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Abstract

To date, most of the literature on economic networks in West Africa has considered networks in a metaphorical way. The aim of this paper is to go one step further by showing how network analysis may be applied to the study of regional trade in West Africa. After a brief review of the literature, this exploratory paper investigates two main issues related to regional trade. We start by discussing how recent developments in regional trade in West Africa, brought on by urbanization, liberalization, and globalization, have contributed to challenging the social structure of traders. We then discuss the changes that have affected the spatiality of regional trade by looking at the influence of spatial location and geographic scale on traders' abilities to trade. In both cases, we argue that the value of social network analysis in exploring how traders have progressively adapted to social and spatial changes in economic activities has been greatly underestimated. Through the combination of social and spatial ties, we ultimately show that the structural position of economic actors can be used to reassess the centrality of places. By doing so, the relational approach developed in this paper invites scholarship to reconsider the geographic organization of West African societies.

Keywords: regional trade; economic networks; social network analysis; border markets; West Africa

JEL classification codes: F15; L26; N77; N97; R12; Z13

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1. Introduction

Since pre-colonial times, West African traders have made an important contribution to the embeddedness of the region into the world. In a highly uncertain political and economic environment, traders have developed original ways of doing business that have attracted increasing attention from various disciplines. Historians, in particular, have documented the historic roots of trade networks, focusing either on the historical development of a specific type of product or on traders' historical adaptation strategies (Curtin, 1975; Roberts, 1987; Brooks, 1993; Howard & Shain, 2005; Howard, 2010). The geographic expansion of such networks across West Africa and the world has also received a great deal of attention from geographers, who have studied in detail the spatial strategies of ethnic groups involved in trade, as well as the arrival of new business actors in regional markets (Grégoire & Labazée, 1993; Lambert & Egg, 1994; Soulé, 2000; Grégoire, 2001; 2003; Author, 2009). At the same time, political economists have expressed an increasing interest in the social embeddedness of economic networks in West Africa, as well as a growing concern about their regulatory performance under the current conditions of liberalization and globalization (Boone, 1994; Meagher, 1995; 2005; 2010). While those networks increasingly supply West African urban centers, they are often accused of undermining the action of the state, as they rely mostly on informal or illegal practices and thus create new vulnerabilities.

To date, the historical, spatial, and political economy perspectives dealing with economic networks in West Africa have considered these in metaphorical terms. Most studies conducted so far conceive of economic networks as a heuristic device for dealing with informal relations or spatial arrangements. Hardly any studies have used social network analytic tools and theories to examine the structure of relations between the economic agents themselves and between social actors and their institutions. None of them have ever spatialized West African social networks in a formal way. The aim of this exploratory paper is to fill this gap by considering networks as an analytical concept and applying theoretical models provided by relational theories of social interaction. Our main purpose is to highlight the potential contribution of social network analysis to the analysis of West African trade patterns and to propose a theoretical framework that will guide future empirical investigations. As this paper argues, a network approach can have methodological and thematic advantages.

From a methodological point of view, this contribution argues that social network analysis is a credible alternative to the two main economic approaches developed so far to analyze regional trade: the flow approach which estimates the intensity of agricultural and manufactured goods exchanged between markets or countries (see Herrera, 1998), and the price approach which uses market prices as a proxy to estimate regional integration (see Fafchamps & Gavian, 1997; Aker, et al., 2010). Analyzing trade without necessarily considering the intensity of flows or the level of prices, but focusing on social actors, can be of great value in a context of informal and unrecorded trade circuits, hidden actors, parallel routes and clientelist ties.

Network analysis can also contribute to addressing important thematic questions related to regional trade in West Africa. This paper explores two of them. We start by discussing how recent developments in regional trade in West Africa, brought on by urbanization, liberalizations and globalization, have contributed to challenging the social structure of traders. We then discuss the changes brought to the spatiality of regional trade by looking at the influence of spatial location and geographic scale on traders' abilities to trade. In both cases, we argue that the value of social network analysis in understanding how traders have progressively adapted to social and spatial changes in economic activities, by considerably increasing market relations and border-related activities, has been greatly underestimated. Through the combination of social and spatial ties, we ultimately show that the structural position of economic actors can be used to reassess the centrality of places. By doing so, the relational approach developed in this paper invites scholarship to reconsider the geographic organization of West African societies.

In order to address these issues, the next section of this article first reminds the reader how networks have been progressively conceptualized in the recent history of African studies. Despite a favorable research environment in the 1970s, hardly any studies explicitly used formal social network analysis to analyze regional trade in Africa over the following decades. We then explain the specificities and originality of our approach in terms of network analysis compared with mainstream approaches, which consider trade as a 'chain'. The third section is dedicated to a brief presentation of our conceptual framework in which we combine the profile, the location and the scale of economic actors. The fourth section discusses how social network analysis may help shed light on two main issues related to the

functional dimension of integration in West Africa: the social structure of economic networks and the spatial structure of central places and border markets. We conclude this paper by a summary of our key findings and elaborate on further perspectives.

2. The missing connection between network analysis and African studies

Three major reasons explain why network analysis has as yet hardly been applied to Sub-Saharan African societies, and most particularly to regional trade. First, community studies initiated in the 1970s by British sociologists and anthropologists in Africa were not recognized as a mainstream area of interest among network scientists. Second, approaches applied concurrently by both economists and geographers contributed to overshadowing formal network analysis to the profit of econometrics or qualitative studies. Third, economic networks are particularly difficult to analyze, due to constraints on data collection. This section discusses this missed connection.

2.1 Back to the origins of network analysis in Africa

At the beginning of the 1970s, the application of social network analysis to economic networks looked promising in Africa. Taken collectively, three books that were published simultaneously could have formed the basis for a formal investigation of economic networks in Africa.

In *Customs and Politics in Urban Africa*, Cohen (1969 [2004]) documented the historical development and political implications of a trade diaspora among the Hausa of Ibadan in Nigeria. In his pioneering study, he showed that Hausa traders had established diasporas, defined as nations of "*socially interdependent, but spatially dispersed, communities*" (Cohen, 1971: 267), in order to decrease transaction costs among the members of their community. The importance of trade diasporas to pre-colonial and colonial long-distance trade was also thoroughly explored in Meillassoux's (1971) edited volume on *The Development of Indigenous Trade and Markets in West Africa*. This work provided an impressive collection of case studies dedicated to the transformations of West African trade to changes brought by slave trade and colonization. Strongly inspired by dependency theory and by the idea that religion was now a "*liability*" (Meillassoux, 1971: 79), these studies nevertheless proved inspiring for the analysis of both the social structure of long-distance

trade and the spatial arrangements of flexible networks.

Simultaneously, in *Social Networks in Urban Situations*, Mitchell (1969) and his colleagues from Manchester introduced an analytical approach to networks in urban sociology and social anthropology. They showed how social network analysis was "*complementary to and not a substitute for conventional sociological or anthropological frameworks of analysis*" (Mitchell, 1969: 8). At that time, social scientists working in Africa on networks were particularly interested in social stratification, rural-urban migration, kinship, dispute settlement, economic cooperation, and patron-client networks (Peil, 1978). Unfortunately, and despite its considerable value, this community-based approach was progressively marginalized among network scientists, who moved from Britain to the United States and towards more mathematical developments (Scott, 2006: 32).

As a consequence, to date network analysis has rarely been used in Sub-Saharan Africa. Existing studies mainly focus on the impact of social networks on kinship (Bollig, 1998) health conditions (Adams, et al., 2006; Ayuku, et al., 2006), or comparative studies. For instance, Schnegg (2006) and Schnegg and Stauffer (2007) focused on the role of social networks in coping with vulnerability and tested whether such networks were scale-free, i.e. characterized by a small number of hubs and a large number of nodes with little degree. Their six pre-existing ethnographic cases include support relations between Herero pastoralists in Namibia, transactions between Pokot households in Kenya, transactions for Ju hunters and gatherers of Namibia, and commercial transactions by Damara agro-pastoralists in Namibia. Results show that the scale-free natural-based model is "*not realistic for social networks*" (Schnegg & Stauffer, 2007: 2400). In a series of recent papers, formal social network analysis has also been used to investigate the relations between social networks and the diffusion or adoption of innovative agricultural techniques in rural Ethiopia (Matous, 2010; Todo, et al., 2011) as well as the relationships between the spatial distribution of social networks (Matous, et al., 2011). However, regional trade remains a *terra incognita* of social network analysis in Africa, despite its key importance for the development of both rural and urban African societies.

2.2. Networks as chains

The second explanation for the lack of social network approaches in scholarship on African

trade is linked to the fact that other approaches have proved more popular among economists and geographers. In the 1970s, Boutilier (1971) introduced the distinction between two spatial structures that were supposed to be relevant for the analysis of pre-colonial West African trade and which he called the 'relay' and the 'network'. At the time, so-called 'relays' were conceived of as chains of actors, each of them supplying goods to the limits of another ethnic group, whereas 'networks' were supposed to transport goods over long distances through traders who crossed ethnic boundaries. Since then, literature has shown that the 'relay' organization could no longer be applied to the post-colonial spatial organization of trade. Nevertheless, the idea that social actors are organized in some kind of a chain has survived and has influenced the way West African networks have been conceptualized by economists on the one hand and historians and geographers who hew to the metaphorical concept of networks on the other hand.

Documenting the spatial and social organization of the production and circulation of one particular product, economists usually divided the productive systems vertically into homogeneous sub-sectors, known as *filières* (see Duteurtre, et al., 2010). In West Africa, the contribution of this approach was to highlight that economic *filières* were often based on closely embedded ties, be they family, ethnic or religious. Well-known examples include the supply of cement to Niamey and of onions to Abidjan, which is predominantly organized by the Aderawa merchants of Niger (Grégoire, 2003); the hardware or spare parts business by Igbo from Nigeria; or the cattle business dominated by Fulani herders or Hausa traders (Quarles van Ufford, 1999).

Despite its usefulness for understanding the organization of economic activities, the *filière* approach only captures a fraction of the business landscape of a region. Most notably, its emphasis on one product leads to neglecting the fact that traders usually deal with several products at the same time in order to protect their businesses from uncertainty, which in West Africa can include the closing of a border, rapid changes in import legislations, droughts, or change in consumers' taste. The *filière* approach also fails to take into account the complementarities between traders working on the same markets but with different products, and the diasporas that arise in certain market places.

The idea that networks are predominantly composed of chain elements organized in a

hierarchical way has also permeated geographic studies. For instance, Grégoire's (1992, 1993) classical study of large Hausa traders shows that regional and national networks are controlled by a limited number of 'chiefs' (*chefs de réseaux*) who are localized in large urban centers. These 'chiefs' are wholesalers that trade agricultural products, notably cereals that are of critical importance for landlocked countries in the Sahel. They exercise their influence over numerous representatives in charge of collecting agricultural products in rural areas, who have power over a score of local dependents in charge of buying goods to the producers in the countryside. According to this hierarchical conception, each of the actors has a precise task to perform and is linked to a patron by clientelist ties. Following the chain of actors, one can easily go from the farmer working in his field in a remote production area to the largest merchant involved in large-scale trading from a major West African city, which is a straightforward way of representing the social and spatial structure of economic activities.

However, it can also be argued that such a pyramidal conception does not take fully into account the diversity of horizontal ties that very often bind actors from the same hierarchical level and the diversity of profiles that such actors can have. What are the relations between the chiefs, middlemen and local collectors themselves? Can one of these agents shift from his hierarchical position and make its way into another category? Who is the most central actor of the network and who plays a brokerage role? Focusing exclusively on the hierarchy of trade organizations does not permit to study how social structures facilitate or constrain the business activities since the relevant actors and ties are not all taken into consideration. When dealing with cross-border networks, Grégoire (1993: 82) recognizes the existence of horizontal links in the particular case of cross-border trade, for example when Nigerien traders want to buy cereals in Nigeria, with the help of their own dependents: "*Unlike regional networks, these networks are less populated and hierarchical*" he notes. Nonetheless, his conception of networks remains fundamentally different from a social network approach.

2.3. The complexity of economic networks

The fact that trade is notoriously difficult to investigate, due to unrecorded economic activities, parallel routes and clientelist ties (Ellis & MacGaffey, 1996), has also certainly contributed to hindering the spread of network analysis in Africa. Economic actors are very

often reluctant to speak about their activities, either because they fear customs controls or because certain activities are considered illegal. Traders are also known for using unrecorded accounting techniques and oral contracts, which do not facilitate the conduct of surveys and questionnaires. Very few records exist on regional trade, which is an area dominated by informal connections. In contrast to other contexts where network analysis has proved to be a robust approach despite the fact that data collection was difficult, such as urban gangs (Radil, Flint and Tita 2010), criminal networks (Sparrow, 1991; McIllwain, 1999; Klerks, 2001; Morselli, et al., 2007), or terrorism (Carley, et al., 2002; Krebs, 2002; McCulloh, et al., 2007), network analysis on regional trade can rarely be based on secondary sources such as official records, open source files from newspaper reports, or publicly accessible accounts.

Compared with production networks, commercial networks are also known for being highly volatile: Unlike farmers, who can easily be identified and located, traders often travel over large distances. When investigating regional trade, researchers are faced with hundreds of potential actors moving from one market to another, and a large number of them are not immediately recognizable as important due to their clandestine activities. In addition, the organization of market transactions in West Africa differs considerably from the one that is typically investigated in developed countries. As Fafchamps (2004) notes, African entrepreneurs usually conduct small and frequent transactions with numerous intermediaries and operate various businesses simultaneously, which leads to a considerable market fragmentation.

3. Exploring alternative approaches

This paper builds on a number of research questions that aim at capturing both the sociality and spatiality of economic networks in West Africa. By doing so, we develop hypotheses that explores alternative approaches to the extensive literature already devoted to regional trade in this part of the world.

3.1. Bridging the social and the spatial

Our conceptual framework consists of a combination of three variables that are highly likely to influence the structure of economic networks. First, we consider the social

structure of these networks and ask ourselves whether traders are predominantly brokers – i.e. individuals with connections across structural holes – or central actors – i.e. individuals connected to a large number of people. In our work, brokers and central actors are defined by their structural position in the networks (betweenness centrality vs. degree centrality) rather than by the precise function they occupy in empirical trade negotiations and do not necessarily correspond to the *courtiers* or *grands commerçants* of the French-speaking literature (see Bierschenk, et al., 2000 and Grégoire & Labazée, 1993).

Second, we argue that the location of these brokers or central actors can be crucial for the development of their activities, considering the cost of doing business in an environment where transport and communication infrastructures are poor. Most of the literature focuses on traders located in large urban centers, but other locations such as border markets can significantly affect traders' economic activities (Author, 2011). We consider border markets as emblematic locations of the periphery of the nationally organized economic system, as opposed to more central places such as capital cities or regional centers.

Finally, we investigate whether economic activities carried out by traders located in central places or in border markets can have very different scales. Again, border markets provide fertile ground for studying regional trade since they provide small-distance opportunities to traders who exploit local border differentials and offer a particularly favorable location for larger merchants willing to develop long-distance transnational routes. Over the last decades, structural adjustments and urbanization have lead to a new demand for cheap goods coming from informal and often cross-border trade, reinforcing the key role of such border markets in the circulation of goods in West Africa. As a consequence, a large number of border markets such as Gaya in Niger, Cinsanké in Togo, or Diaobé in Senegal, to name just a few, have developed into hubs for the transnational circulation of goods, a status that sets them apart from other markets.

Table 1 shows how our three variables can be combined. In this paper we will particularly explore the combination between brokerage, peripherality and long-distance trade, since it appears that brokers and border markets have received less attention from the scholarly literature than central actors and central places.

Table 1. Conceptual framework: social and spatial variables

Social structure	**Spatial structure**	
Variable 1: Profile	***Variable 2: Location***	***Variable 3: Scale***
Brokers	Border markets	Long-distance
		Small-distance
	Central places	Long-distance
		Small-distance
Central actors	Border markets	Long-distance
		Small-distance
	Central places	Long-distance
		Small-distance

Source: the Author.

The next two sections discuss more precisely the social distinction between brokers and central actors on the one hand, and the spatial distinctions between central places and border markets and between long- and small-distance trade on the other hand.

3.2. The social structure of economic networks

Economic studies have long shown that, despite the informal nature of their activities and a highly uncertain business environment, West African entrepreneurs face problems similar to those experienced by entrepreneurs the world over (Fafchamps, 2004). In his study of Hausa traders, Cohen (1969 [2004]) showed that economic activity faced three fundamental problems: make information exchange secure when business partners are separated by long physical and cultural distance; make business flows secure and without delay throughout the continent; and establish trust and credit relationships between business partners. Cohen (1969 [2004]) demonstrated that such obstacles were overcome by the creation of strongly embedded business networks founded on kinship, ethnic, and religious ties. Since then, as Meagher (2005) noted, the new economic sociology literature has emphasized the importance of such "embedded" ties in reducing risk, pooling complementary skills, improving access to new markets, and safeguarding property rights when formal contracts are not possible. In a business environment with little reliance on formal institutions, these elements contribute to the embeddedness – or 'closure' in Burt's (2005) terms – of West African traders in a dense network of customers and partners. Prominent examples of

strongly embedded economic ties include notably the Mourides, the Soninke, the Hausa, or the Dioula.

On the other hand, recent studies have shown that a strong degree of embeddedness can also have disadvantages: established networks may exclude many entrepreneurs and suppliers when limited to a minority, encourage bosses to recruit people like them, undermine meritocracy and favor the well-connected rather than the well-qualified (Quarles van Ufford & Zaal, 2004, Smith-Doerr & Powell, 2005). These studies have also highlighted that, since Cohen's (1969 [2004]) pioneering work, the ethnic and religious diversity of traders has increased, making "*commercial identity no more exclusive*" (Warms, 1994: 101). Thanks to the internationalization of trade, African traders have developed a more universal entrepreneurial culture (Quarles van Ufford, 1999; McDade & Spring, 2005; Beuving; 2006; Dobler, 2008) than what used to be the case before the accelerated liberalization and globalization of the 1980s.

The development of new ties that stretch beyond the bounds of the local business community, both socially and geographically, has certainly not lead to the complete disappearance of embedded ties in the context of a more market-oriented economy. Patron-client relationships have proved resilient in Africa (Ensminger, 1996). However, while exchanges were previously based mainly on strong ties, firmly embedded in kinship or ethnic groups, the opening of trade to world markets has encouraged the development of brokerage relations that are predominantly made of weak ties based on symmetrical and reciprocal bonds between peers. These weak ties are made necessary by the need to do business with distant partners who are located in Europe, in North and Latin America, the Middle East or China, and who may not share the same origin, religion, culture or language. The model of the trade diaspora described by Cohen (1969 [2004]), Works (1976), or Schildkrout (1978) based on cultural values, remains relevant for regional trade but can't be replicated to the global level.

These elements lead us to posit that West African traders are increasingly forced to combine strong embeddedness within the social group with brokerage ties beyond the group if they want to enter new global markets. As Meagher (2010: 17) argues, these traders need to find a "*balance between norms of group solidarity and more instrumental*

linkages across social cleavages". Extending Burt's (1992, 2005) work on the relationships between embeddedness and brokerage, we argue that such a cohesive group with diverse external contacts provides a mix that is suited to informal nature of regional trade in West Africa in the absence of alternative or appropriate formal structures.

This idea is close to what Uzzi (1996: 684) formulated, albeit in a very different context, when he noted that "*a theoretic optimum between the countervailing effects of under- and over-embeddedness exists when a network is composed of a mixture of arm's-length and embedded ties*". This is highlighted by the fact that the relationship between embeddedness and economic performance is non-linear but follows an inverted U-shape curve. Fleming, et al. (2007: 939) developed a similar idea in their study of small worlds created between patent co-authorship in the US. For them, "*small-world networks simultaneously exhibit high clustering and low path length*", which means that such networks are created both by a strong embedment in local clusters and by distant ties which provide innovative ideas. Small worlds have strong cohesion and brokerage, which make them well adapted to change and uncertainty.

Brokers draw resources from the fact that transaction costs are particularly high in a cross-border environment. These costs mean that the resources to collect needed information be marshaled, that distant contacts be maintained and that various national legislations be known. Moreover, brokers need to monitor prices on different markets over long distances, find new trading partners, and maintain contacts with state representatives who are very likely to shift from one position to another, a volatility that hinders sustained investment in social ties (Ensminger, 1996). Most business relations have low transaction costs because business partners have known each other for a long time and are used to performing regular transactions. They are highly embedded in a social and cultural context that provides trust and reputation to those who follow the rules and can punish or exclude those who are untrustworthy or unreliable. But, at the same time, strongly embedded networks also limit the potential for gains because every business partner provides more or less the same products or services. Much larger gains can be expected from less embedded actors, who may be more complementary to each other, have different ideas, and better exploit cultural or monetary differentials.

3.3. The spatiality of economic networks

In a region characterized by poor transport infrastructure and considerable distances between urban centers, the balance between brokerage and embeddedness is likely to be highly constrained by the location of economic agents and by the scale of their business activities.

Building on Greif's (1989) report of how geographic separations between cities were bridged by ancient traders in North Africa, our hypothesis is that border markets can be considered as a prime location for connecting disconnected parts of markets. These markets attract economic agents with distinctive behavioral characteristics that affect their network brokerage roles and unique relational attributes affecting their control of business information flows. Therefore, we expect brokers to be overrepresented in border markets and central actors to be more present in national centers or capital cities. In other words, we wish to test whether the national borders of the political space where border markets are located also correspond to the "*natural borders* [of] *the social space*", which Smith-Doerr and Powell (2005: 381) describe as structural holes. Since, as many empirical studies suggest, border markets are very often dominated by foreign traders who act as trailblazers for trade diasporas (Little, 1992; Chalfin, 2001; Grätz, 2004; Dobler, 2008; Author, forthcoming), we suppose that a large proportion of these brokers will be either specialists attracted by the potential of border regions, or representatives of more central actors sent to deal specifically with border-related businesses.

The more that traders go into long-distance trade, the more they have to rely on weak ties. As such, cross-border networks go against the general tendency of homophily. As Wellman (1988: 42) notes, "*Finite limits operate so that involvement in dense clusters often entails the loss of other ties. Jointly, these structural processes encourage the formation of ties within clusters and few ties across boundaries*". Cross-border trade also entails a higher risk than local trade, since it aims at bridging business partners that do not necessarily share the same values. However, greater resources can be drawn from the exploitation of long-distance trade, which implies the crossing of multiple and often distant borders, than of small-distance trade. This can be explained by the fact that crossing a border entails a potential benefit from price, monetary, legal and regulatory differentials that a 'regular' national market does not provide. Profits made in import-export trade depend on the

possibility of moving a product with the smallest number of intermediaries and not on the transformation brought to a product itself. Therefore, the geographical extension of African networks, which implies to move from small-scale to large-scale trade, is a necessary condition for the prosperity of traders.

As a consequence, we assume that brokerage opportunities will depend on the scale of business activities carried out by the traders and we expect to find two categories of traders: large-scale traders operating at the international level who should be more likely to have stretched outside the local community to find a balance between embeddedness and brokerage, and small-scale traders working between border cities and privileging locally-embedded ties. This idea of having two categories of traders shares many similarities with Braudel's (1992) historical distinction between long-scale trade and local trade. As Braudel (1985: 58) argues, "*It is not a hazard if, in all countries of the world, a group of large traders stands out from the rest of the merchants, and if this group is always related to long-distance trade*" (our translation). In West Africa, small and large traders make use of the same markets, road infrastructures, and institutions but form two distinct categories separated by their origin, wealth, and education. Large traders are different in the sense that they have benefited from the development of international trade and deregulations that have taken place since the 1980s and, in addition, have successfully built alliances with state representatives and politicians at the national scale.

3.4. The centrality of places

The added value of considering both the social structure of regional traders and their spatiality is that their combination, i.e. the spatialization of social networks, can help to provide an original measure of the centrality of cities within the regional economic space. Until now, the centrality of West African places is most often derived from the demographic size of towns and cities and/or from their importance in the administrative organization of nation-states. This approach reflects the importance of central-place theory in the representations of West Africa economic space and in the implementation of development actions. According to the central-place theory, grounded in Christaller's (1966) seminal study, places are hierarchically organized within urban national systems and markets can be distinguished by measuring their influence over their respective hinterland.

The limitations of such an approach in an economic environment increasingly dominated by flows has been highlighted by a number of studies (see Taylor, 2006; 2007) but have rarely been taken into account by post-independence West African states, or by international financial institutions and bilateral development agencies. Very rarely has a relational approach been used to take into consideration the importance of places in West Africa, despite the work of some historians (Howard, 1976; 2005; Howard & Skinner, 1984) and geographers (Retaillé, 1995; 2005) who contend that static or purely hierarchical models such as the central-place theory were unlikely to explain the historical or current organization of West African space.

Building on those studies that stress that business activity is subject to constant change, in accordance with climatic and political uncertainty, we posit that the centrality of places in West Africa does not correspond to the usual population or administrative hierarchies but is highly constrained by the location and activity of the economic actors working in regional trade. In other words, we believe that the relative centrality of places, such as border markets for example, could be analyzed by looking at the social network of the traders located in border areas and their relative autonomy vis-à-vis patrons located elsewhere in the networks. Because border markets are highly dependent on national and international policies, social networks should be scattered on both sides of the border so as to exploit border differentials and market opportunities. In that case, traders would not consider twin border cities as distinct markets but rather as sub-units of larger economic networks and border zones would be far from being exceptions at the national level. Rather, they would form vanguard posts for national economies, where elites from the national centers can participate in trading.

4. Conclusion

The success of economic activity in West Africa does not rely solely on the attributes of the social actors but also and predominantly on their capability to draw resources from the structure of their social relations. Economic exchange can rarely be explained through arm's-length ties with no prior social bond. Rather, it takes place within a complex set of social interactions. Therefore, a relational approach seems highly relevant for illuminating West African economic activities.

As the preliminary attempt developed in this paper suggests, network analysis could be used to better understand regional economic activities by giving special importance to the *actors* who run economic networks and to the *places* where trade is being concentrated. This approach would provide an alternative to the mainstream approaches in economics that consider either flows of commodities or prices to evaluate the intensity of trade and the degree of integration between markets and to geographic approaches that conceptualize networks as chains. Focusing instead on social actors would offer the opportunity to circumvent a certain number of methodological issues related to the absence of long-term data on cross-border flows and, most importantly, to test two crucial hypotheses which are related to the evolution of the social structure of trade since post-independence times

Firstly, social network analysis could allow investigating the trade-off made by traders between a strong embeddedness in the local community and more open brokerage roles. While embeddedness has long provided a way of minimizing transaction costs, the globalization of West African trade should lead traders to rely increasingly on weak ties when dealing with foreign partners from a different culture. The most successful traders, we assume, are those who can play both roles: they are embedded in a densely knit core cluster that provides trust and reputation, and at the same time they build brokerage ties between disconnected markets. Secondly, we believe that no other place can better illustrate such a trade-off than border markets. Playing an intermediary role between different nationally organized business networks, these markets are not primarily designed to serve as central places for local trade in West Africa. Their specificity should rather be to develop as hubs for inter-national flows where economic agents can play a brokerage role. Accordingly, we assume that brokers will be overrepresented at the periphery of economic networks where border markets are located. Thirdly, we argue that social network analysis can contribute to distinguishing between small traders predominantly benefiting from local prices and regulatory differentials, and large traders whose success comes preferentially from cross-border long-distance flows and who play a key role in the functional integration of West African countries and cities and their inclusion in the global economy.

By combining social and spatial variables, social network analysis can make an important contribution to the centrality of places. Since, as we assume, border markets are characterized by a predominance of brokers over central actors, this means that the

centrality of these markets can hardly be estimated by looking at the demographic size of the urban centers. In order words, it doesn't take many brokers to make a market important. Following this argument, we call for a revision of the usual criteria used to hierarchize cities in Africa, which are most often based on demographic or administrative figures. Rather than the size of places, we argue that it is the role of places in the regional circulation of goods and the presence of key social actors that make some cities more important than other. Again, social network analysis can bring an added value to the spatiality of trade, by giving a precise indication of traders' locations and of their structural role in the economic networks.

That said we do not intend to suggest that network analysis is the one and only method to be used to study regional trade in West Africa. A limitation of the formal network-based approach is that it can hardly explain the intensity of ties and the evolution of the network without referring to more qualitative data. In our case, traders may occupy a more central or brokerage position in the network because of their personal migration history, ethnic group affiliation, political alliance with state authorities, etc. Therefore, we strongly suggest that any network approach to regional trade should be complemented with other (more qualitative) approaches that can focus on the content of relationships.

Trader biographies, which have long been used in West Africa, could provide interesting data, not only because they allow collecting valuable qualitative information but also because asking traders to talk about their career is an excellent way to establish trust and overcome initial reluctance to take part in a more quantitative survey. Biographies can usefully contribute to documenting those factors that drive West African traders to leave their original areas and establish businesses in border regions, the patterns of these migrations, and the foundations of contemporary trade diasporas in border areas. Because they allow following traders over time, biographies can also explain why cross-border economic activity is particularly sensitive to certain political variables, most notably the boycott of ports, the closing of land borders, seizures aimed at traders, violence perpetrated on certain trading ethnic groups, and local and national political crises.

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