their ties content dimension. Recent critics have strongly suggested paying more attention to the content of ties rather than only the network structure (Powell and Smith Doerr, 2005; Krippner and Alvarez, 2007). Focusing on network structure inclines to neglect the social content of networks, missing granovetterian embeddedness contribution. Ties content is therefore one of the most crucial and complex dimension of personal network configuration. Analyzing it seems to be a fundamental step in order to understand and evaluate entrepreneurs' personal network influences on the economic outcomes of their informal activities.

[7] Distance is here taken with the notion of social capital. The assumptions of homogeneous assets and of investment in social relations are incompatible with our approach. Firstly, social relationships as well as personal networks can't be considered as homogeneous entities. Networks differ according to the three dimensions identified and relationships themselves differ according to their contents. Secondly, the idea of rationale investment in social relations is inconsistent with the granovetterian embeddedness framework (see Granovetter, 1995, 2002). Access to resources or supports in the social network can't be only seen as the results of rational strategic investment, it is also a by-product of sociability that is not under actor's control. The actor's agency results as much from the configuration of his personal network (having relations in different social groups and mobilize this strategic social position for example) than from its ability to create social relations according to their expected utilities.

III. Networks ties strength and African firm performances

The content of social relations composing entrepreneurs personal network can be divided in three salient dimensions: strength (frequency, duration, intimacy, trust), normative content or social role (neighbours, friends, kin, business relation), and transaction or exchange content (resources conveyed by the tie) (Mitchell, 1974). Since Granovetter's pioneer argument of 'strength of weak ties' (Granovetter, 1973), the first dimension is undoubtedly the most discussed in the literature. It can be regarded as a structuring dimension of ties content.

The strength of a tie is defined by Granovetter as 'a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie' (1973: 1361).The importance of weak ties results from their bridge function[8]. In a network, a bridge is a tie which provides the only path between two individuals or groups of individuals. Thus, weak ties play a crucial role for access to information and resources beyond those available in actors' own social circle. This type of ties is fundamental for actors' agency. Granovetter (1995) demonstrates it in his study on access to employment in Boston city. In the context of entrepreneurship in Sub-Saharan Africa, some results also confirms this hypothesis. In the case of agricultural traders in Madagascar, Fafchamps and Minten (1999) stresses that non-kin relations are determinant for the access to commercial information. Moreover, information sharing remains sporadic. Consequently, weak ties can be useful for informal entrepreneurs in order to access to market information, advices, customers, or even formal institutions. However, considering certain critics, Granovetter (1983) has also emphasized the 'strength of strong ties'. In a context of social and economic vulnerability, or in poverty situation, strong ties may be more useful as they can be more quickly mobilized. In African informal economies, so uncertain and flexible, they can obviously be very valuable. Fafchamps and Minten (1999) have underlined the role of strong ties in risk sharing and social insurance. Lourenço-Lindell (2002) also highlights that strong and affective ties are more resistant in time of crisis than weak instrumental ties. In addition, Krackhardt (1992) notes that strong ties allow a better access to alters' resources. The level of affect in a strong tie, with the trust that characterize it, provides a more accurate knowledge of alters' behaviour. This type of tie is very important to access specific and critical resources, like suppliers, customers and credit for entrepreneurs. Concerning African business, some results tend to confirm this hypothesis. In his study of Walguru traders in Dar es Salaam, Van Donge (1995) bring out the importance of strong ties, especially with suppliers and customers, to explain the success or failure of entrepreneurs yet native of the same region or community. Similar findings are also found in Fafchamps and Minten (1999, 2002). Regular relations with suppliers and customers ensure a secure supply and demand. Trust in economic transaction reduces time costs to inspect the quality of goods. It also favours credit or delayed payment. The role of strong ties, especially kin relationships, in access to capital for starting business has been widely demonstrated too (Fafchamps and Minten, 1999, 2002, Lourenço-Lindell, 2002, Macharia, 1997, Lyons and Snoxell, 2005). Thus, the effect of strength of ties on activities economic performances is not univocal. That is what Uzzi (1997) calls, in his study on textile industry in New-York, 'the paradox of embeddedness'. Firms having only strong ties become less flexible. In spite of their advantages, strong ties create dependence to certain relations and difficulties in adapting to market's changes because of a lack of diversified information. On the other hand, as

[8] All weak ties are not bridges, but the probability that they are is higher than for strong ties, because of the strong ties transitivity or the so-called 'forbidden triad'.

Lourenço-Lindell (2002) has shown, if weak ties (or instrumental ties) are more flexible and easily manipulated, they are also more vulnerable in time of crisis. In some aspects it is also the sense of Granovetter's (2000) observations concerning entrepreneurial success of overseas Chinese entrepreneurs in South-east Asia. Strong ties facilitate the interpersonal trust needed for starting business, but in turn they can also be source of social claims and constraints that prevent their economic development. Consequently, it is probable that a mix of these two types of ties in entrepreneurs' personal network may enhance their economic outcomes. Unless the specific context of African informal economy make weak ties ineffective. As suggested by Macharia (1997: 148): 'Weak ties, (…), are not present or effective among those in the informal economy'.

Let's finally note that the strength of ties problematic is obviously tightly linked with the other two dimensions of ties content. As we have seen above, the resources that flow in ties have crucial implications concerning strength of ties effects. Social role can furthermore be a real determinant of tie's strength. What we can call membership relations (kin or ethnics for example) are often opposed to adhesion or selected relations (friends, acquaintances). Each of them conveys specific norms, social obligations and mutual expectations. Whereas the first are seen as more constraining, the second are considered as more contractual-based.

IV. Data and methods

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[9]. 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 has been 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 are 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, members of the informal economy are all the units that don't fall under the formal institutional framework for at least two of these selection criteria. The sample is representatively distributed, sectorially and geographically, regarding the results of the last exhaustive census of economic activities carried out in Bobo-Dioulasso (Fauré, Soulama, and al., 2000).

The multiple name generators method

For social networks data collection, we distinguishes methods based on social networks proxies measured by the number of contacts that an agent maintain with others categories of agents (family, close friend, others entrepreneurs, customers, suppliers, etc; see Fafchamps

[9] We have also conducted, form April to June 2006, a pre-survey which has served to the questionnaires' construction and tests. The whole field work has been conducted in the framework of the scientific and academic international mobility financial program of the Francophone University Agency, and with the financing of the GREThA – UMR CNRS 5113 from the University of Bordeaux and the partnership of CEDRES from the University of Ouagadougou.

and Minten, 2002; Barr, 2002), from those drawn on the specific toolkit of social network analysis (Marsden, 1990, 2005, Wasserman et Faust, 1994). In the second framework, different methods for personal networks data collection are possible (name generators, rosters, observations, archival records, contact diaries). The name generator method is the most 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 on one or more 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, the relationships between ego and each alter, and 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, i.e. to delineate the core members of his personal network (Marsden, 2005). Thus, in order to identify ego's relationships, several criteria can be used as basis for the construction of the generators (Campbell and Lee, 1991): (i) interaction criterion (all contacts over a specified period of time); (ii) role-relation criterion (contacts with specific social categories, like kin, friends, etc.); (iii) affective criterion (contacts to whom ego feels especially close); (iv) exchange criterion (persons involved in regular relations of material or intangible support). Criteria of specific social exchange have the advantage of being clear and unequivocal. They are 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 (see White and Watkins, 2000; Bignami-Van Assche, 2005; Adams and al., 2006). In the field of entrepreneurship it has been widely used in studies taking place in industrialized societies (Greve and Salaff, 2003; Renzulli, Aldrich and Moody, 2000). Nevertheless it remains seldom applied 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 crucial resources for informal activity's current exploitation. Seven types of exchange, or resources, are used to construct the first seven generators: (i) advices, information and ideas (concerning markets, management, investment, partners); (ii) support in the administrative relationships (with the local institutions for example); (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); (vii) contact for recruitment (access to employment). A 'contextual name generator' (Bidart and Charbonneau, 2007) has been lastly inserted. This one 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). 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 the social role standpoint (kin, friend, neighbour, business tie, acquaintance). Then, for a sub-sample of relations[10], 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), and ties between alters (none,

[10] The first quoted names at each generator, as do Fischer (1982) in his survey on personal network support in San Francisco.

acquaintance, especially close). Finally, note that contrary to usual social capital measures this method has the advantage not to predefine categories of alters.

V. Empirical analysis

The data collected during our survey divides in two datasets. The 'entrepreneurs dataset' (N=317) is constituted of variables concerning entrepreneurs features and economic activities. The 'ties dataset' (N=1324) concerns the data collected through name generators and interpreters. This data provides individual profiles of respondents' personal network members. They can be aggregated into measures of network configuration according to its three dimensions (structure, ties' content, and alters' attributes). These measures can then be integrated in entrepreneurs' dataset as personal network variables.

Configuration of ties strength in entrepreneurs' personal networks

We now compute a categorical variable likely to describe the configuration of ties strengh in social networks entrepreneurs are embedded into. For that purpose we implement a two-step procedure. Firstly, in order to categorize ties regarding their strength, we use ties dataset to simultaneously perform multiple correspondence analysis (MCA) and hierarchical cluster analysis (HCA). Secondly, we aggregate categorized ties in entrepreneurs dataset, and repeat the same kind of procedure in order to produce our personal network categorical variable. This second classification procedure aims at identifying homogeneous groups of entrepreneurs based on their personal network profile regarding strength of ties.

On the first step, we need to compute a ties' strength indicator. The pioneer Granovetter's definition stressed its multidimensionality (see definition above). However, the purpose of this definition was not to provide the technical foundations of an empirical measurement. Marsden and Campbell (1984) have made an inventory of thinkable empirical measures. They identify in particular closeness (intensity of a relationship), duration and interaction frequency (amount of time), and the breadth of topics discussed or the extent of mutual confiding (intimacy). Other indicators are also quoted, such as the extent of multiplexity or multistrandedness (used by the anthropologists of Manchester school)[11], the social homogeneity, the overlap of social circle, etc. They finally consider closeness as the best indicator of tie strength. It is the less contaminated by predictors of tie strength (aspects of relationships that are related to, but not components of, strength, such as social role for example). In the literature, strength of ties is thus usually measured by one of the two aspects of closeness or frequency or possibly by a combination of the two. From our standpoint these measures suffer from their inability to understand the possibility of different profiles of strength of ties according to several dimensions. This is an obvious waste of useful information. All dimensions constitutive of a tie strength convey particular social information and are not necessarily linearly correlated. Thus, it seems quite limited to ex ante select one or two dimensions to compute tie's strength indicator. That is why our method aims at identifying, ex post, homogenous groups of ties on the basis of seven categorical variables describing their strength. These variables measure each tie's frequency, duration, intensity (or trust closeness), reciprocity (or mutual aid), role and resource multistrandedness, as so as the

[11] See Mitchell (1969). Multiplexity refers to the multiple contents that flow within a single relationship (multiple resources or multiple social roles for example). It can be considered as an indicator of ties strength insofar as actors who interact in multiple social dimensions, or for multiple type of exchange, know each other better.

fact that it was established prior to business creation[12]. As classification procedures are not designed for categorical variables, we first use MCA to compute a succession of quantitative variables summing up the seven initial variables[13]. Then HCA is implemented using the first

Table 1. Ties characteristics; distributions of HCA classification variables by cluster (%)*

Classification variables	Clusters				
	(1)	(2)	(3)	(4)	All
Frequency					
Each day	59.9	39.0	63.0	42.1	**52.6**
One + a week	24.5	56.4	5.7	18.4	**25.8**
One + a month	8.9	1.5	29.8	6.6	**12.8**
< once a month	6.8	3.1	1.6	32.9	**8.8**
Durability					
< 2 years	37.0	.3	6.0	.4	**12.6**
2-5 years	54.4	6.1	10.9	.0	**20.5**
5-15 years	7.3	77.3	21.0	10.5	**29.1**
15-30 years	.8	16.0	61.9	12.7	**24.4**
30 + years	.5	.3	.3	76.3	**13.4**
Intensity					
Distant	53.6	26.1	20.7	8.3	**29.5**
Quite close	31.3	46.0	26.2	24.1	**32.2**
Especially close	15.1	27.9	53.1	67.5	**38.4**
Reciprocity					
Yes	47.4	59.8	71.2	71.9	**61.6**
No	52.6	40.2	28.8	28.1	**38.4**
Resource multistrandedness					
Weak	81.8	72.4	52.6	62.3	**67.6**
Intermediate	15.9	25.2	20.2	23.2	**20.7**
Strong	2.3	2.5	27.2	14.5	**11.7**
Role multistrandedness					
Weak	60.9	53.4	69.4	88.6	**66.3**
Intermediate	34.4	46.6	30.6	11.4	**32.3**
Strong	4.7	.0	.0	.0	**1.4**
Prior to creation					
Yes	15.9	61.3	75.6	94.3	**58.0**
No	84.1	38.7	24.4	5.7	**42.0**
N	384	326	386	228	**1324**

*Note: HCA with Euclidean distance and Ward aggregation criterion.

six components coordinates as classification variables[14]. Dendrogram (not shown here) is then used to assess the cohesiveness of the established clusters and to provide information about the appropriate number of clusters to keep. We retain four homogenous clusters to categorize ties regarding their strength.

Obviously, table 1 shows significant differences between the distributions of classification variables from one cluster to another. Thus we can identify four kinds of social ties according to their strength. The first group is made of ties which are clearly the most frequent, but are particularly recent and of quite low intensity. They are seldom reciprocal and show a weak resource multistrandedness but a significant role multistrandedness. Let them be called *weak regular ties (WRT)*. In the second group, ties are relatively frequent and established in a rather long duration. They are moderately intensive and rather little reciprocal. They show a quite moderate resource multistrandedness and a quite strong role multistrandedness. Let's call them *established regular ties (ERT)*. The third group is made of frequent and long duration ties, with a strong intensity. They are strongly reciprocal and show rather strong resource multistrandedness but negligible role multistrandedness. They are the *strong and multiplex*

[12] The last variable considers the duration of ties in comparison with the enterprise lifespan.
[13] These quantitative variables are the coordinates of each tie on the successive components computed by MCA.
[14] We consider six components so that each initial variable significantly contributes to at least one of it. See table A.1 in appendix for detailed categories and contributions.

regular ties (SMRT). Finally, ties in the fourth group clearly are the least frequent, but they have very high durations and have almost all been established prior to business creation. They show very strong intensity, reciprocity and resource multistrandedness. On the other hand, their role multistrandedness remains weak. Let them be called *strong and sporadic ties (SST)*.

Table 2. Social networks characteristics regarding ties strength; distributions of HCA variables by cluster (%)*

Classification variables	Clusters				
	(1)	(2)	(3)	(4)	All
Weak regular ties (WRT)					
Non-existent (weight = 0)	.0	40.0	68.4	3.8	**26.8**
Negligible (0 < weight < 25 %)	.0	8.8	14.0	39.2	**16.7**
Significant (25 <= weight < 50 %)	.0	51.3	17.5	36.7	**29.0**
Dominant (weight >= 50 %)	100.0	0.0	0.0	20.3	**27.5**
Established regular ties (ERT)					
Non-existent (weight = 0)	76.7	38.8	5.3	19.0	**34.4**
Negligible (0 < weight < 25 %)	3.3	13.8	12.3	40.5	**18.8**
Significant (25 <= weight < 50 %)	10.0	38.8	24.6	29.1	**26.8**
Dominant (weight >= 50 %)	10.0	8.8	57.9	11.4	**19.9**
Strong and multiplex regular ties (SMRT)					
Non-existent (weight = 0)	51.7	.0	36.6	21.5	**25.4**
Negligible (0 < weight < 25 %)	5.0	5.0	38.6	30.4	**19.2**
Significant (25 <= weight < 50 %)	26.7	20.0	21.1	44.3	**28.6**
Dominant (weight >= 50 %)	16.7	75.0	1.8	3.8	**26.8**
Strong and sporadic ties (SST)					
Non-existent (weight = 0)	71.7	71.3	36.8	15.2	**48.2**
Negligible (0 < weight < 25 %)	1.7	13.8	1.8	44.3	**17.4**
Significant (25 <= weight < 50 %)	21.7	8.8	26.3	36.7	**23.2**
Dominant (weight >= 50 %)	5.0	6.3	35.1	3.8	**11.2**
N	60	80	57	79	**276**

*Note : HCA with Euclidean distance and Ward aggregation criterion.

On the second step, we implement the same kind of procedure to identify homogenous groups of social networks on the basis of the weight of each kind of ties in entrepreneurs' personal network[15]. For the same reasons as in step one, we first use MCA and then HCA[16]. Dendrogram then suggests the constitution of four homogenous clusters categorizing the different kind of networks supported by entrepreneurs.

Table 2 highlights four different types of personal networks according to their ties strength configuration. The first kind of network is almost exclusively made up of WRT. All other types of ties are negligible with the relative exception of the SMRT. WRT are here clearly defined as specific market-based relations, or business ties, that convey what we can call market resources, which are regular suppliers, customers and partners[17]. These ties are sometimes embedded in other social relationships like friendships, acquaintances and colleagues. It also mostly encompass ethnic frontiers. It is nevertheless very circumscribed in the labour field and imply low participation to common social event. Those ties are largely created in current working framework (working place, market place, transactions) and locally developed. The few SMRT of this network can be defined as strong kinship ties of wide social support (advices, information and ideas, financial and administrative support, and even contact recruitment). It is somewhat homogeneous ethnic ties. This network can finally be called *market-based network*. It is a relatively small one (average size 5.5 members) that generally

[15] This method of aggregation is better than those taking into account the number of ties from each category. The same number of a given tie in two networks with different size has not the same consequences. What is important is thus the proportion of each type of ties in the network.

[16] This time considering three MCA components. See table A.2 for details.

[17] We defines this resources as 'market resources' by opposition to the other social resources that or not find in markets. Even financial support and access to employment are not market resources insofar as in African economies credit and labor market are few developed and moreover informal entrepreneurs have no access to them.

concerns new established activities, located outside the historic commercial centre of the city. Entrepreneurs holding that kind of network are independent, young and not much experimented. They are often born outside of the city, recently installed, and frequently unmarried or chiefs of small families. Thus, they are not much socially integrated in the city. The second type of network differs from the first by a dominant proportion of SMRT and a significant one of WRT and ERT, SST being quite inexistent. WRT are of the same nature than in the first network. ERT are largely business ties too. Of course, due to their strength nature, they are less frequent but more durable and trustworthy. They convey market resources but are less specialized than WRT, as they simultaneously convey a quite considerable proportion of social resources like advices and financial support. They are also friendships or colleagues, but never family ties. They have been locally created in professional context, whether is it current or past. Compared to WRT, they are finally clearly more socialized. SMRT are varied and multiplex social support ties (advices, financial and administrative support, job information). They can also have been of crucial importance in starting business. But in their social role they are not as clearly specifics as in the first network. They can be kinship, friendship and even sometimes market-based relations. They are largely ties of immediate proximity that involve strong social participation (to common social event for example). SMRT can be viewed as social insurance and risk sharing ties. This network is the one of *large social support and dynamic business*. It is a medium size network (average size 6.7 members), typical of independent young entrepreneurs that are native of Bobo-Dioulasso or long time residents. The third type of network differentiates by a strong proportion of ERT and SST, the two other types of ties being inexistent or marginal. ERT are quite the same as in the second network, but involve a stronger social investment, notably through social events and common projects. SST are kinship ties of social support that were crucial in starting business and that are still active in entrepreneurs network. But, conversly to SMRT, they are more occasional and essentially convey intangible resources (advices and job information, and more rarely financial support). Although often long distance ties, they involve a strong social participation. We call this network, *network of occasional social support and established business ties*. It is a relatively wide network (average size 7.3 members) that usually concerns ancient activities and well experimented entrepreneurs living in Bobo since a long time. Finally, the fourth type of network shows a very balanced profile as it is composed of all kinds of ties in rather comparable proportions. In this one, WRT are the same than in other networks, that is to say market-based relations. However, they here have the particularity to convey more supplier credit. This suggests that in informal economy, access to supplier credit depends on the high frequency of transactions rather than on the duration, kinship or level of trust of the tie. This is probably related to the low market value of transactions. SMRT and SST are of the same type that in other networks. ERT are here less distinct concerning the resources they convey. It can be market resources as well as other social resources. Thus, they are quite diversified in their social role. Nevertheless, they still are seldom kinship ties and more frequently business ones. This network is a *strongly diversified network of business and social support*. It is a wide network (average size 8.5 members). It mainly concerns ancient activities and long established and experimented entrepreneurs.

This classification raises important results that must be commented at two levels. First of all, regarding networks, our typology seems more precise than those opposing ‘survival’ or ‘solidarity’ networks to ‘accumulation’ or ‘innovative’ networks (Barr, 2002; Meagher, 2006). Moreover, contrary to Barr’s (2002) observations, small informal entreprises are not systematically characterized by small and homogenous networks. Our four networks differ in size and configuration and all combines, in different proportion, distinct business and social support ties. There is no clear opposition between the two. Thus, entrepreneurs’ personal

networks must not be considered as homogeneous assets, like in social capitalist perspective. Secondly, regarding ties, results emphasize the articulation between strength of ties and resources. Market resources essentially flow within relatively weak ties, whether WRT or ERT, and other resources in rather strong ones (SMRT and SST). This result differs from Krackhardt (1992) observations about the importance of strong ties for entrepreneur access to critical resources. However, in the informal economy, market resources are not as risked as in formal economy because of the limited market value of transactions. Then, results stress that strength of ties relatively encompasses social role. If market-based relations are generally the weakest, they are often embedded in other social relationships. Those are essentially friendship and not kinship ones. They also largely encompass ethnics and religious lines, contrary to what is often the case in formal business. Thus, it strongly invites to temperate the idea of an important familial embeddedness of business transactions in urban African informal economy[18]. Strong ties, whether SMRT or SST, are usually kinship or friendship ties but sometimes business ones too. Finally, this diverse nature of ties in entrepreneurs' personal networks reinforces our granovetterian framework. This paper strenghens the idea of 'mixed sources of action in social spaces', that is to say the fact that 'people typically pursue multiple purposes simultaneously in intersecting social formations' (Granovetter, 2002: 37-38).

Informal entrepreneurs' personal network and earnings

It is now possible to categorize Bobo Dioulasso's entrepreneurs according to the kind of personal network they are embedded into, regarding their ties strength profile. Thereby, we are able to test the relevance of personal networks configuration as a predictor of entrepreneurs' economic outcomes. Hierarchical linear regression (HLR) was conducted to investigate how well inputs, business and entrepreneurs characteristics, but also business environment and especially entrepreneurs' personal network predict informal business earnings. In our analysis, the causality problem between networks constitution and entrepreneurial success undoubtely makes networks configuration a determinant of earnings. Indeed, most of observed ties were established prior to entreprises creation. 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.

Three blocks of predictors have been implemented, that is to say usual predictor variables of informal earnings (capital and labour inputs, business and entrepreneurs characteristics), business environment and entrepreneurs' personal 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 - ∞, has been arbitrarily set to 3.17 in order to maintain the continuity of the variable. Secondly, business characteristics capture the impact on earnings of

[18] Among all the ties described as business ties by entrepreneurs, 45% are also quoted as friendship ties (close friends, acquaintances or colleagues) and only less than 10% as kinship ties. Almost 45% are considered as simple business ties. In comparison, Bigsten and al. (2000), for example, finds that more than 90% of African formal manufacturers describe their suppliers and customers as simple business acquaintances.

carrying on retail trade or catering, which stands for relatively favourable businesses in Bobo Dioulasso. It also considers the alleged positive impact of administrative registration and pluriactivity. Thirdly, entrepreneurs' characteristics bring together variables describing entrepreneurs' human capital and entrepreneurial behaviour. Individuals education, possible traditional apprenticeship and on-the-job experience are captured by dummy variables. Dependency ratio measures the proportion of entrepreneurs' household earnings raised by considered businesses. Finally, three dummy variables indicate if entrepreneurs keep the books, hold any bank account and/or anticipate demand, which constitutes alleged positive entrepreneurial behaviours.

In order to improve the quality of the model, a second block of explanatory variables considers business environment. This block is designed to evaluate the impact on earnings of professional organisation membership, established customers and favourable economic situation during present year.

Last but not least, the third block aims to introduce information about entrepreneurs' social network as predictors of earnings. Doing so, we will be able to test the impact on earnings of the kind of networks entrepreneurs are embedded into, *ceteris paribus*. For that purpose, we mainly use the four types of network previously identified. As mean earnings of *exclusive business networks* owners are significantly less than others, we choose to test the alleged positive impact on earnings of being embedded in an other kind of personal network. Moreover, we introduce five additional variables whose purpose is to control for other relational dimensions of personal networks. It concerns the proportions of business and familial ties, resources and roles heterogeneity, and the size of the network.

The results of HLR are shown in table 3[19]. Means and standard deviations are presented at table A.3 in appendix. Standard modelization (1) significantly predicted earnings $F(14, 255) = 7.932$, $p < .001$, adjusted $R^2 = .265$, meeting usual accuracy of such modelization of informal earnings[20]. Note that some commonly tested variables such as keeping the books, school attendance, apprenticeship, bank account holding or dependency ratio do not significantly alter earnings. However, once the second block of variables added, it significantly improved the prediction of earnings, R^2 change = .058, $F(3, 252) = 7.597$, $p < .001$. Indeed, informal earnings are especially dependent of business environment. As can be seen in model (2), moving around in a favourable environment, regarding professional organisations, customers or economic situation, significantly improves earnings, *ceteris paribus*. The consideration of business environment improves the quality of informal earnings prediction above standards, $F(17, 252) = 8.380$, $p < .001$, adjusted $R^2 = .318$. On the basis of this improved earnings function, the next step demonstrates that entrepreneurs' social network matters. Indeed, the introduction of the third block of variables significantly improves the prediction of earnings, R^2 change = .045, $F(8, 244) = 2.328$, $p < .05$. Note that block 3 roughly have the same explanatory power as entrepreneurs' characteristics or activities context and surroundings, which is all but negligible. As shown in model (3), being embedded in a better personal network configuration compared to *market-based networks*, significantly improves earnings, *ceteris paribus*. Particularly, the second and fourth types of networks seem to be really profitable as their standardized coefficients (not shown here) clearly dominate those of predictors such as demand anticipation or favourable economic situation.

The estimated coefficients for control variables regarding other dimensions of networks show the importance of business ties as a positive predictor for earnings. Moreover, none of the

[19] The assumptions of linearity, normally distributed errors and uncorrelated errors were checked and met.
[20] See for example Kuegie, Nordman and Roubaud (2006), Gindling and Terrell (2005) or Funkhouser (1996).

other coefficients reach sufficient significativity. Therefore, it happens that strength of ties configuration may be a deciding factor of social networks efficiency.

In model (3), the whole variables significantly predicts informal earnings, $F(25, 244) = 6.684$, $p < .001$, adjusted $R^2 = .346$. This is a quite large effect according to usual standards. The standardized coefficients (not shown here) suggest that holding an efficient network roughly contributes to earnings improvement in the same proportions as capital or labour input.

Table 3. Hierarchical multiple regression analysis summary for inputs, business and entrepreneurs characteristics, business environment, social network, predicting earnings (N = 269)

Outcome variable : log (monthly earnings)	**Model**[1]		
Predictors	**(1)**	**(2)**	**(3)**
Constant	3.463 (11.348)***	3.266 (10.415)***	2.899 (8.661)***
Inputs			
Log (capital input)	0.099 (2.263)**	0.099 (2.279)**	0.103 (2.396)**
Log (labour monthly input)[2]	0.141 (2.962)***	0.130 (2.795)***	0.116 (2.472)**
Business characteristics			
Retail trade[3]	0.273 (3.831)***	0.281 (4.051)***	0.242 (3.436)***
Catering[3]	0.454 (4.451)***	0.461 (4.691)***	0.405 (4.103)***
Administratively registered activity[4]	0.216 (2.300)**	0.204 (2.236)**	0.229 (2.537)**
Pluriactivity[4]	0.119 (1.496)	0.130 (1.693)*	0.121 (1.584)
Entrepreneurs characteristics			
Primary education	0.058 (1.008)	0.044 (.790)	0.057 (0.306)
Traditionnal apprenticeship[4]	0.041 (.644)	0.029 (0.463)	0.009 (0.148)
Conducting this business since 5 – 10 years[5]	0.127 (2.090)**	0.108 (1.842)*	0.078 (1.314)
Conducting this business since more than 10 years[5]	0.017 (0.225)	- 0.019 (- 0.255)	- 0.023 (- 0.301)
Dependency ratio	-0.273 (-1.452)	-0.213 (-1.162)	-0.214 (-1.184)
Keeping the books[4]	-0.045 (-.717)	-0.005 (-0.074)	-0.017 (-0.284)
Bank account holding[4]	0.084 (1.334)	0.087 (1.445)	0.076 (1.257)
Demand anticipation[6]	0.210 (2.419)**	0.179 (2.145)**	0.186 (2.247)**
Business environment			
Membership of one or several professional organisation[4]	--	0.208 (2.758)***	0.220 (2.926)***
Established customers[7]	--	0.153 (2.343)**	0.173 (2.580)***
Favorable economic situation[4]	--	0.169 (2.939)***	0.127 (2.162)**
Entrepreneurs social network			
Large social support and dynamic business network[8]	--	--	0.182 (2.417)**
Occasional social support and long term business ties network[8]	--	--	0.123 (1.416)
Strongly diversified network of business and social support[8]	--	--	0.193 (2.252)**
Proportion of business ties in entrepreneurs' personal network	--	--	0.533 (3.204)***
Proportion of familial ties in entrepreneurs' personal network	--	--	0.194 (1.309)
Resources heterogeneity[9]	--	--	-0.288 (-1.625)
Role heterogeneity [10]	--	--	0.151 (1.523)
Size of entrepreneurs' personal network[11]	--	--	0.014 (1.003)
F (sig)	7.932 (.000)	8.380 (.000)	6.684 (.000)
R^2	0.303	0.361	0.406
Adjusted R^2	0.265	0.318	0.346
R^2 change (sig F change) :			
Inputs	0.091 (0.000)	0.091 (0.000)	0.091 (0.000)
Business characteristics	0.166 (0.000)	0.166 (0.000)	0.166 (0.000)
Entrepreneurs characteristics	0.046 (0.037)	0.046 (0.037)	0.046 (0.037)
Context / Surroundings	-	0.058 (0.000)	0.058 (0.000)
Entrepreneurs social network	-	-	0.045 (0.020)

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 production or other tertiary business ; (4) dummy variable ; (5) dummy variable, 0 stands for entrepreneurs conducting their business since less than 5 years ; (6) dummy variable, 0 stands for entrepreneurs who set the level of their activity only according to placed orders and/or their productive capacities ; (7) dummy variable, 0 stands for entrepreneurs trying to make their business known or canvassing clients ; (8) dummy variable, 0 stands for market-based network ; (9) calculated as [1-sum of squares of proportions of each kind of resources in network] ; (10) calculated as [1-sum of squares of proportions of each kind of roles in network] ; (11) number of members in entrepreneurs personal social network.

VI. Discussion

Literature concerning African informal economies gives little information about the relational configuration of small entrepreneurs support networks and their ties content (what circulates inside, within which social relationship and with which strength). Thus, our paper gives a more specific response to Portès 'first paradox' by identifying which kind of ties affects informal entrepreneurs' economic outcomes. We questioned the 'strength of weak ties' hypothesis of Granovetter with original data on the informal economy of Bobo-Dioulasso.

Firstly, we find that the proportion of business ties in entrepreneurs' personal network, whatever their strength, have an important and significant positive impact on earnings. Conversely, the proportion of family ties has no significant effect. That result is in line with other empirical findings suggesting that the role of kinship ties is often over estimated (Fafchamps, 2001; Fafchamps and Minten, 1999, 2002; Lyons and Snoxell, 2005). They are crucial at start-up (kinship ties represent 60% of all start-up support ties in our survey), notably for access to capital, but become less important during current activity. However, they should neither be under estimated, as they represent 20 to 30 per cent of all ties in our four kinds of networks. This is also consistent with Meagher (2006) and Lourenço-Lindell (2002) observations about the weakening of traditional social communities in urban African cities. The importance of market-based relations highlights that having regular contact with suppliers, customers and partners has a strong positive impact on economic outcomes. These ties insure a regular supply and demand, possible access to supplier credit, and mutual aid in business (production cooperation, exchange of machines and work tools, exchange of customers). They clearly permit transaction costs reduction, but also underline the degree of insertion to local market. This corroborates the results of Lyons and Snoxell (2005: 1093) about the importance of 'market-place friendship' in networks composition.

Secondly, the particular configuration of ties strengh in networks matters, whereas neither network size nor global heterogeneity does. This is consistent with our theoretical framework, far from social capitalist one. Being embedded in an homogenous network, like the *market-based network*, seems to be the less efficient. This is the case of newcomers, less socially inserted in Bobo-Dioulasso. Networks combining business ties and social support ties appear to be more useful. Multiplex and diversified ongoing social support ties, as SMRT, are very important. These ties reduce the characteristic uncertainty of informal economy. They can be quickly mobilized during economic shocks and assure a form of social insurance by conveying informal credit. They also convey precious advices, information and administrative support. We can compare them to what Lourenço-Lindell calls 'altruistic ties' (2002:236). Conversely, strong and sporadic ties of social support are less useful, because they are less regular, more distant and essentially convey intangible resources, like advices and job recruitment contacts. They are also more socially constraining as they are essentially kinships ties. These ones are quiet the same than the ties driven by 'culturally specific obligations' of Lourenço-Lindell (2002:236). Finally, the *strongly diversified networks of business and social support*, and the *large social support and dynamic business networks* are clearly the most efficient. This result suggests that although valuable in informal economy, business ties are not sufficient. They have to be combined with strong and wide ongoing social support ties to claim efficiency.

Thirdly, having only WRT, like in *market-based network*, or ERT, like in the *network of occasional social support and long-term business ties*, is not efficient. Only a mix of these two types of market-based relations is valuable. In a risky, uncertain and very competitive business environment, such as African informal economy, WRT are very useful, contrary to

Macharia (1997) affirmation. They are the 'instrumental ties' of Lourenço-Lindell (2002:236). Very regular, rather recent and not much trustworthy, they provide flexibility and reactivity. They are more easily manipulated and replaceable. They allow to jump at 'quick money', opportunities, and easy reconversions. But they are more vulnerable in time of crisis. Thus, they have to be mixed, obviously with social support ties, but also with more established and regular business ties (ERT). These last are less specialised but more socialised. That is to say that they are more socially constraining, but also more stable. This result is therefore quite the same as Granovetter (2002) and Uzzi's (1997) 'paradox of embeddedness'. It also suggests that business ties are not only useful because they reduce transaction costs, which is probably not really the case for WRT, but primarily because they insure a dynamic and flexible insertion to local market. The *network of occasional social support and established business ties* has thus no significant impact because its configuration combines few SMRT and WRT.

To conclude, we can reply to Portès that the more African informal economy approaches 'true market', the more entrepreneurs rely on a mix of weak and established regular business ties and strong and wide social support ties to succeed. What is finally quite prejudicial is that, in a political context of liberalization and deregulation, the institutional chaos that characterises such economy, notably through high uncertainty and exacerbated competition, reduces the efficiency of ERT. This is in line with Meagher (2006) insights. Here, it is the case of the *network of occasional social support and long-term business ties* that is prominent in Bobo-Dioulasso's craft industry. However, only that kind of ties can really improve the development of larger economic transactions, which is crucial for industrial development. As Fafchamps and Minten (1999) point out, social relations are not sufficient to ensure the development of an effective productive system. Contrary to what de Soto (1989) advocates, deregulation reinforces the development of short-term strategies which use instable and opportunistic business ties, like WRT, and requires strong social support. This finally hampers informal activities development and increases the economic pressure on social relationships. From a political standpoint, it seems essential to improve the formal institutional support to this economy. Notably, the development of business and professional associations may promote and reinforce long duration business ties, in a more formal and less socially constraining way.

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