



Social Capital and Migration Preferences - An Empirical Analysis for the Case of the Reunified Germany

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Abstract

We focus on the relevance of different types of social capital on migration intentions in the context of shrinking regions. On the one hand, formal social capital characterised by weak ties without local roots is supposed to drive selectivity and outmigration. On the other hand, informal social capital stressing strong ties to friends, relatives or neighbours might hinder migration. In our regression results we do not find an effect of shrinking regions on mobility intentions. Thus, living in a shrinking area is by itself not a reason to move away or to invest less in social capital. However, if an individual considers to move away she reduces her participation in informal and formal networks. Individuals characterised by strong informal ties, i.e. strong relationships to friends, relatives or neighbours show a significantly lower probability of moving away. And, more qualified types of social capital as participation in local politics or initiatives seem to encourage spatial mobility.

1. Introduction

In European countries, particularly in the post-communist transition region, peripheral areas are hit by strong economic, social, and demographic challenges. They seem to be the loser of economic development and are overrun by growing urban areas with abundance and diversity of human-, cultural- and real-capital. One main obstacle for development in these regions concerns out-migration, more precisely, out-migration of young and well-educated persons towards more developed agglomerations in general referred to as *brain drain*. Since on average, the leaving part is better educated than the remaining population, commentators identify a *circulus vitiosus* leading to self-reinforcing shrinking tendencies: Out-migration reduces the amount and share of the economically and demographically active population, as a consequence educational institutions close down and public infrastructure has to be downsized. Firms reduce their training and job offers due to a lack of consumer demand and human capital, and, finally, more young people leave the region because of missing perspectives. These tendencies are accompanied by a social climate of depression and deprivation.

Is there a way to be more optimistic regarding prospects of young people in shrinking regions and to break the *circulus vitiosus* to a substantial extent? Our contribution focuses on the often neglected dimension of social participation or – or as the social economist puts it – social capital. The relevance

of social capital for the present topic is twofold. Firstly, social capital is by itself a way to improve quality of social life in shrinking regions when public efforts are reduced. Secondly, social participation might intensify social capital and strengthen ties to the local community. Both aspects might prevent people from leaving their home community and motivate them to search for prospects in shrinking regions – a first step to switch from the negative to a positive cumulative causation scenario.

Two possible complications, however, arise. To begin with one is tempted to argue that shrinking itself reduces the willingness to invest in locally bounded social capital. These investments become worthless if more and more members leave the community. Additionally, an individual's intention to leave the region should itself discourage social capital investments. The second complication concerns the assumption that social capital supports local ties and decreases the willingness to leave even shrinking region. A different kind of reasoning is *a priori* plausible as well. Certain types of social capital are not locally bounded and provide people with information, contacts and opportunities in other regions. Then, social capital investments relax local ties and promote spatial mobility.

Our contribution elaborates these questions in the framework of the social capital concept and empirically tests the corresponding hypotheses on the interrelatedness of regional mobility and certain types of social capital within a micro-econometric approach. We use the unique German Socio-Economic Panel (GSOEP) which provides comprehensive information on social participation and mobility. We find that, on the one hand, social capital characterised by weak ties without local roots drives selectivity and outmigration. On the other hand, informal social capital stressing only the strong ties to friends, relatives and neighbours isolates regions and separates them and their population from economic and social development. Networks with extensive connections “to the world” but with a strong local base are required to keep the balance between openness and localness, and between activating and keeping people.

The study is organized as follows. Theory is presented in chapter two. We introduce the concept of social capital, relate it to the mobility issue and derive hypotheses on the impact of particular types of social capital on mobility in a context of shrinking regions. In chapter three we briefly review the existing empirical literature. In chapter four, the dataset and the applied social capital measures as well as the econometric model are described. Then, the estimation results are displayed and discussed. A final chapter concludes and refers to the policy implications.

2. Social capital and outmigration – Theoretical remarks

2.1 Two types of social capital: Integration vs. isolation

The conceptual framework of our analysis is provided by the social capital theory which experiences growing importance due to its interdisciplinary character in social sciences. In this context, the notion of social capital was introduced during the late 1980er years. The main contributions came from the field of sociology and political science: Bourdieu (1986), Coleman (1988) and later Putnam (1993, 1995).¹ In Economics, social capital became prominent during the 1990s.² Because of the young his-

¹ According to Durlauf and Fafchamps (2004), the term of social capital was introduced into modern social science research by Loury (1977).

tory of the concept, there is an ongoing debate on what social capital is about. Definitions vary in being functional vs. intrinsic, normative vs. positive, individualistic vs. collectivistic. Generally, two broad understandings of social capital can be distinguished.³ One strand – the Bourdieu/Coleman line – refers to social capital as the investments in social networks/communities by individuals which provide them with resources “that they can use to achieve their interests” (Coleman 1988: 101). The second strand relies on the notion of generalized trust preventing a society from social dilemmas and promoting collective actions (Putnam 1993, Fukuyama 1995). However, both definitions do not necessarily exclude each other and, as Paldam (2000) puts it, there are some arguments that both strands “have a common ‘central area’”.

Nevertheless our proposed term of social capital refers to the first strand, i.e. the network/community definition. Slightly altering the economic concept of Glaeser, Laibson and Sacerdote (2002) we define social capital as a community’s characteristic which enables its members to reap individual returns from interactions with other members of the same community. Opposite to Glaeser, Laibson and Sacerdote we depart somewhat from methodological individualism by understanding social capital as an attribute of a *relationship* of least two persons; not as an attribute of an individual itself. Portes (1998) emphasizes this aspect of social capital:

“Whereas economic capital is in people’s bank accounts and human capital is inside their heads, social capital inheres in the structure of their relationships. To possess social capital, a person must be related to others, and it is these others, not himself, who are the actual source of his or her advantage” (Portes 1998).

Stressing the relational dimension of social capital is essential since it illustrates its different nature in comparison to human capital. Leaving the community terminates the individual’s ability to gain benefits from the community. Instead, the returns to human capital are less dependent on the membership in a special community. In our context, this aspect is crucial since it helps to explicate the spatial dimension of social capital (see section 2.3). Secondly, the social dimension is revealed by another feature of social capital. Even if the individual’s characteristics remain unchanged a member’s benefit rises when the size of the community expands. This network quality of social capital is masked if it is defined as personal characteristic. Nonetheless, in accordance to Glaeser, Laibson and Sacerdote (2002) the concept allows individuals to invest in social capital, i.e. to become a member of a network or to achieve a better position within it.⁴

Applying the network definition has the advantage of clarifying an essential distinction within the area of social capital: the distinction between informal and formal social capital (Pichler/Wallace 2007).⁵ Informal social capital predominates if network structure is based on spontaneous arrangements, i.e. if the behaviour and the position of network participants are not codified by an explicit statute. Even the status of being part of the network or not is to some extent ambiguous. On the

² For the economic approaches to social capital see the review articles of Paldam (2000); Sobel (2002); Durlauf/Fafchamps (2004) and Dasgupta (2005).

³ Paldam (2000) distinguishes three conceptual families: trust, cooperation and networks. Nevertheless, as Paldam himself admits, the cooperation and the trust concept are very similar; thus, they might be unified to one category.

⁴ Thus, in a derived meaning it might be adequate to refer to a person’s social capital endowment if one bears in mind its underlying social nature.

⁵ The related discourse goes back to the routes of sociology, i.e. to the question how social structure establishes in a modern society. Therefore similar distinctions can be found in the work of Tönnies, Durkheim and Weber.

other hand, formal social capital depends on well established legal framework of a community and on a clearly defined membership status. Whereas in informal networks the behaviour of agents is regulated by implicit group norms of a close-knit community, that is by strong ties (Granovetter 1973), formal networks are governed by an organisational apparatus with institutionalised enforcement rules. A main difference concerns the degree of openness of formal vs. informal communities. Since formal communities usually build on the framework of public law, organisational objectives and behavioural conventions are well defined and everyone who fulfils the criteria can gain membership. Informal networks, on the other side, have no clear entrance criteria and the social identity is linked to a particularistic context. Thus, for the most part, informal networks are more closed and exclusionary than formal ones.⁶ To put it in another way: whereas informal networks refer to specific *individuals*, formal networks rely on *members*. Whereas informal networks change their identity if participants change, formal networks keep their essence even when members are substituted. Informal networks build reputation upon the basis of repeated communication between same individuals. Formal networks are able to uncouple the reputation of members from the reputation of individuals.

Most authors agree upon the relatedness of formal and informal social capital. Yet, the type of dependency seems to be an empirical question (Pichler/Wallace 2007). In developed western (particularly northern) countries informal and formal networks build up a complementary relation. Informal networks are formed within the institutionalised framework, e.g. friendship relations are established by the membership in civic organisations. On contrary, in most of developing and transition countries an asymmetric substitution relation is recognized. Due to less generalized trust in institutions, persons' membership in formal networks is replaced by participation in close-knit informal networks with no or very weak ties to other networks.

2.2. The localness of social capital

The main attribute of social capital making it interesting for labour mobility issues is its dependence on a particular community. Communities typically exhibit a geographical extension. In that sense David, Janiak and Wasmer (2010) stress the *localness* of social capital and its implication for geographical mobility. They distinguish two types of social capital; the first one depends on spatial proximity whilst the second one is geographically unbounded. Due to this distinction the impact of social capital on migration propensity is not trivial. In case of migration, membership in a spatially bounded community runs out and the migrant's social capital has to be depreciated. On the other hand, spatially unbounded communities might even encourage mobility since potential migrants acquire information about remote locations and easily get contact at the destination via their network connections. Thus, certain types of social capital might lower mobility but others are supposed to encourage it.

The crucial question not only from a theoretical point of view but also in terms of empirical implementation is which kind of social capital is spatially bounded and which is not. Thus, the localness of social capital has to be grounded in theory.⁷ We believe the distinction of formal and informal social

⁶ The Putnam distinction between bridging and bonding social capital is closely related to this aspect.

⁷ The few approaches dealing empirically with localness of social capital and mobility are rather implicit about this issue.

capital can be helpful to conceptualise the term of localness. In short, informal social capital is supposed to be locally bounded whereas the localness of formal social capital is much less stronger.

Informal networks operate on the basis of strong ties (Granovetter 1973), i.e. regularly and intense personal contacts between specific individuals. At least to some extent, these contacts require spatial proximity between these particular individuals. One might consider few special cases where regularly contact via spatial proximity can be partly substituted by media. Nevertheless, the basic kind of establishing an informal network and building up reputation between participants is due to face-to-face interactions. Therefore the geographic extension of informal networks is very limited.

Formal networks, on the other hand, are able to transcend spatial boundaries. Even if these networks are comprised of many different locally acting bases there exist at least weak ties between the local bases of a formal network. Along these weak ties reputation is guaranteed via an institutionalised framework of common goals and rules. Participants of the network trust each other not only due to repeated interactions, but also due to their membership status. As a consequence, the weak ties between local bases of a geographically widespread institutionalised formal network might enforce regional mobility. Information on opportunities in distant regions are acquired via these weak ties and, in case of migration, the accumulated social capital keeps its economic value since weak ties between distant members can easily be turned into strong ties after migration (see table 1).

Table 1: Characteristics of informal and formal networks

Type	Informal networks	Formal networks
Sociation modus	Isolating / Bonding	Integrating / Bridging
Agents	Individuals	Members
Reputation	Repeated personal contacts	Institutionalized rules and standards
Linkages	Strong ties	Strong and weak ties
Spatial extension	Locally concentrated	Widespread with local base
Proximity of participants	Restricted to local network	Not restricted to local network base
Paradigms	Local kinship, Neighbourhood, Friendship	Church, Party, Union
Expected impact on outmigration	Reducing	Increasing

Note, the distinct classification of social capital need not strictly meet reality. Some informal networks do not exhibit that spatially closed character (e.g. internet communities). Conversely, some formal networks might be related to a certain location (tradition clubs, local citizen’s group). Furthermore, according to the concept of weak ties formal networks typically establish connections to other formal networks at their location, i.e. formal networks at a specific location might overlap to some extent. Close-knit informal networks characterized by strong ties do not. This kind of bridging social capital in formal networks could cause local ties even if the network itself is not locally concentrated.

Despite these conflicting arguments we believe that institutionalised social capital is less tied to a certain location and, as a consequence does not reduce mobility or actually foster it. Belonging to a close knit exclusionary informal network, on the other hand, should prevent participation from moving to other regions. Otherwise their accumulated capital, for the most part, would be useless and has to be depreciated.

2.3 Shrinking regions and social capital

Our analysis is dealing with the relationship of participation and outmigration in the context of shrinking. From an economic point of view shrinking – particularly shrinking due to outmigration – is of great importance for the “returns to social capital”. To this view, social capital is a network good whose value rises if more people join the network and whose value decreases if more and more members leave the network. If social capital is an investment to gain access to the communities resources then the decline of a community could prevent people from investing in social capital. Therefore, shrinking itself might have a negative effect on social capital. However, from a theoretical point of view this line of reasoning is only valid in the case of locally bounded social capital. Joining a network exhibiting ties to growing regions is not threatened by shrinking because the network does not shrink necessarily when the region is shrinking. Even if a lot of potential communication partners move away they do not have to leave the network after migration. Thus, locally unbounded social capital cuts the dependence of the “returns to social capital” to the prosperity of a certain region. Even in shrinking regions people could take advantage from joining a widespread network. From this point of view living in an outmigration region is not necessarily an obstacle for investing in (formal) social capital.

2.4. Hypotheses

Summarizing the main findings of the last sections we can formulate the following hypotheses which we test empirically in the paper:

H1: Individuals with a high amount of informal social capital are supposed to be less mobile while individuals with a high amount of formal social capital are supposed to be more mobile (Mobility hypothesis).

H2: Mobile individuals invest less in informal social capital but more in formal networks (Investment hypothesis).

H3: People in shrinking areas invest more in formal social capital than in informal social capital (Shrinking hypothesis).

3. Previous empirical evidence

To our knowledge, the impact of shrinking on social engagement and/or investments in social capital is not empirically analysed so far. Even, the empirical evidence isolating the impact of social capital on spatial mobility is rather limited. Glaeser, Laibson and Sacerdote (2002) present some evidence from the Generals Social Survey in the US. The results are in favour for a negative correlation between an individual’s expected migration probability and her social capital endowment measured as

number of memberships in organisations. Because the authors cannot fully account for endogeneity, they avoid a causal interpretation of the correlation. Furthermore, no distinction between spatially bounded and unbounded types of social capital is considered. Belot and Ermisch (2009) estimate the impact of friendship ties on geographical mobility using the British Household Panel Study. They jointly estimate the equations for migration decision and for social capital investment and found that this locally bounded form of social capital strongly reduces the probability of moving. Moreover, it is shown that neglecting the endogeneity problem leads to an overestimation of the social capital effect. In a comparable analysis, Kan (2007) comes to similar conclusions by analysing the US Panel Study of Income Dynamics. He applies an analogous concept of social capital based on contact to friends or relatives, considers the spatial dimension of social capital and controls for potential endogeneity bias. On the one hand, the findings endorse the negative impact of close friends or relatives living in spatial proximity on inter-county mobility. On the other hand, having more distantly living friends and relatives does not significantly diminish the migration probability. Finally, David, Janiak and Wasmer (2010) estimate the effect of social capital on mobility using the European Community Household Panel Survey. The authors find a negative impact of friendship and neighbourhood capital on mobility while the less location related club membership does not reduce migration probability. To solve the endogeneity problem the social capital variable is instrumented, however, a joint estimation of the social capital investment and the mobility decision would be more convincing.

Our empirical analysis is most related to the approach of Belot and Ermisch (2009) and of Kan (2007) since these studies seem to cope with the endogeneity problem most accurately. However, our contribution extends this previous work for at least four reasons. Firstly, we solve the endogeneity problem in a different way than previous research. Our approach accounts for true simultaneity not only for a correlation between an endogenous social capital variable and the error term. From this point of view, instrumental variable approaches are not sufficient to mirror the actual structure of the relations between social capital and mobility adequately.⁸ Secondly, we apply an elaborated concept of social capital distinguishing between formal and informal network participation. Previous research focuses only on informal networks (Kan 2007; Belot/Ermish 2009) or differentiates between locally bounded and unbounded types of social capital in a rather ad hoc way (David/Janiak/Wasmer 2010). Thirdly, we do not only distinguish between the two basic types of social capital, furthermore, we explicitly take into account the structure of the relationship between these two types of social capital. Thus, we estimate a simultaneous three equation model where mobility depends on informal and formal social capital and vice versa and where the two types of social capital depend on mobility and each other. Fourthly, we take into account the special impact of regional shrinking on social capital investments.

4. Empirical approach

4.1 Data and measurement

In our analysis, we employ the German Socio-Economic Panel (GSOEP), a representative survey of German households. The data enables us to measure social capital of both the formal and the infor-

⁸ Kan (2007) is aware of the simultaneous nature of true model. Nevertheless, in his implementation he offers only an instrumental variable approach.

mal part very properly and provides us with information on the spatial mobility of the members of the sample. Since only some waves contain the relevant records on social capital endowment and information on mobility intentions we primarily focus on the wave of 1999. Due to the dependency of mobility decisions within households we only use information on individuals that are classified as household heads. Because of this restriction and some missing value problems the sample size of our analysis reduces to about 5500 individuals (household heads).

The crucial question for the analysis considers the measurement of the endogenous variables, i.e. the formal and informal social capital as well as the mobility preference⁹ of an individual at a certain point of time. Regarding the social capital variables we applied different measures for both types to reflect the manifoldness of the concept. We quantified an individual's endowment with **informal social capital** either via the frequency of neighbourhood visits (*NEIGHBOUR*) and via the regularity of helping friends, relatives or neighbours (*FRIENDS*). The variables stem from the following questions:

Have you any neighbours with whom you get on so well that you visit each other? How often do you normally visit each other?

“Nearly every day; at least once a week; at least once a month; less often”
(GSOEP variable code PH70)

“Please indicate how often you take part in each activity: daily, at least once a week, at least once a month, seldom or never?”

“Lend help to friends, relatives or neighbours when something has to be done”
(GSOEP variable code PP0305)

The variables are ordinarily coded; the higher the value the more informal social capital in terms of friendship or neighbourhood contacts is acquired.

The individual's **formal social capital** endowment is operationalised via the involvement in formal organisations. Firstly, we measure an individual's social capital via the frequency of participation in certain organisations identified by the following question:

“Please indicate how often you take part in each activity: daily, at least once a week, at least once a month, seldom or never?”

“Participation in public initiatives, in political parties, local government”
(GSOEP variable code PP0307)

The scale level of the variable is ordinal; it is referred to as *PARTICIP*. A higher scale indicates a stronger commitment to the corresponding organisation. Secondly, we measure formal social capital via actual church participation, i.e. the frequency of church-going. In our context, church attendance seems as a very useful variable since religious institutions are characterised by widespread spatial extension with weak ties between the local bases. On the other hand, persons with regularly church attendance should be strongly tied to the local base. So, the case of social capital in terms of religion might be in the middle between our concepts of formal and informal social capital. Therefore, we

⁹ The notion of mobility *preference* might be somewhat misleading since preferences usually refer to *time-invariant* attributes of individuals. According to our concept, the mobility preference denotes a concrete, time-related propensity of an individual to move to another region in the foreseeable future.

suppose that the mobility impact of this variable might be somewhat different from the participation variable. The church variable is based on the following question:

“Please indicate how often you take part in each activity: daily, at least once a week, at least once a month, seldom or never?”

“Church-going, visits to religious events”
(GSOEP variable code PP0308)

The variable is referred to as *CHURCH* and is ordinarily coded; a high value represents a high amount of formal social capital endowment.

To assess an individual’s **mobility preference** at the date when social capital endowment is measured we rely on the GSOEP question whether the person considers to move away. The question is expressed in a way that excludes nearby movements within a region. Thus, the question precisely measures that type of mobility mattering for social capital investments.

“Would you consider moving away, e.g. because of family or job?”

“Yes; possibly, can't exclude the possibility; no”
(GSOEP variable code PP114)

The variable is called *MOBIL_INTENT* and stands for mobility intention or considerations. Table 2a describes the endogenous variables and explains the way the variables are operationalised.

Table 2a: Description of endogenous variables

Variable	Description	Measurement	Scale
MOBIL_INTENT	Mobility intention	Expressed mobility intention within next two years (0=no intention; 1=maybe; 2=yes)	Ordinal (0/2)
PARTICIP	Formal social capital I: Institutionalized participation	Frequency of participation in local initiatives, parties or local politics (0= daily ... 4 = never)	Ordinal (0/4)
CHURCH	Formal social capital II: Church	Frequency of church-attendance (0= daily ... 4 = never)	Ordinal (0/4)
FRIENDS	Informal social capital I: Friendship contact	Frequency of helping friends (0= daily ... 4 = never)	Ordinal (0/4)
NEIGHBOUR	Informal social capital II: Neighbourhood contact	Neighbourhood relationships (0= no contact ... 4 = very close)	Ordinal (0/4)

Besides the endogenous individual variables the effect of regional shrinking is of particular interest for our analysis. As mentioned above, this variable is regarded as exogenous since a individual cannot influence shrinking by its own behaviour to a substantial extent. We measure shrinking by the regional net migration rate because outmigration is the main channel of shrinking and is of particular relevance for social capital investments. The variable is referred to as *SHRINK* (see table 2b).

Table 2b: Description of exogenous variables

Variable	Description	Measurement	Scale
SHRINK	Regional net migration rate 1998	Based on functional spatial units (Raumordnungsregionen)	Metric
AGE	Age	Age in years	Metric
SEX	Sex	1=woman, 0=man	Binary
MAR_TO	Marital status: Married, living together	1=yes, 0=no	Binary
MAR_SE	Marital status: Married, living separated	1=yes, 0=no	Binary
MAR_SI	Marital status: Single	1=yes, 0=no	Binary
MAR_DI	Marital status: Divorced	1=yes, 0=no	Binary
MAR_WI	Marital status: Widowed	1=yes, 0=no	Binary
CHILD	Number of children	Number of children under 17 years living in Household	Metric
D_FAM	Household composition change last year	1=yes, 0=no	Binary
EDU	Education	Duration of education in years	Metric
EMPLOY	Employment status	1=full-time employed, 0=other	Binary
INCOME	Household income	Monthly net household income in Euro (after taxes and transfers)	Metric
EAST	Living in East Germany	1=yes, 0=no	Binary
REG_INC	Regional wage level 1998	Based on functional spatial units (Raumordnungsregionen)	Metric
REG_UE	Regional unemployment rate 1998	Based on functional spatial units (Raumordnungsregionen)	Metric

The additional variables used in the estimations - the exogenous controls - are also displayed in table 2b. They include the main personal characteristics usually applied in the analysis of determinants of mobility and social capital (e.g. Kan 2007; Belot/Ermisch 2009). Table 2c displays regressors which act as identification variables and only appear in two equations of the model.

Table 2c: Description of identifying variables

Variable	Description	Measurement	Scale	Equation
PROB_UE	Subjective unemployment risk	0% to 100 % risk estimation of losing current job within two years	Metric	Mobility
OWNER	Flat owner	Owner of the flat where household lives (1=yes, 0=no)	Binary	Mobility
RELAT	Living in permanent relationship	1=yes, 0=no	Binary	Mobility
CARE	Person in household needing constant care	1=yes, 0=no	Binary	Mobility
EDU_FIN	Completion of education last year	1=yes, 0=no	Binary	Mobility
TENURE	Firm Tenure	Tenure in years	Metric	Formal, Informal
SIBL	Number of siblings		Metric	Informal
PAP_TRAIN	Father with high level of vocational training	1=yes, 0=no	Binary	Informal
DURATION	Duration of living in flat	Duration in years	Metric	Informal
TRUST	Trust in the significance of participation	“One can influence social conditions by social engagement”: 1= totally disagree... 4= totally agree	Ordinal	Formal
PARTY_AFFIL	Strength of party affiliation	0=no affiliation ...4 strong affiliation	Ordinal	Formal
PARENT_REL	Parents member in religious organisation	At least one of parents is member (1=yes, 0=no)	Binary	Formal (if CHURCH)

4.2 Econometric model

In our analysis, we essentially extend the simplified framework of the empirical literature. Firstly, due to our theoretical considerations, we apply a three equation model distinguishing between the two basic types of social capital. Secondly, our model takes into account the simultaneous nature of the relationship between mobility preference, formal and informal social capital. Thirdly, we implement an exogenous variable measuring the effect of regional shrinking. Then, the model has the following structure:

$$Mobility^*_i = a_0 + a_1 Formal^*_i + a_2 Informal^*_i + a_3 Shrinking_i + \mathbf{a}_4 \mathbf{X}_{i1} + e_{i1} \quad (1a)$$

$$Formal^*_i = b_0 + b_1 Mobility^*_i + b_2 Informal^*_i + b_3 Shrinking_i + \mathbf{b}_4 \mathbf{X}_{i2} + e_{i2} \quad (1b)$$

$$Informal^*_i = c_0 + c_1 Formal^*_i + c_2 Mobility^*_i + c_3 Shrinking_i + \mathbf{c}_4 \mathbf{X}_{i3} + e_{i3} \quad (1c)$$

The model encounters three equations simultaneously determining three endogenous variables. Equation (1a) is referred to as mobility equation; equation (1b) and (1c) are the formal and informal social capital equation respectively. $Mobility^*_i$ refers to the mobility preference of an individual i , $Formal^*_i$ represents formal social capital, $Informal^*_i$ represents informal social capital, $Shrinking_i$ is

related to the migration balance of the region the individual lives. As can be seen from equation (1)-(3) we assume full simultaneity between the three endogenous variables, i.e. every endogenous variable is part of every equation of the model. All endogenous variables refer to the same time, so it can be assumed that the individual maximizes her utility by determining the amount of the endogenous variables simultaneously. Since identification requires a different set of exogenous variables for every single equation we have to distinguish three vectors of exogenous variables X_1 , X_2 and X_3 .

To specify the appropriate econometric model we have to consider the nature of the latent endogenous variables of the model expressed in equation (1a-1c) and the character of the observed endogenous variables described in the previous section. The *Mobility** term in Equation 1 represents the propensity to move away. This propensity depends on the utility an individual receives from moving and, thus, has to be thought as a metric variable. In the same manner it is natural to suppose a metric nature of the social capital endowment of an individual (*Formal** & *Informal**). As mentioned in the previous section, we do not observe the true value of the latent variables instead we observe the ordinal scaled variables *MOBIL_INTENT*, *PARTICIP*, *CHURCH*, *NEIGHBOUR* and *FRIENDS*. The relation between a latent variable y^* and an observed variable y can be expressed as follows:

$$y_i \begin{cases} = 0 & \text{if } y^*_i \leq \mu_1 \\ = 1 & \text{if } \mu_1 < y^*_i \leq \mu_2 \\ \dots \\ = n & \text{if } \mu_{n-1} < y^*_i \end{cases} \quad (2)$$

Our three equation model, thus, has the following structure:

$$Y_{i1} = \alpha_0 + \alpha_1 \hat{Y}_{i2}^* + \alpha_2 \hat{Y}_{i3}^* + \alpha_3 \text{Shrink}_i + \alpha_4 X_{i1} + u_{i1} \quad (3a)$$

$$Y_{i2} = \beta_0 + \beta_1 \hat{Y}_{i1}^* + \beta_2 \hat{Y}_{i3}^* + \beta_3 \text{Shrink}_i + \beta_4 X_{i2} + u_{i2} \quad (3b)$$

$$Y_{i3} = \gamma_0 + \gamma_1 \hat{Y}_{i1}^* + \gamma_2 \hat{Y}_{i2}^* + \gamma_3 \text{Shrink}_i + \gamma_4 X_{i3} + u_{i3} \quad (3c)$$

The observed ordinals Y (e.g. *MOBIL_INTENT*, *PARTICIP*, *NEIGHBOUR*) are on the left hand side of the equations. On the right hand side we have the exogenous regressors X including the identifying variables as well as estimations for the latent variables and the shrinking variable.

Technically, we perform the Amemiya Generalized Least Squares Estimator (AGLSE, Amemiya 1979). On the first stage we simultaneously estimate the reduced form of a three equation ordered probit model via Maximum Likelihood.¹⁰ On the second stage, the structural parameters are estimated by a least squares technique on the basis of the coefficients of the first stage. Even though the first stage reduced form estimation is efficiently done by maximum likelihood this two stage procedure gives consistent, but still inefficient parameter estimates. For a detailed discussion of this approach and alternative two step estimation procedures see Wilde (1999).

To identify the single equation, we principally follow the literature (Kan 2007; Belot/Ermish 2009). In the mobility equation we use flat ownership (*OWNER*) and person needing care in household (*CARE*) since these variables do bind people to their current flat but not to certain types of social capital. Conversely completing an education (*EDU_FIN*) or experiencing a subjective high unemployment risk (*PROB_UE*) might untie spatial connections but not social capital. Regarding the formal social capital

¹⁰ We used the CMP command to perform the ML Estimation of the reduced form in STATA.

equation, we include a variable measuring the trust in the significance of social participation (*TRUST*), the strength of party affiliation (*PARTY_AFFIL*) as well as the parents' membership in a religious organisation (*PARENT_REL*) if we use the *CHURCH* variable as formal social capital measure. Familiarity with religious networks during childhood should foster participation in religious groups in later life. The informal social capital is firstly identified by the number of siblings (*SIBL*). From the social network analysis point of view (Granovetter 1973) the number of siblings (*SIBL*) should increase contact potential since the social ties of siblings can be used to form own ties. Therefore, the number of siblings increases an individual's contact pool but should not affect its mobility preference and even the formal social capital endowment. Additionally, we implement a variable reflecting the educational background of the father (*PAP_TRAIN*) since these kind of variables are commonly used as indicators of the sociability of persons. Thirdly, we include the duration the person is living in her flat (*DURATION*) in the informal capital equation since a high duration should be highly correlated to neighbourhood contacts and friendship help.

5. Results

Tables three and four display the estimated structural parameters of the three equation model obtained by the Amemyia General Least Square Estimator (AGLSE) for different measures of informal social capital (*NEIGHBOUR* vs. *FRIENDS*) and for the formal social capital variable *PARTICIP*. Regarding our mobility hypothesis (H1) we find clear evidence that informal social capital – or what Granovetter calls “strong ties” – significantly reduces mobility. Secondly, there is at least some support for a mobility increasing effect of our formal social capital measure, i.e. participation. However, the positive coefficient is only significant in table four. The second hypothesis (H2) – the impact of mobility intentions on social capital investments – is not fully supported. Mobile individuals do not only reduce their informal relationships but even their “weak ties”. So, mobility discourages social capital accumulation regardless the type of social capital.

Surprisingly our regressions do not confirm a statistically significant impact of shrinking on social capital investments. In terms of participation as well as informal relationships people in shrinking areas do not differ from people in growing regions. We do not even find an effect of shrinking on mobility intentions. Thus, living in a shrinking area is by itself not a reason to move away or to invest less in social capital.

Table 3: Regression results I

	Mobility [MOBIL_INTENT] (Equation 1)		Formal social capital [PARTICIP] (Equation 2)		Informal social capital [NEIGHBOUR] (Equation 3)	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Endogenous variables						
MOVE_INTENT	-	-	-0.100	0.783	-0.672*	0.000
PARTICIP	0.269	0.156	-	-	0.173*	0.000
NEIGHBOUR	-1.560*	0.018	0.479	0.321	-	-
Exogenous variables						
SHRINKING	0.355	0.965	-2.068	0.564	-0.109	0.964
SEX	-0.056	0.674	-0.065	0.336	-0.035	0.395
AGE	0.010	0.713	0.025*	0.078	0.010	0.215
AGE2	0.000	0.270	0.000	0.125	0.000*	0.009
MAR_TO	0.337	0.227	-0.118	0.405	0.222*	0.000
MAR_SE	0.171	0.683	-0.074	0.737	0.104	0.346
MAR_DI	0.004	0.986	-0.062	0.597	0.003	0.969
MAR_WI	0.396	0.229	-0.178	0.319	0.255*	0.002
CHILD	0.013	0.863	-0.019	0.570	0.006	0.800
D_FAM	-0.013	0.933	0.002	0.981	-0.001	0.978
EDU	0.037	0.234	0.070*	0.002	0.024*	0.022
EMPLOY	-0.116	0.423	-0.047	0.582	-0.060	0.211
INCOME	0.000	0.506	0.000	0.523	0.000	0.161
EAST	-0.344	0.219	-0.047	0.789	-0.228*	0.008
ALQ98	0.460	0.837	-2.299*	0.024	0.240	0.721
LOHN_98	0.003	0.910	-0.043*	0.001	0.003	0.697
PROB_UNEMPL	0.000	0.900	-	-	-	-
OWNER	0.031	0.893	-	-	-	-
RELAT	-0.014	0.943	-	-	-	-
CARE	-0.350	0.293	-	-	-	-
EDU_FIN	0.163	0.638	-	-	-	-
TENURE	-	-	0.010*	0.001	-0.002	0.493
TRUST	-	-	0.259*	0.000	-	-
PARTY_AFFIL	-	-	0.198*	0.000	-	-
DURATION	-	-	-	-	-0.001	0.768
PAP_TRAIN	-	-	-	-	0.060	0.122
SIBL	-	-	-	-	0.002	0.875
No. Individuals						
5,514						

Source: GSOEP 1999; own calculation. Constant included.

Table 4: Regression results II

	Mobility [MOBIL_INTENT] (Equation 1)		Formal social capital [PARTICIP] (Equation 2)		Informal social capital [FRIENDS] (Equation 3)	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Endogenous variables						
MOVE_INTENT			-0.422*	0.000	-0.066	0.466
PARTICIP	0.219*	0.026			0.105*	0.006
FRIENDS	-2.155*	0.000	0.044	0.860		
Exogenous variables						
SHRINKING	-4.825	0.272	-1.701	0.633	-1.969	0.385
SEX	-0.457*	0.000	-0.088	0.260	-0.183*	0.000
AGE	0.036*	0.008	0.029*	0.023	0.004	0.600
AGE2	-0.001*	0.000	0.000*	0.016	0.000*	0.000
MAR_TO	0.093	0.445	-0.003	0.976	0.055	0.298
MAR_SE	-0.056	0.804	-0.019	0.930	-0.074	0.528
MAR_DI	-0.193	0.139	-0.049	0.674	-0.074	0.245
MAR_WI	0.089	0.519	-0.053	0.686	0.065	0.335
CHILD	-0.204*	0.000	-0.011	0.770	-0.077*	0.000
D_FAM	0.058	0.493	-0.003	0.969	0.019	0.662
EDU	0.021	0.272	0.089*	0.000	-0.010	0.301
EMPLOY	-0.414*	0.000	-0.076	0.368	-0.142*	0.001
INCOME	0.000	0.194	0.000	0.258	0.000*	0.006
EAST	-0.103	0.492	-0.156	0.207	0.040	0.608
ALQ98	-0.574	0.621	-2.244	0.027	-0.232	0.705
LOHN_98	0.003	0.821	-0.045*	0.000	-0.004	0.628
PROB_UNEMPL	0.005*	0.002	-	-	-	-
OWNER	-0.270*	0.001	-	-	-	-
RELAT	0.153	0.151	-	-	-	-
CARE	-1.165*	0.000	-	-	-	-
EDU_FIN	0.261	0.278	-	-	-	-
TENURE	-	-	0.011*	0.000	0.000	0.945
TRUST	-	-	0.278*	0.000	-	-
PARTY_AFFIL	-	-	0.218*	0.000	-	-
DURATION	-	-	-	-	0.003	0.121
PAP_TRAIN	-	-	-	-	-0.032	0.342
SIBL	-	-	-	-	0.019*	0.030
No. Individuals						
5,536						

Source: GSOEP 1999; own calculation. Constant included.

However, results change to some extent if we use church-going instead of participating in local politics as formal social capital variable (table 5). First of all, we again find a negative effect of informal relationships on mobility but the results for the formal social capital alters. Now we have no positive impact on social capital. In the lower part of the table we even find a significant negative effect of church-going on mobility. This result might indicate the belonging to a religious community has a twofold character. Of course it opens opportunities for weak ties but the local religious community seems to be of particular importance. Therefore the local ties of people joining a religious community might be more pronounced than in the case of political participation. This interpretation is supported by the fact that mobile persons invest less in that type of formal social capital as indicated by the first row of the upper and the lower part of table five. With respect to shrinking we find a negative impact on formal social capital, i.e. people in shrinking regions visit church less frequently than in other areas. However, this might be the result of an East-West difference since shrinking regions are located to a large extent in the Eastern part of Germany. Therefore one should be cautious in interpreting this coefficient.

Table 5: Regression results III

	Mobility [MOBIL_INT] (Equation 1)		Formal social capital [CHURCH] (Equation 2)		Informal social capital [NEIGHBOUR] (Equation 3)	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
MOBIL_INT	-	-	-0.830*	0.003	-0.513*	0.000
CHURCH	0.003	0.979	-	-	0.409*	0.000
NEIGHBOUR	-0.838*	0.000	-0.451	0.211	-	-
SHRINKING	-0.872	0.734	-7.691*	0.08	2.577	0.299
	Mobility [MOBIL_INT] (Equation 1)		Formal social capital [CHURCH] (Equation 2)		Informal social capital [FRIENDS] (Equation 3)	
MOBIL_INT	-	-	-0.401*	0.000	0.071	0.505
CHURCH	-0.205*	0.086	-	-	0.369*	0.000
FRIENDS	-0.641*	0.012	0.391*	0.030	-	-
SHRINKING	-3.693	0.159	-6.104*	0.041	0.536	0.825

Source: GSOEP 1999; own calculation.

6. Conclusions

What can be learned from our technically advanced analysis for the impact of social capital on the prospects of young people in shrinking regions? We have obtained three basic insights:

1. Shrinking itself – once we control for the socio-economic circumstances someone is living in – does not reduce social participation. This holds true for participation in informal networks as well as for the more qualified type of engagement in organisations and institutions.
2. After accounting for socio-economic factors as well as social capital shrinking does not affect mobility intentions

3. However, if an individual considers to move away she reduces her participation in informal and formal networks since the “returns to social capital” seem to be lost if the movement occurs and the person has to leave the local network base.
4. Individuals characterised by strong informal ties, i.e. strong relationships to friends, relatives or neighbours show a significantly lower probability of moving away. In contrast, more qualified types of social capital as participation in local politics or initiatives seem to encourage spatial mobility. The reason for the mobility enhancing impact of formal social capital are the weak ties to network members living in other regions.

Bearing these aspects in mind we address the initial question, namely whether the support of local social capital building is a way of activating and keeping young people in shrinking regions. According to our results, on the one hand, social capital characterised by weak ties without local roots drives selectivity and outmigration. On the other hand, informal social capital stressing only the strong ties to friends, relatives and neighbours isolates regions and separates them and their population from economic and social development. On contrary, networks with extensive connections “to the world” but with a strong local base are required to keep the balance between openness and localness, between activating and keeping people.

To express it more generally, we propose what can be called the “dialect model” of participation. Dialects exhibit a strong local component. A speaker’s origin can be recognized by speakers of other dialects even if not every semantic nuance of a dialect is translatable. However, speakers of different dialects communicate and understand each other. Thus, a dialectic language keeps the balance between localness and openness, between strong and weak ties, between origin and understanding. Religious communities – if they are part of a widespread head organisation – are a good example for a community type characterised by this balance between strong and weak ties. We believe that regional development is dependent on the vitality of such kinds of networks and/or communities.

From a pragmatic point of view it seems rather idealistic to *create* such networks. Therefore, it seems to be more convincing to begin with the existing community structures and direct them into the direction of openness or towards local ties – depending on the concrete situation. Think of a community’s sports club typically characterised by strong local ties. What is needed is an enforcement of communication to other regions, e.g. by the organisation of interregional camps and competitions. Then young people living in shrinking and depressed regions could get the impression that they are not isolated but connected with the rest of the world. On the other hand a widespread but rather virtual network should be rooted to a local base to strengthen the ties of its members to a particular location. A simple example are internet networks. If a local community provides resources (rooms, computers, internet access) then the chance of embedding virtual relations in a local base arises. As a consequence young people do not longer communicate without spatial ties – they get involved with a certain location. The examples should illustrate that activating *and* keeping young people in shrinking regions can not be achieved when regions become isolated or when local ties are cut. Only the balance of weak and strong ties, of origin and understanding can support sustainable regional development.

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