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Social capital and rural development: literature review and current state of the art

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DISCUSSION PAPER

**Leibniz Institute of Agricultural Development in
Central and Eastern Europe**

**SOCIAL CAPITAL AND RURAL DEVELOPMENT:
LITERATURE REVIEW AND CURRENT STATE OF
THE ART**

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**DISCUSSION PAPER No. 96
2006**



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ABSTRACT

Social capital has been recently held up as a conceptual framework to build a bridge between the diverse disciplines involved in rural development. However, despite its potential and the impressively rapid take-up of the concept by the community of development professionals, it remains an elusive construct. No definition is yet generally accepted and many definitions are in use. Recently, social capital in the form of social networks has gained much attention in rural development theory and empirical research. But social networks or structural components of social capital are a largely missing dimension in income and poverty analysis. Moreover, most research on social capital assumes that it is a uniform entity. Therefore, the effects of different forms of social capital on household outcome are rarely investigated. The objective of this discussion paper is to make the concept of social capital more tangible for empirical research in the area of rural development and to bring more structure into the conceptual framework of social capital. On the basis of an extensive literature review, this work proposes a lean and clear definition of social capital: Social capital is conceived as networks plus resources, (e.g. credit, information). Moreover, social capital is assumed to be not a homogeneous entity. Hence, it is necessary to distinguish different forms of social capital. For analytical purposes, the separation into so-called bonding and bridging capital seems to be most appealing. These two forms of social capital can be operationalized as function of an agent's so-called weak ties (e.g. acquaintances) and so-called strong ties (e.g. close relatives).

JEL: D85, Z13

Keywords: Social capital, individual social capital, measuring social capital, ego-network, social networks.

ZUSAMMENFASSUNG

SOZIALKAPITAL UND LÄNDLICHE ENTWICKLUNG: LITERATURÜBERBLICK UND GEGENWÄRTIGER STAND DER FORSCHUNG

Sozialkapital hat innerhalb der letzten zwei Jahrzehnte als interdisziplinäres Konzept eine enorme Bedeutung sowohl in der Wissenschaft als auch in der praktischen ländlichen Entwicklung erlangt. Trotz eines ‚Booms‘ an wissenschaftlichen und nicht wissenschaftlichen Arbeiten bleibt das Konzept wenig greifbar. Bisher konnte sich die wissenschaftliche Gemeinde auf keine allgemeingültige Definition einigen. Sehr unterschiedliche und zum Teil sehr umfassende Definitionen sind in Gebrauch. Neuere Arbeiten tendieren allerdings dazu, Sozialkapital enger zu definieren und Netzwerke in den Vordergrund zu stellen. Nichtsdestotrotz werden strukturelle Komponenten von Sozialkapital oder Netzwerken nur selten in Einkommens- und Armutsanalysen einbezogen. Es wird auch noch oft unterstellt, dass Sozialkapital eine homogene Ressource ist. Deshalb werden dessen unterschiedlichen Ausprägungen noch seltener untersucht. Das Hauptziel dieses Diskussionspapiers ist es, einen geeigneten Ansatz für die empirische Forschung im Bereich ländlicher Entwicklung, basierend auf dem Netzwerkansatz, herauszuarbeiten. Basierend auf einer intensiven Literaturrecherche empfiehlt das Papier eine klare und einfache Definition von Sozialkapital. Sozialkapital wird als Netzwerk plus Ressourcen definiert. Unterschiedliche Formen von Sozialkapital (‚Bonding‘ und ‚Bridging‘) werden über die Stärke der Beziehung der Netzwerkteilnehmer bestimmt.

JEL: D85, Z13

Schlüsselwörter: Sozialkapital, individuelles Sozialkapital, Sozialkapitalmessung, Ego-zentriertes Netzwerk, soziale Netzwerke.

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1 INTRODUCTION¹

The holistic nature of development has drawn together disciplines as diverse as sociology, economics, urban and regional planning, and social work. Consequently, there is no common theoretical approach that has clear application in the field. However, social capital has recently gained importance as a bridge across academic disciplines in rural development theory and agency (CORDES et al., 2003; WOOLCOCK and NARAYAN, 2000). PALDAM (2000) states that social capital can even become a joint concept for all social sciences. However, despite its potential and the impressively rapid take-up of the social capital concept by the development community, it remains an elusive construct. Many definitions are in use and no definition is yet generally accepted (UPHOFF, 1999). Some prominent scholars (e.g. PALDAM and SVENDSEN, 2001) and SCHULLER et al. (2000) point out that the diversity of definitions may simply indicate an early stage of conceptional development. The problem remains, however, that scholars new to the concept of social capital will not find a definitive synthesis or a straightforward introduction to the issues (SOBEL, 2002).²

Similar to the broad range of different definitions for social capital, there are as many different ways to measure it. PAXTON (1999) states that e.g. for the United States there is a large theoretical gap between the concept of social capital and its measurement. Previous studies provided little rationale for how their measures of social capital are connected to the theoretical definition of social capital. The problem is compounded by the lack of consensus on the meaning of the term. Furthermore, the measurement of social capital is still in its infancy. Hence, any parametric measure of social capital should be interpreted with considerable caution (ADAM and RONCEVIC, 2003). While social networks have been recognized as an important element of social capital, whatever the approach to social capital is employed, their measurement has been accorded little attention to date (FRANKE, 2005).³ For instance, van STAVEREN (2003) points out that in the analysis and measurement of social capital concerning poverty issues, social structures like hierarchies or exclusion have been often denied. Usually, it is assumed that all households who are member of a certain group such as a village will form a single network. This assumption is quite unlikely to be true as there are many other factors influencing the formation of networks (DE WEERDT, 2002). Thus, social capital in the form of social networks is an utmost important, but so far largely missing dimension of income and poverty analysis (NARAYAN and PRITCHETT, 1999).

The objective of this discussion paper is to bring more structure into the conceptual framework of social capital and to contribute to the discussion on its definition and parametric measurement. The discussion of measurement issues will contribute to a more distinct knowledge of the role and contribution of social capital in sustainable rural or economic development. Furthermore, it aims at broadening our so far very limited understanding of the role of individual social capital and networks in rural household economies of developing and transition countries. Moreover, it particularly concerns households that are prone to poverty and need to overcome deficiencies of other forms of capital. Methodologically, the results are based on an in-depth literature review and this article presents an account of the state of the art of respective social capital research.

After reviewing the respective literature, this work proposes a lean and clear definition of individual social capital: Individual social capital is conceived as networks plus resources, (e.g. credit,

¹ This paper mostly reflects work in progress. We are grateful to Jana Fritsch, Martin Petrick, and Axel Wolz for useful comments and suggestions on this discussion paper.

² Nevertheless, e.g. PORTES (1998) and WOOLCOCK (1998) provide a useful literature review to the topic.

³ KNOKE and KUKLINSKI (1991) define networks as specific types of relations linking sets of people, objects or events.

information). As social capital is rooted in social networks, it should be measured relatively to its roots. Moreover, social capital is assumed to be not a homogeneous entity. Hence, it is necessary to distinguish different forms of social capital. In the case of rural areas in developing countries, the separation into so-called bonding and bridging capital seems to be most appealing. Finally, we propose the operationalization of these two forms of social capital as function of an agent's so-called weak ties (e.g. acquaintances) (plus resources) and so-called strong ties (e.g. close relatives) (plus resources). These issues will be systematically discussed and presented in this contribution in order to make the concept of social capital more tangible for empirical research in the area of rural development.

2 WHAT IS SOCIAL CAPITAL AND WHAT CAN IT DO?

Many different definitions of social capital are in use. This section first defines the term social capital and gives some reasoning for this definition. Then it describes some of the main effects of social capital.

2.1 Definition of social capital

Often social capital has been defined very broadly, e.g. by COLEMAN (1999), who defines it not as a single entity but as a variety of different entities, with two elements in common: They all consist of some aspect of social structures, and they facilitate certain actions of individuals who are within the structure through relationships of trust, reciprocity and exchanges. A number of scholars have defined social capital even more inclusively (involving attitudes towards others) e.g. BOWLES and GINTIS (2002: F419): "Social capital generally refers to trust, concern for one's associates, a willingness to live by the norms of one's community and to punish those who do not." Trust, norms, and associations within groups each fall within the elastic definitions that most scholars have applied to the term social capital (KNACK and KEEFER, 1997; WOOLCOCK, 1998).

The range of different definitions and the inclusive character of many of them have led to severe critique of the concept of social capital (STREETEN, 2002). For instance, CASTLE (1998) points out that unless the social capital concept is used with some degree of precision and in a comparable manner, it will come to have little value as an analytical concept. Some scholars like ARROW (1999) request to discard the term social capital all together. However, as ROBISON et al. (2002: 8) truly point out: "Arrow's (1999) recommendation that the term social capital be abandoned comes too late." The term social capital is now firmly entrenched in the language of social scientists and economists. Furthermore, as stated by DURLAUF (2002b) the differences and disagreements are a good measure of the intellectual excitement of the current social capital literature.

Based on the critique on the broad definition of social capital, the term social capital has recently come to refer more specifically to associational life and social networks rather than to social norms as such (FOLEY and EDWARDS, 1999). For instance, DASGUPTA (2005), PALDAM (2000), SOBEL (2002), and STIGLITZ (1999) state that social capital may be thought of as a collection of social networks. Networks clearly require investment (of time, money, information, and prestige) that can yield a benefit flow (of employment, income, sociability, knowledge and other payoffs) (UPHOFF, 1999).⁴ Some networks are coming free of cost, e.g. we are born into certain networks. But others have to be entered by a costly process. To establish a relationship involves costs, as it does to maintain it (DASGUPTA, 2005). Especially joining a social network or

⁴ Networks of social relations are always in flux insofar as individuals respond to perceptions of costs and benefits in exchanges, and invest in or divest themselves of particular social ties (NEE and INGRAM, 1998).

establishing a relationship is an important and probably the most common form of social capital investment (GLAESER et al., 2002).⁵ However, it has also become clear that social capital must include the resources accessed in social networks (BURT, 1997; LIN, 1999b; PORTES, 1998). These resources can then be used for the good of the individual or the collective (DAKHLI and DE CLERCQ, 2004).

In line with the arguments above we define social capital more narrowly and more closely to its roots of origin (see BOURDIEU, 1983) namely by interpersonal networks according to the definition of FOLEY and EDWARDS (1999). They propose that social capital is best conceived as access (networks) plus resources.⁶ As pointed out by JANS (2003), too, social structures are not independent from their context. Not every social structure will result in social capital. It is the resource, which turns the social structure into social capital. This definition is in line with the network based utilitarian approach of LIN (1999a).

2.2 Problems with social capital as a collective entity

Across the diverse social capital literature, trust and networks are taken to be key component terms of the concept. Norms, are mentioned almost as frequently (SCHULLER et al., 2000). Especially the early definitions of social capital (see also above) encourage to amalgamate strikingly different objects, e.g. trust, norms, and networks, without offering reasons as to why such an inclusive definition would prove useful for our understanding of the social world (DASGUPTA, 2005). Moreover, as pointed out by LIN (1999a) some scientists even confound trust and norms and social capital. The difficulty arises when social capital is discussed as collective or even public good, along with trust, norms. It appears that the terms have become alternative or substitutable terms or even measurements. LIN (1999a) further argues that social capital, as a relational asset, must be distinguished from collective assets and goods such as culture, norms, trust, etc. Causal propositions may be formulated, e.g. that collective assets, such as trust, promote the relations and networks and enhance the utility of embedded resources, or vice versa. But it should not be assumed that they are all alternative forms of social capital or are defined by one another (e.g. trust is capital). As pointed out by TORSVIK (2000) it is hard to understand why we need the term social capital if it is just a fanciful way of referring e.g. to mutual trust.

Furthermore, the level of trust of a person is strongly influenced by the person's past social interactions. BARBER (1983: 165) defines trust as "socially learned and socially confirmed expectations that people have of each other, of the organizations and institutions in which they live, and of the natural and moral social orders, that set the fundamental understandings for their lives."⁷ According to this definition, social interaction is prior to trust and trust is clearly an

⁵ Nevertheless, social psychologists point also to the basic human need to belong and to be attached to others. People resist losing attachments or breaking social bonds, even if there is no material or pragmatic reason to maintain the bond or even if maintaining it would be difficult or costly (BAUMEISTER and LEARY, 1995).

⁶ Social resources are resources accessible through one's direct and indirect social network ties. The access to and the use of these resources are temporary and borrowed. For example, a friend's position may be ego's social resource. The friend may use his/her position to help ego to find a job. These resources are 'borrowed' and useful to achieve ego's certain goal, but they remain the property of the friend or his/her friends (LIN, 1999b). Thus, HERRMANN-PILLATH and LIES (2001) point out that relational data in the form of network data would be best for measuring social capital (see methodological part below). Furthermore, it is worth noting that resources obtained through social networks have from the point of view of the recipient the character of a gift (PORTES, 1998).

⁷ For instance a study by GLAESER et al. (2000) states that trust does not only reflect altruism or risk tolerance, but also beliefs about others which are formed by past experiences.

outcome of this social interaction.⁸ For instance, TIEPOH and REIMER (2004) state that social capital based on associative relations supports among others building trust. Thus, trust is an output of social capital and maybe thought of as a proxy (PUTNAM, 2001). Most authors share the view that social capital facilitates the creation of trust and that trust is an indicator (among others) which can be included into the measurement of social capital.⁹ It is, however, not clear why trust should be included into the definition of social capital. To make social capital a useful concept, we must define it in terms of its sources, not in terms of its outcome. This approach eliminates an entity such as trust from the definition of social capital (PUTNAM, 2001, WOOLCOCK, 2001). While we share this view, there is still no broad consensus on this issue.

2.3 The role of social capital in rural economies

The social capital metaphor for individual social capital is that the people who do better in succeeding their goals are somehow better connected (BURT, 2001; FLAP, 1999). Studies that focus on individual social capital are generally concerned with the differential success of individuals within a given community in obtaining scarce resources such as getting into college or finding a job (INKELES, 2000).

According to social capital theory, the economic function of social capital is to reduce the transaction costs associated with coordination mechanisms like contracts, hierarchies, bureaucratic rules, and the like (FUKUYAMA, 2001). Thus, an important feature of social capital is the potential for information exchange that inheres in social relations.¹⁰ Information is important in providing a basis for action. But acquisition of information is costly. At a minimum, it requires attention and time, which are always in scarce supply (COLEMAN, 1999). Information sharing through and within social networks influences, among others, household income by reducing transaction costs and avoiding the problems of opportunism caused by imperfect information (FAFCHAMPS and MINTEN, 2002; GROOTAERT, 1998).¹¹

Figure 1 illustrates how the household asset portfolio, social capital and networks are interlinked. The respective endowment with different forms of capital (natural, financial, human, physical, and social) determines the incidence of vulnerability of a household. Moreover, different forms of capital can substitute for and complement each other at least to a certain degree (GROOTAERT, 1998, ROBISON et al., 2002). There is growing empirical evidence – particularly from the rural sector in several developing and a few transition countries – suggesting that especially social capital can

⁸ This statement is backed by recent results from cognitive testing of generalized trust. Respondents were unable or unwilling to comment on people they did not know personally (see e.g. DE SILVA et al., 2006). Thus, before trust can be asessed there must be a relationship.

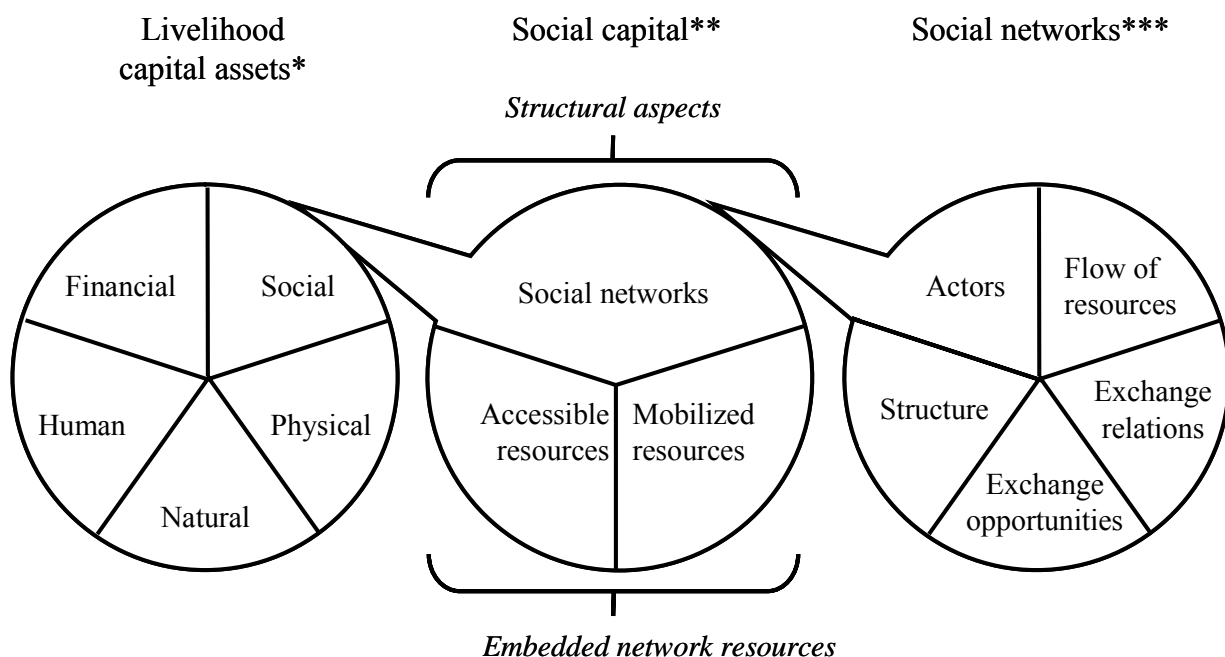
⁹ However, people may have high trust levels and yet be socially inactive or even antisocial. Conversely, people may have good reasons to be untrusting and yet make a major contribution to building social capital, e.g. through civic projects in areas of high criminality (SCHULLER et al., 2000). Thus, trust as a measure for social capital should be interpreted with care and it is recommended to differ between different forms of trust (for a review on this issue see OGILVIE, 2005).

¹⁰ Three different dimensions of social relationships can conceptually be distinguished: 1. market relations, in which products are exchanged for money or barter 2. hierarchical relations, in which obedience to authority is exchanged for material and spiritual security 3. social relations, in which favors and gifts are exchanged (ADLER and KWON, 2002).

¹¹ Thus, social capital, albeit at the collective level, may solve problems that might otherwise appear as classic market failures or state failures: Namely, insufficient provision of local public goods such as the absence of insurance or the exclusion of the poor from credit. Social networks can do sometimes what governments and markets fail to do because their members, but not outsiders, have crucial information about other members' behaviors, capacities and needs (BOWLES and GINTIS, 2002). Furthermore, in the case of organizational or institutional failure in the private or public sector, those who rely solely on formal organizations become socially excluded (ROSE, 1999).

help households to overcome deficiencies of other forms of capital (ANNEN, 2001; FAFCHAMPS and MINTEN, 2002). Furthermore, MOSLEY and VERSCHOOR (2005) concluded in their research on experimental insurance schemes that social capital can be seen as a substitute to formal insurance.¹² Another good example can be found in rural finance where social capital can be used to overcome deficiencies in the endowment of physical capital, which is taken as collateral for formal bank loans. The most common way to deal with this problem is by applying social collateral. Here, the borrowers' reputation, or the social (and political) networks to which they belong, replace traditional physical collateral (BASTELAER VAN, 2003; PANJAITAN-DRIOADISURYO and CLOUD, 1999). Furthermore, MOSER (1998) and BEBBINGTON (1999) state that even the poor are managers of complex capital asset portfolios and that social capital is an important component of this portfolio. However, the composition of this portfolio varies across space and also across different social, gender, and ethnic groups.

Figure 1: Assets, social capital, and networks



Source: Authors' figure.

Note: * Based on SCOONES (1998); ** based on FOLEY and EDWARDS (1999) and LIN (1999a); *** based on COOK et al. (1983)

Through its network component, social capital has an outstanding role in the access of households to productive resources, either through the resources directly embedded in the network or through collective action. When rural people try to access resources, they do so through engaging in relationships with other actors. Indeed, access to other actors is conceptually prior to access to material resources in the determination of livelihood strategies (BEBBINGTON 1999). For instance, BERRY (1989) has pointed out that, in developing countries, knowing the social game is crucial to understanding the functioning of other important areas, such as politics and business. In the context of rural African economies, access to productive resources depends not

¹² However, this statement is valid only for wealthier households. The poorest of the poor have no or much less insurance potential and this low level of informal insurance can hardly be seen as a substitute for formal insurance (see also footnote 17 on resilience below).

only on material wealth but also on participation in a variety of social institutions.¹³ Another example can be found e.g. in Vietnam where during the socialist times, special cadre networks have developed to create access to the scarce resources and to circumvent certain policies, also called ‘sneaky contracts’ (*khoan chui*) (DALTON and ONG, 2005). In a more recent example from Vietnam, WINKELS and ADGER (2002) show that access to resources is intimately linked to social networks as access to land and other resources is often dependent on membership in descent groups, local farming communities and other networks. Since these networks can hardly be tapped by outsiders it is very likely that they have detrimental effects on development. Thus, information devices must be developed around this ‘perverse’ outcome of social capital (see also next section 2.4).

However, WINKELS and ADGER (2002) also state that social capital has important functions for channeling and facilitating adaptation. The transfer of knowledge about adequate natural resource management techniques depends upon, among other things, the social relationships.¹⁴ Thus, they conclude that social capital is directly linked to the sustainable use of resources.¹⁵ Promoting social capital may also push access to productive resources, which in return can support sustainable land use through increased agricultural productivity and can thus contribute to natural resource protection.¹⁶ Above all, without access to social networks and their inherent relevant information sharing, participation in any decision making is limited, biased, or may become even impossible. Hence, many development activities, especially through their often participative nature, rely on social capital and more specifically on social networks for addressing people, e.g. when introducing savings and credit groups or integrated pest management approaches.

The amount of social capital and the underlying social networks of a single person or household are also seen as an important factor for the resilience of poor households towards income shocks.¹⁷ Thus, a substantial amount of social capital is assumed to be important for poverty reduction. For instance, HA et al. (2004, 2006) suggested in a recent study on Vietnam that the enrichment of social capital in a village as a whole will benefit the poor more than the rich and thus eventually reduce income gaps. Research by GROOTAERT et al. (2002) in Burkina Faso came to similar results, namely that social capital reduces the probability of being or remaining poor and that social capital investments achieve higher returns for the poor than for the population at large. Households with a high amount of social capital are assumed to be well

¹³ FAFCHAMPS and MINTEN (2001, 2002) state that social capital may be as, if not more important than human capital for efficiency in economies that are characterized by high transaction costs and poor market institutions. Furthermore, GERGS (2003) points out that research on entrepreneurship indicates that obtaining important market information and access to customers requires a multitude of forms of social participation and informal networks.

¹⁴ Social interactions have been shown to play an important role in technology adoption decisions within agriculture (FOSTER and ROSENZWEIG, 1995; UDRY and CONLEY, 2004).

¹⁵ Whether this conclusion can be drawn is, however, doubtful, as of course inadequate resource management techniques are also distributed through social capital and thus there exist a trade-off between both effects.

¹⁶ However, GRAFTON and KNOWLES (2004) have shown in a cross country comparison, that higher levels of public social capital have no beneficial influence on environmental quality, whether this is valid also for individual social capital remains for future research. Furthermore, there is more and more evidence that an intensified agricultural production can also lead to e.g. increased deforestation (see e.g. MÜLLER and MUNROE, 2005).

¹⁷ Resilience means the strength of an institution or network to cope and adapt to changes and to reform after disasters without significant upheaval (ADGER et al., 2002; KORFF, 2005). However, as CLEAVER (2005) and HICKSON (2001) point out, the chronic poor often possess only human capital in the form of their ability to work. They are often structurally excluded from social networks due to their high level of poverty as attending in social networks may also imply certain costs and thus, lack access to fruitful relationships with powerful allies. As stated by THORP et al. (2005) destitution leaves little space for networking. Moreover, DE WEERDT and VAN DE GAER (2003) point out that the relatively more isolated subgroups of very poor household have less insurance potential. As a consequence, poor households will remain vulnerable to shocks, despite the presence of the informal insurance system.

connected to and within social networks, being better informed, and having better access to resources and a high incidence of resilience.¹⁸ Therefore, those households, even when they are poor, are expected to lift themselves sooner or later out of poverty and can be considered in the stage of dynamic poverty. However, households which are badly connected to social networks and lacking essential information to access scarce resources (such as credit) may be unable to do so and will likely remain in the state of chronic poverty. For instance, GROOTAERT (1998) states that the information sharing role of social capital is of key importance to poverty alleviation, particularly for those households who are in the state of dynamic poverty. Furthermore, extensive literature exist on informal saving and credit groups, which have been successfully organized using small and dense social networks, see e.g. ADAMS and FITCHETT (1992).

2.4 The dark side of social capital

Earlier studies on social capital often assumed that the concept is 'normative' and related to a wide range of positive development goals. This assumption seemed to imply that the more social capital the better.¹⁹ However, this assumption does not hold and it actually reduces the analytical value of the concept. As stated by PORTES (2000), the heuristic value of the concept suffers accordingly as it risks becoming synonymous with each and all things that are positive in social and economic life. Furthermore, negative aspects of social capital have often been completely ignored in the past. Nevertheless, social capital like all other factors of production can be put to bad uses as well as to good ones and a range of negative effects exist and one can easily think of examples. For instance, the right 'connections' allow certain persons to gain access to profitable public contracts and bypass regulations binding on others. Individual social capital in such instances consists precisely in the ability to undermine collective social capital – defined as civic spirit grounded on impartial application of laws (PORTES, 2000; STREETEN, 2002). While social networks provide information and other benefits to those within them, certain groups (e.g. based on gender, ethnicity, or income) may be excluded. Insufficient access to social networks or being marginalized within networks can lead to insufficient access to important information. This can present a substantial barrier for accessing productive resources such as credit, insurance, or agricultural extension. DUFHUES et al. (2002), KARLAN (2001), and VAESSEN (2001) provide examples where certain groups are excluded from formal credit due to lack of relevant information or, in other words, weak networks. In general, important information tends to be segmented and to circulate within specific groups or networks to the exclusion of others (ROBINSON, 2001). As also stated by HOFF and STIGLITZ (2001), social ties are crucial for credit access. HAYTHORNTHWAITE (1996) points out that e.g. in the case of information, a social isolate

¹⁸ Social networks often extend beyond the local community. BEAL (2001) points out that the extended family networks can span the rural-urban divide and are important sources of security and support. Migration and remittance flows are not necessarily unidirectional – rural-urban and urban-rural, respectively – but flow where they are needed at different times. Research in Africa by MOSER (1998) has shown, too, complex urban-rural reciprocity systems, reducing vulnerability for both urban and rural households and thus, supporting resilience of the whole system. For instance, in Vietnam migration is often only seasonal, thus returning migrants improve the social capital of their home community (ADGER et al., 2002). Anecdotic evidence from other countries, such as Thailand, supports this statement, where many urban city dwellers who lost their income base due to the financial crisis in the late nineties returned to their kinship on the countryside. In the absence of a broad functioning formal social security system those rural-urban connections are of immense importance to the resilience of poorer households, either urban or rural. In a globalized world with high population growth the gap between rural and urban areas are becoming smaller every day and with better transportation and communication means the social inter-linkages between these two areas are becoming more intense. Clearly these rural-urban interactions demand further research.

¹⁹ Such an approach also leads easily to tautological statements such as 'the successful succeed' (STREETEN, 2002); (see also Footnote 23).

can only receive information from impersonal sources, such as mass media. This can further aggravate the unequal access to natural and institutional resources. Furthermore, the benefits of cooperation are frequently captured by the more powerful people within the network.²⁰ However, inequality per se is not evidence of exploitation (DASGUPTA, 2005). On the one hand, key persons of networks are well prepared to prevent the resource flow from being forwarded. On the other hand, they have a possibly high multiplier position and can function as relay-stations for disseminating information, attitudes, behaviors or goods (BORGATTI, 2006). As stated by PENG (2004), in villages without dense networks, external resources are accessible only to those strategically positioned. If they have entrepreneurial acumen, then they could get rich first or lead the whole village to prosperity. If they do not, the value of the external bridges will simply go unrealized. In this way of thinking, ANNEN (2001) points out that a social network is able to better its economic performance by improving its capacity to process information.

Where communities or networks are isolated, parochial, or working at cross-purposes to society's collective interests (e.g. in ghettos, gangs, drug cartels), productive social capital is replaced by what RUBIO (1997) – in discussing Colombia – calls perverse social capital, which greatly hinders development (WOOLCOCK and NARAYAN, 2000). Furthermore, social capital in the form of certain networks can support markets, but can also prevent markets from functioning well or from coming into existence as ARNOTT STIGLITZ (1991) have shown in the case of formal insurance provision. Thus, social capital can be a hindrance and not a help to economic development (DASGUPTA, 2005). According to SIK (1994) in Eastern Europe the investment in social capital is so large, that other forms of investment (e.g. physical or human capital) are overshadowed. He assumes that the transformation process has been significantly hampered by this fact, as those people holding large investment in social capital and the power that derives from it are not willing to give up their investments. This view is also shared by ROSE (1999) in the case of Russia. PALDAM and SVENDSEN (2001) differentiate in this special case between positive and negative social capital. They state that in the pre-transformation period positive capital was destroyed and the creation of negative supported.

3 MAKING SOCIAL CAPITAL OPERATIONAL²¹

This section first proposes a measurement for individual social capital and then describes how to measure different forms of social capital. Finally, an ego-centric network analysis is introduced as method to measure social capital.

3.1 Measuring individual social capital

According to our definition of social capital, we are supporting the measurement proposed by LIN (2001) who states that social capital is rooted in social networks and social relations, and thus, must be measured relatively to its roots. Including network components into the measurement of social capital is wide spread. However, most studies consider only formal or

²⁰ Close social networks raise equity concerns whenever they have real economic benefits. The creation of close social networks may reinforce polarization in society between the 'in' group and the 'out' group. A similar situation arises within networks when better connected individuals profit from their contacts. Thus, social capital can be used by certain groups or individuals to overtake others, generating inter- or intra-group inequality and political tension (DURLAUF and FAFCHAMPS, 2005; FAFCHAMPS and MINTEN, 2002).

²¹ The usual terminology of social network analysis will be followed here: The individual whose social capital or social network is being considered is referred to as 'ego', the relevant relationships of this individual to other persons are called 'ties', and the persons to whom ego is related are the 'alters'.

semiformal social networks, such as clubs or associations.²² Nevertheless, as pointed out by SCHULLER et al. (2000) simply grossing up the number of people who belong to organizations indicates little about the strength of social capital if it is not accompanied by information on what people do as members. Furthermore, such a focus completely ignores the importance of entirely informal networks, such as friendship or school class networks. As social capital consists of resources embedded and accessed as well as networks, it is advisable, in any given study, to incorporate measures for both, network locations and embedded resources.²³ BOURDIEU and WACQUANT (1992) state that social capital would be best operationalized as the sum of the resources attainable through a network of more or less institutionalized relations. However, the extent to which an individual has access to resources through social capital depends on the person's connections (whom they know, but also connections through common group membership), the strength of these connections, and the resources available to their connections (SOBEL, 2002). For instance, BURT (1997) has demonstrated the strategic advantage of certain network locations to access these resources.²⁴

Measuring the social capital of an individual or a group does not mean attributing a value to all the resources that the members of a network can access. The emphasis is, rather, on those resources that are useful in a particular situation and that can be mobilized at a given time. Indirectly, then, the focus is on the utility of specific resources and their potential accessibility (FRANKE, 2005). In certain situations, the fact that several members of the same network possess the same resource does not increase the value of social capital of a member who needs this resource, as a single network member is often able to respond to this need. In other situations, however, diverse sources reduce pressure on one source if the need is over a long term (e.g., in the case of social support, varied sources of assistance are vital). In other words, in some circumstances, the variety of resources is valuable, while in other situations, the variety of sources is more important. The utility of resources and their potential accessibility are the main criteria that inform the development of most social capital indicators (VAN DER GAAG and SNIJDERS, 2003). Thus, network resources can be measured by:

1. The range of resources among ties;
2. The best possible resources in the networks among ties;
3. The variety or heterogeneity of resources in the network, and
4. The composition of resources.

Research indicates that these measures are highly correlated and tend to form a single factor, with the highest loading usually on the range or upper-reachability of resources (LIN, 2001). This implies that, when constructing a measurement instrument for the amount of social capital, a variety of resource items must be considered, and the social capital measure has to aggregate over

²² One reason for including measurements of associational life is that associations generate social networks that expand the range of weak ties among individuals who otherwise would not interact and that can be used for productive means (DE ULZURRUN, 2006).

²³ Equating social capital with the resources acquired through it can easily lead to tautological statements, such as the successful succeed. For example, student A has social capital because he obtained access to a large tuition loan from his kin and that student B did not and thus, has no social capital neglects the possibility that student B e.g. did not want to finance his/her study by a family loan (PORTES, 1998). FOLEY and EDWARDS (1999) state that the distinction between mobilizable resources and the resources actually used needs to be maintained. In this sense VAN DER GAAG and SNIJDERS (2003) propose measures developed based on mobilizable resources or on 'perceived access to social capital' as it is called by HOFFERTH et al. (1999).

²⁴ BORGATTI et al. (1998) give a good review on location measures of social capital. They propose that several measures are available for different kinds of social capital in the standard network analytic toolkit (such as size, degree, closeness, density etc.).

these resource items as well as over network members. This, leads to a formula (see Equation 1) proposed e.g. by VAN DER GAAG and SNIJDERS, (2003), which require for data collection a full ego-centered network study (for a detailed definition of ego-centered networks see Section 3.3 below).

$$SC = \sum_i \sum_j r_{ij} p_{ij} \quad (1)$$

where SC is the quantification of an individual's social capital, i refers to the alter and j to the resources, r_{ij} is a quantification of the resources of type j in the possession of network member i , and p_{ij} is the probability that i will give ego access to his resource of type j .²⁵ Such a measurement procedure requires the measurement of the opportunity and willingness of alter i to give the focal individual access to resource j . The opportunity to give access to the resource in question will depend on transaction costs that need to be overcome, which may depend on meeting frequency, physical proximity, etc.²⁶ The willingness is usually modeled via attributes of the tie between ego and alter such as strength, frequency of contact, and number of exchanges (GRANOVETTER, 1973; MARSDEN and CAMPBELL, 1984; VAN DER GAAG and SNIJDERS, 2003). However, in practice one could also simply ask the focal individual for an assessment of the probability of i to give the resource j .

3.2 Distinguishing different forms of social capital

Many earlier studies on social capital, for instance by NARAYAN and PRITCHETT (1999), created a single index for social capital. This method assumes that a single numerical index is sufficient to represent social capital. However, as stated by some researchers, e.g. PAXTON (1999), ROSE (1999), or WOOLCOCK and NARAYAN (2000), it is probably impossible to sum all forms of social capital into a single index. Social capital is assumed to be not a homogeneous entity and a single index ignores this possibility (FLAP, 1999; HA et al., 2006; WINTERS, et al., 2002). SCHUURMAN (2003) emphasizes in his critical review on social capital the importance to distinguish between bonding and bridging capital. WOOLCOCK and NARAYAN (2000) relate weak ties to 'bridging capital' and 'strong ties' to 'bonding capital'.²⁷ Thus, bonding and bridging social capital is basically distinguished by the strength of the tie between two egos.²⁸ Strong ties characterize the intimate social circle of individuals with similar characteristics and weak ties characterize the infrequent interactions and peripheral relationships among dissimilar individuals (LIN, 1982). Thus, bonding (exclusive) social capital refers to relations amongst relatively homogenous groups such as family members and close friends and is similar to the notion of strong ties (FRANKE, 2005).

²⁵ As pointed out e.g. by WOOLCOCK (2001) in contrast to e.g. human capital, which resides in individuals, social capital resides in relationships.

²⁶ Exchange opportunities are mainly dependent on physical infrastructure (such as roads and electricity) and social infrastructure (such as schools, hospitals and libraries). Usually exchange opportunities are closely connected to geographical proximity. However, changes in information technology make it easier to get in touch with people and reduce the need for participation in other ways (SOBEL, 2002). As pointed out by MANSKI (2000), advances in telecommunications may diminish the importance of physical and geographical proximity substantially. The neighborhood has lost much of its once traditional function as the spatial frame of reference for social capital. If social capital becomes locked in space then its functionality is limited in terms of information and communication technologies (SCHUURMAN, 2003).

²⁷ Bridging capital is also closely linked to the concept of 'structural holes' (see e.g. BURT, 2001), as weak links might connect separated networks. The person in this position might act as broker and can take advantage of this fact.

²⁸ The strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie. MARSDEN and CAMPBELL (1984) propose 'closeness' or 'the emotional intensity of a relationship' as a measure of intensity of a relationship and thus as the most suitable measure for tie strength. Frequency measurements overestimate the importance of neighbors and colleagues and duration of the relationship overestimates the importance of family members.

One of the key characteristics of bonding capital is that its potential power is positively related to the size of the group (IYER et al., 2005). However as pointed out by O'BRIEN et al. (2005), it is usually formed in small groups.²⁹

It is assumed that information or resources accessed through different strong ties are redundant, i.e. everybody in the core network of strong ties has the same resources available. Thus, the first strength of bridging social capital lies in its access to resources through its connection to other networks outside one's core network. By breaking out of one's own intimate close social circle through weak ties, one can access resources not otherwise available (LIN, 1982). The second strength of bridging social capital might lie in its accessing social positions vertically higher in the social hierarchy.³⁰ Ties are more useful the higher the rank of the person is, with whom they are formed. One can surely draw on more resources if one has rich and influential friends than if one has poor friends far from the seats of power. This has the advantage in facilitating the instrumental action (LIN, 1999b).³¹ However, BIAN and ANG (1997) state, for instance, in the Confucianism Chinese society, bonding capital is much more important and channels similar resources e.g. help to find a new job, like bridging capital in western cultures (GRANOVETTER, 1973). Thus, the use of bonding and bridging capital is obviously also dependent on the society. In contrast WOLZ and TRI (2004) are using this dichotomic social capital approach also in the analysis of the competitiveness of peasants in Vietnam and conclude that in the Confucianism influenced Vietnamese society, too, particular bridging social capital is important for their further economic development. Thus, there are still open research questions.

As pointed out above, bridging social capital is important to gain access to resources and opportunities. But closure and strong ties (which is eminent in bonding capital) can be crucial for realizing these opportunities and for collective action (BURT, 2001; CHWE, 1999; GRANOVETTER, 2005).³² Moreover bonding capital provides individuals with information that helps preserve one's interest even when the individual has not actively searched for this information. As stated above, bridging capital provides diverse and useful information but this information must normally actively searched for (LAI and WONG, 2002). Furthermore, WELLMAN and WORTLEY (1990) state that people get most of their social support through a small number of strong ties. Thus, strong ties are important to cope and mitigate with idiosyncratic

²⁹ OGILVIE (2005) showed in a historical analysis of guilds that the 'closure' that creates e.g. bonding social capital means that many network activities are open to abuse. Thus, exclusive bonding social capital has the potential to facilitate detrimental effects on society or economic development. Furthermore, as stated by MORGAN and SORENSEN (1999) closure also bears costs to the individual such as redundant information or loss of autonomy.

³⁰ A third conceptual classification has been suggested, which is called linking social capital. This dimension refers to one's ties to people in positions of authority, such as representatives of public (e.g. police) and private (e.g. banks) institutions. In this classification, bridging social capital is horizontal (that is, connecting people with similar social standing through weak ties, e.g. a farmer to another farmer), linking social capital is more vertical, connecting people to key political players and across power differentials (e.g. a farmer to credit officer) (GROOTAERT et al., 2003; WORLD BANK, 2000). For instance, MUTZ and SCHMIDT (2002) used the threefold classification in a research work on Northern Vietnam, albeit in a more urban research setting. It is assumed that in the rural setting linking social capital is negligible. Nevertheless, this assumption needs further prove and a future research project by the authors will, among other issues, address this question. Thus, in our definition of bridging social capital both horizontal and vertical connections are included.

³¹ Instrumental actions are actions that are taken to achieve the goal for the benefit of the individual who takes the action (LIN, 1982).

³² A generic research finding in sociology is that information circulates more within than between groups (BURT, 2001). Thus, strong ties are important for the transmission of new, innovative information, too. Persons usually act more likely on information received from these sources as they are perceived as more trustworthy (HAYTHORNTHWAITE, 1996).

shocks.³³ However, the bonding capital may be less useful in times of covariate shocks. As DEVEREUX (2001) points out, particularly the horizontal redistributive practices (transfers between people of similar economic and social status) are highly vulnerable to covariant risk, as the core network is likely to be hit as a whole. For instance, HURLBERT et al. (2000) found out that after a hurricane disaster most of the informal help was received from outside of the core network. This seems to be particular severe for poor people, as the poor often own an intensive stock of bonding social capital that they can leverage to 'get by' (HOLZMANN and JORGENSEN, 1999), but they lack the more diffuse and extensive bridging social capital deployed by the non-poor to 'get ahead' (NARAYAN, 1999).

As stated e.g. by ADLER and KWON (2002), weak ties facilitate the cost-effective search for codifiable information and strong ties facilitate the transfer of complex information and tacit knowledge. Independent of the benefits, initially strong ties are more costly to maintain than weak ties. Thus, these two forms or dimensions of social capital have benefits as well as costs and one can possess too little or too much of it. This suggests that the different types of social capital are resources to be optimized not maximized (WOOLCOCK, 1998). For instance, the possession of mainly bonding capital narrows possibilities of the household (DASGUPTA, 2005). Thus, different combinations of bonding and bridging social capital are responsible for the range of outcomes observed. Having both bonding and bridging capital enhances extensivity of networks. The more extensive the networks, the better it is to access and mobilize social resources (LIN, 1999b).

3.3 Ego-centric network analysis

Social network analysis proposes a series of analytical tools and techniques for measuring social capital with relative precision, at both the individual and collective levels (FRANKE, 2005). The key assumptions of social network analysis are that actors and actions are to be viewed as interdependent rather than dependent, and that the relational ties between actors are channels for the transfer or flow of tangible and non-tangible resources. Thus, social network analysis focuses on patterns of relationships between agents instead on characteristics of people.³⁴ The relational types to be investigated include transactions, communications, instrumental relations, sentiment, authority/power, and kinship. By mapping these relationships, network analysis helps to uncover the informal communication patterns present in social network (KNOKE and KUKLINSKI, 1991; ZWIJZE-KONING and DE JONG, 2005). Thus, it fits ideally into our definition of social capital, particularly for analyzing the structural aspect of social capital.

For egocentric network data, conventional sampling procedures can be used. Egocentric network data are usually collected for larger and less definable networks. In contrast to complete networks, egocentric network data samples individuals and enumerates the local networks surrounding them. Usually, the interview is carried out through ego and only direct ties are measured and the connection between alters. This approach gives a representative sample of the social environments and is compatible with conventional statistical methods of generalization to large populations (MARSDEN, 1990). Typically, the name generator technique is employed to reveal alters of ego.

³³ A shock or crisis that affects just one person (one family/household) is classified as an individual risk, or idiosyncratic. Covariance is the tendency for either i) many households to be affected by a shock at the same time or ii) several shocks to consistently occur together (BROWN and CHURCHILL, 1999; DERCON, 2002).

³⁴ In economic terms, agents are the units who interact with one another. The notion of an agent embraces persons, firms, and other entities such as non-profit organizations and governments. The essential characteristic of an agent is not its physical form but rather its status as a decision maker (MANSKI, 2000). KORFF (2005) points out, the interaction makes the agent a node in a network. The agents' decision making is not that much subject of their own, but a result of the social context.

The name generator has been developed already 30 years ago by MCCALLISTER and FISCHER (1978). It has been used extensively in the network literature and has been recently used for measuring social capital. The general technique is to pose one or more questions about ego's contacts (names) in certain social contexts or situations. Thus, ego-centered social networks are mapped (name generating part), as a starting point for the collection of information about each specific network member (name interpretation part). This can result in very detailed and informative social capital descriptions (BURT, 1984; SNIJDERS, 1999). From these data, locations of ego as well as those ties, relative to one another, can be computed. Network resources can also be obtained (LIN, 2001).³⁵ Egocentric network data consist only of direct ties of an ego. However, it is nearly impossible, or at least impractical, to list all of the members in an egocentric network (FU, 2005; MCCARTY et al., 1997). A central issue in the collection of survey network data is the choice of a specific relational content, or type of tie, to elicit names of alters from the respondent (MARSDEN, 1987). Thus, not a complete egocentric network should be mapped but only certain aspects, which are important to the perspective research questions, for instance access to and information about access to productive resources (credit, extension, land, help, etc.) or risk management strategies in case of a livelihood emergency (BEUCHELT et al., 2006). However, it is useful to estimate the total personal network size by a single item question about the daily contacts of each person. Network size can thus be represented by a centrality index (see FREEMAN, 1979) that serves as a measure of social integration, and as such there is a good case for positing that network size will have direct effects on outcomes such as access to information (MARSDEN and HURLBERT, 1987). Furthermore, FU (2005) states that the more contacts a person has in a typical day, the more alters the person is likely able to fall back on for help.³⁶

3.4 Econometrical concerns

Many empirical studies are trying to assess the impact of a social capital variable on various household outcomes. However, as with every impact assessment a number of econometrical problems are attached to it. For instance, as soon as cause-and-effects are assessed, social identification problems arise. Furthermore, when social capital is used as an independent variable in regression analysis, as it is usually done when measuring the impact or influence of social capital on household outcomes, such as income, it can be expected that social capital is endogenous to the outcome variable. In the following section the most important econometrical problems in measuring the impact of social capital are discussed.

³⁵ According to FU (2005), network generators create a bias towards stronger ties as this lies in the nature of these methods. Two more shortcomings can be cited as: 1. it can be relatively time consuming and thus costly (depending on ego's network size), and 2. many of the data collected with this instrument can subsequently also be considered redundant for social capital measurement, as many alters in the network will give access to the same resources. Although similar resources located at several alters can be seen as a way of help 'insurance', the presence of one alter giving access to a particular resource will usually suffice to solve a certain problem. For many issues only the information whether at least one alter can offer a certain social resource help is necessary (LIN et al., 2001; SNIJDERS, 1999). The resource and the position generator can partly overcome those shortcomings. The resource generator has recently been developed in the context of certain developed countries. Thus, it cannot simply be applied in a different cultural context without major preparatory work (VAN DER GAAG and SNIJDERS, 2005). The position generator as applied e.g. in LIN et al. (2001), which is another enhancement of the name generator, is often also not applicable as national occupational job-prestige ratings are often missing, which are a prerequisite for the position generator.

³⁶ Many network measures (such as density) are only available for persons having a network size of one or more. Thus, those observations are excluded from the analysis leading to selectivity bias problems. However, name generators create usually only a low portion of very small networks. Thus, the selectivity bias problem is not a real threat. Nevertheless, by including network size among the explanatory variables the selectivity bias problem can be solved (MARSDEN and HURLBERT, 1987).

3.4.1 Social capital, social interactions, and endogeneity

Identification problems arise when one needs to distinguish the effects of the choices of others versus the characteristics of others on an individual (DURLAUF and FAFCHAMPS, 2005). Individuals are influenced by the choices of others and people typically make choices sequentially. Thus, a feedback loop exists from past choices of some people to future choices of others.

One part of the social interactions literature has explicitly attempted to model the influence of groups on individual behavior. The basic conceptual relationship in models of social interactions is the effect on one individual's actions of the actions of another individual or group of individuals. The literature usually relates, through regression analysis, the behavior of an individual to the characteristics of some group to which the individual belongs. In such work, a researcher typically constructs a probability model to predict individual behavior given a set of individual level and group level control variables. Individual level variables include factors such as family and parental characteristics. Group level variables include factors such as the percentage of others in an individual's reference group who choose a certain behavior and the group level average of some characteristic such as educational attainment. The traditional critique of such exercise is that the group characteristics are, in some sense or another, endogenous or more generally correlated with unobservables in the equation (DURLAUF, 2005; MOFFITT, 2001). Thus, the empirical identification of the impact of social behavior on individual choices is plagued by many problems.³⁷ The major types of problems with estimating the effect of group characteristics on individual characteristics can be grouped into three categories: 1. simultaneity problem 2. correlated unobservables, and 3. group endogeneity or selection problem (MOFFITT, 2001; SOETEVEN, 2006).

Simultaneity problem: The determination of how social capital affects individuals is also an example of the 'reflection problem' that MANSKI's (1993) seminal paper characterizes. The reflection problem arises because social interactions are symmetric in the sense that a person's behavior affects the behavior of the other members of the group. This is known as the reflection problem – group behavior affects the person's behavior, which, in turn, affects the group's behavior (BANDIERA and RASUL, 2002). The reflection problem becomes insurmountable when group composition is unknown. Outcome data do not reveal group composition. Sociologists have sometimes elicited empirical evidence on group composition from group members themselves, e.g. MARSDEN (1990), but economists typically do not collect or use such data (MANSKI, 2000). They instead rely on rather weak proxies such as village affiliation.

Correlated unobservable problem: The 'correlated unobservable problem' arises when there is some group specific components of the error term. Although this problem is by no means specific to social interactions, correlated unobservables are very probable to arise in applied work in this field. A main reason for this is that it is inherent to empirical research on social interactions that individuals from different groups are compared, groups that must inherently differ in some respect (SOETEVEN, 2006). Nevertheless, the problems deriving from correlated unobservables are particularly serious when the relevant social network is not properly identified. Most studies in the literature have no direct information on the boundaries of individuals' networks and are thus forced to assume that networks correspond to some observed measure of geographical or cultural proximity. For instance, most studies on social learning in agriculture proxy networks by village averages, that is, they assume that individual behavior is a

³⁷ Furthermore, DURLAUF (2002a) points out that in the case of social capital, the definitional ambiguity of social capital makes identification impossible. But, causal definitions of social capital are necessary for successful empirical analysis. However, we believe that we solved this critique by using the definition of social capital above.

function of the mean behavior of other individuals in the same village. In this specification, networks are no longer individual-specific, but village-specific (BANDIERA and RASUL, 2002). A simple way to account for differentiation between groups is to simply add a group-specific fixed effect. A necessary condition for identification is that one has more than one observation per group. One provision with regard to the data is that the researcher has enough information per agent to base a useful classification into groups (SOETEVEENT, 2006).

Group endogeneity or selection problem: Endogeneity in general occurs when changes in the explanatory (independent) variable are caused in part by the dependent variable. Any time the casual link between two variables can go either way endogeneity exists. The problem of endogeneity is obvious in many contexts. This is particular relevant, when one talks about group memberships or social networks, because membership is usually a choice variable (except for certain network structures like family) (DURLAUF and FAFCHAMPS, 2005). The group endogeneity problem or selection problem refers to the presence of selection bias when agents self-select into reference groups (HECKMAN, 1978). The optimal method for eliminating selection bias is to use an experimental design. However, controlled experiments are usually refrained in social science due to ethical objections. The second best alternative is to use non-experimental research designs (DUNN, 2004). MOFFITT (1991) points out to three standard procedures which are used to tackle the problem of self selection. The first uses instrumental variables, which are also the most widely used solution (see next section). The second method is the use of panel data. The third method is to assume an error distribution of the outcome variable without 'treatment'.

3.4.2 Instrumental variables

There are several possibilities to tackle the econometrical problems mentioned above. SOETEVEENT (2006) gives a good overview about the methods available to handle them. However, the standard solution is the use of instrumental variable estimation, which provides an empirical test of the extent of two-way causality. Instrumental variable estimation uses the correlation between social capital and another variable – the instrument – that is not determined by and does not directly determine output to estimate the effect of exogenous shifts in social capital on output. The real challenge for applying this method is to find a suitable set of instruments for social capital (GROOTAERT et al., 2003; MOFFITT, 1991; NARAYAN and PRITCHETT, 1999). At the end the suitability of each instrument has to be assessed by the researcher, no test is available (SOETEVEENT, 2006).³⁸ The choice of instrumental variables is, therefore, often one of the most difficult issues in empirical work. In the social capital contexts, the absence of explicit modeling of the process by which groups are formed and social capital created means that an empirical researcher is forced to rely on intuition and guesswork. While this does not condemn all studies using instrumental variables, inadequate attention has often been paid to justifying instrumental variables in social capital contexts (DURLAUF and FAFCHAMPS, 2005) or in the words of DURLAUF (2002a: 464): "...statistical analyses of social capital typically compare outcomes for individuals or aggregates who have social capital versus those who do not. These studies, in turn, typically do not incorporate a separate theory of the determinants of social capital formation, although they do often employ instrumental variables to account for the endogeneity of social capital."

DURLAUF and FAFCHAMPS (2005) state that future data collection exercises must explicitly attempt to gather information on group-level influences, rather than on social capital alone.

³⁸ However, MOFFITT (2001) criticizes studies that use instrumental variables for the absence of formal models that justify the choice of instrument.

They propose to include measures of the quality of leadership. Leadership or keyplayers are a fundamental principal in network analysis. As pointed out above, social structures become social capital through the resources and resources can be almost anything from information, to physical help to money. However, the ego who is actively seeking social capital cannot influence the resources available to the alters but can influence the network formation and the willingness of the alters to give ego access to the requested resources. Thus, the main point in social capital formation is the creation and maintenance of social structures and the exchange about information of resources embedded in those structures. Thus, we believe that data and information gained from social network analysis will deliver on the one hand variables, which can be used as instrumental variable and, on the other hand, will also provide enough rational behind the choice of instrumental variable. For instance, BANDIERA and RASUL (2002) and FLETSCHNER and CARTER (2004) used social network variables to control for some of the effects mentioned above.³⁹

4 SUMMARY AND CONCLUSIONS

Based on the critique on the broad definition of social capital, we define social capital more narrowly and more closely to its roots of origin, namely by interpersonal networks. However, it has also become clear that social capital must include the resources accessed in social networks. Thus, we define social capital as networks plus resources in line with the definition of LIN (1999a).

But is it useful to keep the term social capital at all? Concerning the used definition above it could be more meaningful to use terms like 'networks and access to resources' or more precisely 'informal access to resources' instead of social capital. This would avoid the confusion about the different definitions of social capital and its partly negative image reflecting this confusion.⁴⁰ For instance, BOWLES (1999: 6) points out: "As with other trendy expressions, it attracts disparate meanings like flypaper. So many are now so firmly attached that it seems better to abandon the term in favour of something more precise." However, we believe that the term social capital should be kept. First of all it is more precise than e.g. 'informal access to resources', as it clarifies through the term 'social' that it is concerned with personal interactions and second, through the term 'capital' that these interactions revolve around productive resources. As stated by JANS (2003), it is the resource, which turns the social structure into social capital. Furthermore, as the quotation of ROBISON et al. (2002: 8) above already points out, the term social capital is now firmly entrenched in the language of social scientists and economists. While this in itself is not an argument for keeping the term 'social capital', it, however, indicates the enormous obstacles to abandon it. Thus, instead of trying to remove the term at all, it might be more reasonable to focus the social capital discussion on the application of clearer and more operational definitions, which has been already called for by many other scholars.

³⁹ The issue of endogenous groups arises only to the extent that individuals are allowed to choose their network. BANDIERA and RASUL (2002) argue that farmers cannot choose their families. However we disagree with them in this respect. First, also family can be chosen e.g. the spouse. For instance, EARTHY et al. (2000) found out in a study conducted in the UK that some respondents said they only regarded as family those 'in-laws' that they personally liked. Of course the concept of family is different in diverse cultures. Second, we believe that strong ties are the better concept than kin in general. Not every kinship result in a strong tie and some strong ties are even friends. True, those friends can be chosen, but strong ties take a long time to develop. As these strong ties have been created in much earlier time periods than the measured output variables, it can be assumed that they are predetermined. Thus, they are supposed to be exogenous to outcome variables in the short and medium time. Therefore, we believe that the number of strong ties (for measuring the tie strength of two agents see footnote 28) would make a much better variable for controlling for endogenous effects.

⁴⁰ These concerns about the term social capital were made by a referee of this discussion paper.

Most research on social capital assumes that it is a uniform source. However, as pointed out by a number of different scholars, e.g. PUTNAM (2001), researchers must accept the multiple dimensions of social capital. As stated by FLAP (1999), social capital is not a one-dimensional all-purpose resource, but has distinguishable components with different effects. Some forms of social capital are good for some things and not for others. Nevertheless, the interactions and effects of different forms of social capital on household outcome are rarely investigated.⁴¹ Thus, there is a clear demand for further empirical research. Moreover, in most of the literature only formal or semiformal social networks are considered, such as clubs or associations. Furthermore, as pointed out by SCHULLER et al. (2000) simply grossing up the number of people who belong to organizations indicates little about the strength of social capital if it is not accompanied by information on what people do as members. This view also ignores completely informal networks. As pointed out by COOK et al. (1983) common membership is not sufficient as a connecting principle. HAYTHORNTHWAITE (1996) further explains, that it is not one's membership in a particular class, ethnic group and so forth that makes the category of the group a useful construct, but the patterns of relationships to others within the group. ADLER and KWON (2002) state that from the network view, understanding social capital requires a finer-grained analysis of the specific quality and configuration of network ties. Thus, the measurement of social capital should incorporate a structural measure of social networks.

Given these issues, this discussion paper proposes the measurement of social capital according to LIN (2001) (see above) but extends this approach to the rural context where the differentiation in bridging and bonding capital is crucial, as both phenotypes of social capital play an important role in the resilience of households. We, therefore, propose an operationalization of bridging capital as function of an agent's weak and indirect ties and structural holes (plus resources) and bonding capital as the function of strong ties (plus resources). Furthermore, due to the closing gap between the rural and urban settings, future empirical research is needed whether the binary classification into bonding and bridging social capital is sufficient or whether further differentiation into a third category like linking social capital is appropriate. Finally, most empirical studies on social capital reviewed in this discussion paper are based on data not collected specifically to measure social capital. Thus, more empirical research is needed which focus explicitly on social capital. As pointed already out by ROBERTS and ROCHE (2001) the data used are largely non-original, that is, they rely upon proxies of social capital from existing datasets. Hence, such approaches could be seen as theoretically naive in that a form of perverse logic operates whereby the available data define the interpretation of social capital used in any given instance.

Despite the measurement problems we have discussed above, many of the reviewed studies find positive impacts of social capital on household welfare and economic development (see e.g. quotations above). However, as pointed out by IYER et al. (2005) and VAN STAVEREN (2003), it is not yet understood how social capital translates into economic growth and that it is not at all clear when social capital has beneficial effects and when it puts limitations on economic development. Some researchers point even out that little space is left in our knowledge of the growth process for social capital to explain (PALDAM and SVENDSEN, 2001). However, as pointed already out by BEUGELSDIJK and VAN SCHAİK (2005), despite the extensive literature on social capital, no clear policy implications have yet emerged. As long as we do not know more about the nature of the theoretical links between social capital and economic development, it is premature to provide clear policy implications. This implies that more research in this area has

⁴¹ An exception here is e.g. TIEPOH and REIMER (2004). They distinguish between four different forms of social capital in their income analysis, which not all positively influence household income.

to be done. Furthermore, understanding the role of social capital in areas as poverty reduction and income generation has important policy implications for governments. If governments decide to invest resources into poverty alleviation, it is crucial to know how social capital influences income generation and how social capital can be integrated in the popular participatory development approaches (WINTERS et al., 2002). Therefore, it becomes important to have a clearer sense of the most important assets, e.g. social capital, for different people in different places in order to identify the most useful (and most damaging) sorts of public investment in such areas (BEBBINGTON, 1999).

The empirical identification of the impact of social capital is plagued by many problems, e.g. simultaneity, correlated unobservables, group endogeneity or selection bias. However, most empirical studies which tried to measure the impact of social capital neglected these issues altogether or applied unconvincing procedures to handle them (e.g. use of doubtful instrumental variables). Furthermore, social interactions have been overlooked frequently. These shortcomings have probably also contributed to the difficulties to deduce meaningful policy recommendations. Nevertheless, as social interactions are intrinsic to social networks, specific data collection on social networks would greatly benefit the data analysis and would deliver a good start for the measurement of social interactions. Furthermore, according to the definition used in this paper, social capital works mainly through its network component. Thus, measuring social capital and social interaction effects are linked to each other. As pointed out by SOETEVEIT (2006) if only data on outcome is collected, social interactions cannot be identified. Furthermore, social network data have the potential to deliver variables, which can be used as sound instrumental variables and will at the same time provide enough rationale behind the choice of the instruments. Moreover, those data allow the researcher to control for network fixed effects.

Nevertheless, some general recommendations seem to be quite reasonable. As pointed out by IYER et al. (2005), governments can help by providing an enabling environment that encourages participation in local organizations, for example, policies to enable an environment that encourages efficiency and information exchange. But despite this, it is hard and maybe too early to give any reasonable policy recommendations on the promotion of social capital. Furthermore, MONTGOMERY (2000) indicates that social capital is a neutral resource that can serve both moral and immoral ends. Thus, it may be the best way to promote 'positive' social capital by fighting the so called dark side of the force. Thus, the most important task of governments seems to be the controlling 'perverse' social or anti-developmental social capital. When social networks can hardly be tapped by outsiders it is very likely that they have detrimental effects on development and can turn itself into 'perverse' social capital. Thus, information devices must be developed around this 'perverse' social capital. However, such policies must be carefully designed. Adler and KWON (2002) state that the risk of group-level exclusion and insularity associated with strong bonding social capital can be mitigated or exacerbated e.g. by hierarchy in the form of law in societies and authority in organizations. Up to now, the biggest part of research is focused on the benefits of social capital; the literature on its risks is much sparser. This leaves an immense area for future research.

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