

Community Heterogeneity: A Burden for the Creation of Social Capital?

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Abstract –

A growing body of research alludes to the beneficial effects of social capital on political, social and economic performance. This naturally provokes the question what factors promote (or block) the emergence of this constructive force. In this paper, we extend the literature assessing the effects of community heterogeneity on social capital by focussing on the local government level (using data on 307 Flemish municipalities). This use of local data brings the analysis to a lower level of aggregation and allows the analysis of a larger dataset compared to previous work. Our results show that, after controlling for various relevant socio-economic characteristics of the municipality, income inequality has no significant effect on the municipality's level of social capital. However, we do find a significant depressing influence of ethnic heterogeneity. In accordance with previous international findings, municipalities with large groups of differing nationalities among its citizenry are confronted with lower level of social capital.

Keywords – Social capital, local governments, Flemish municipalities, community heterogeneity

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INTRODUCTION

Judging by the amount of scholarly attention (and journal space) devoted to the concept in recent years, social capital is the ‘talk of the town’. Though the idea dates back much further, a great deal of this attention is attributable to Robert Putnam’s *Making Democracy Work* (1993). In this influential work, he argues that the higher level of social capital in the northern and central parts of Italy (compared to the south) allows people in these regions to overcome collective action problems more effectively and at lower cost. This then leads to better overall performance of the northern regional governments. The relation between social capital and collective, societal outcomes sparked social scientist’s (though also politician’s) fascination. Indeed, a rapidly growing body of research reports on the constructive influence of social capital for a vast array of political, social and economic performance measures (for extensive reviews, see Productivity Commission, 2003; Halpern, 2004).

The positive externalities associated with the presence of social capital naturally provoke the question what factors promote (or block) the emergence of this constructive force. In answer to this question, Putnam (1993) refers to the historical development of the Italian regions. Other models allude to the level of economic development as a main explaining variable for the level of social capital (Stolle, 2000). Beside, community heterogeneity has been associated with lower levels of social capital. The argument here is that people are likely to have more trust and feel more comfortable interacting with others who are similar in terms of income, race and ethnicity (Knack and Keefer, 1997; Alesina and La Ferrara, 2000). The evidence is generally supportive of this hypothesis. It has, for example, been shown that the level of generalised trust is higher in countries that are largely homogeneous in terms of income (e.g. Stolle, 2000) and ethnicity (Knack and Keefer, 1997; Delhey and Newton, 2004). Hero (1998, 2003) reports supportive evidence using data from 48 American States.

In the present paper, we extend the previous work on the link between social capital and community heterogeneity by analysing the determinants of aggregate-level social capital in 307 Flemish municipalities. As such, we follow the suggestion of Rice and Sumberg (1997, 113) that “municipalities offer another locale for study”. Data on the local government level have indeed been largely overlooked in social capital research thus far. Not only does a move to the local government level bring the analysis to a lower level of aggregation, it also provides an increase of the dataset under analysis. Moreover, it allows for a more stringent test of the hypothesized relation between social capital and community heterogeneity in that the variation in social capital is likely to be less pervasive at lower levels of government (Rice, 2001). Research at a lower level of government is thus a welcome – and necessary – supplement to cross-national and regional analyses.

The remainder of the paper is structured as follows. A brief description of the social capital concept and the correlation between community heterogeneity and social capital are given in the first part. This section also reviews prior empirical results. The next section addresses our own analysis, which examines whether the social capital in Flemish municipalities is related to the level of heterogeneity within its population. Before describing the results, our indicators of social capital and community heterogeneity are explained along with the particularities of the model and the estimation methodology. The last section concludes.

SOCIAL CAPITAL AND COMMUNITY HETEROGENEITY

The community heterogeneity thesis

Despite growing academic interest, one of the prime weaknesses of the social capital concept is the absence of consensus on how to measure it. Yet, given the large heterogeneity concerning the very definition of social capital, most scholars recognize three core components: generalized trust, norms of reciprocity and networks. Social capital is therefore understood as both a *structural* phenomenon (social networks) and a *cultural* or *attitudinal* phenomenon (social norms and trust) (Hooghe and Stolle, 2003). Moreover, social capital is also understood as an aggregate concept. Putnam (1993), for example, clearly postulates social capital as a property of communities and Newton (2001, 207) remarks: “(...) if social capital is anything, it is a societal not an individual property, and should be studied as a social or collective phenomenon, not at the individual level”. It is a societal resource that links citizens to each other and enables them to pursue their common objectives more effectively. In short, social capital is seen as an important resource available to societies and is argued to have a beneficial influence on various social, economic and political phenomena (see Productivity Commission (2003) and Halpern (2004) for an overview). Naturally, the next step then is to enquire what factors promote (or block) the emergence of this constructive force. Or, in other words, which factors are conducive for the development of social capital?

In the literature, different explanations have been suggested to explain the level of social capital in a community. Putnam (1993), for example, suggests that social capital is fixed and shaped by historical factors. In his account of social capital differences between Italian regions, he refers to the rule of Norman mercenaries in the South during the Middle Ages and the emergence of self-government in the northern cities during the same period. Others emphasize the level of economic development of a country (Stolle, 2000). Beside, the influence of the heterogeneity of a community has been discussed based on the idea that different societal environments imply varying limitations or possibilities with respect to the development of associations, bonds of solidarity and generalized trust (de Hart and

Dekker, 2003). Indeed, it is generally argued that a more homogeneous environment is positively related to the development of social capital. In heterogeneous communities, the genesis of social capital is more difficult. This relation has particularly been studied in terms of ethnic and income heterogeneity and has been found both on the social and the individual level (see below). Hence, the heterogeneity of a community explains the level of social capital within a society as well as the investment of an individual in its social capital.

A possible explanation for the correlation between heterogeneity and the development of social capital is that people have more trust and feel more comfortable interacting with people who are similar in terms of income, race and ethnicity (Knack and Keefer, 1997; Alesina and La Ferrara, 2000). This argument refers to the *threat hypothesis*, which states that in communities with a high presence of immigrants, autochthons have more prejudices (Blalock, 1967; Oliver and Mendelberg, 2001). Besides, members of minority groups may prefer to interact with other minority members if they fear discrimination (Costa and Kahn, 2003). This may result in an increase of social capital *within* the group, but renders the creation of mutual trust and the interaction *between* different groups more difficult as a consequence of an ‘us versus them’ way of thinking (Bowles and Gintis, 2002; Knack and Keefer, 1997).

Decreasing intergroup trust may also be the result of a struggle over governmental resources or (cultural) dominance in regions or nations with strong, adversarial ethnic relations (Stolle, 2000). This ‘struggle over government resources’-argument is in line with the assumption in certain micro-economic theories that governments are predominantly engaged in redistributive activities (see the classic Meltzer and Richard (1981) model) and that different groups will dispute the distribution of these resources. This argument can clearly be applied to various types of differences among groups in the population (e.g. with respect to race, ethnicity, income, religion, language, local identity, and so on). For instance, the frequent struggles between the Flemish and Walloon Regions within Belgium is illustrative of the fact that similar ‘struggle’-arguments may also apply to people using different languages and/or residing in various parts of one country.

Boix and Posner (1998) also investigate the effect of competition over public goods. They suggest that income inequality stimulates the competition over public goods, which affects trust within a community because it leads to a greater sense of difference. Those who have financial resources are afraid to lose them, while envy exists among those who do not have resources (Leigh, 2004a). In addition, the negative stereotypes of other groups will be enforced by feelings of injustice in economic unequal communities, which interferes with the creation of social capital. Another argument states that optimism for the future makes less sense when there is more economic inequality (Rothstein and Uslaner, 2004). People at the bottom of the income distribution will be less sanguine

that they too share in society's bounty. The distribution of resources plays a key role in establishing the belief that people share a common destiny and share similar fundamental values (Rothstein and Uslaner, 2004). When resources are distributed more equally, people are more likely to perceive a common stake with others. If there is a strong skew in wealth, people at each end may feel that they have little in common with others.

Finally, individuals from different socio-economic groups are less likely to share common backgrounds and mutual values and norms. This makes it harder for citizens to 'predict' the behaviour of others (Hardin, 1993; Misztal, 1995). This uncertainty might create an unfavourable environment for the development of generalized trust and self-enforcing agreements. Platteau (1994), for example, discusses the importance of religious and linguistic homogeneity in facilitating trade in West Africa while Annett (2001) shows that when communities are divided along different socio-economic lines, they are prone to the frequent breakdown of law and order. Clearly, this is harmful for the development of social capital.

Exploring the empirical literature

The association between community heterogeneity and the level of social capital has been analysed both at the individual (micro) and social (macro) level. Studies which explain social capital on the *individual* level mostly use a multilevel analysis. These analyses focus both on individual and social elements to explain the investment of an individual in social capital. Sampson e.a. (1997), Alesina and La Ferrara (2000) and Leigh (2004b) conclude that, after controlling for individual characteristics like age and education, social capital formation is significantly lower in heterogeneous communities. Leigh (2004a), however, concludes that when different measurements for fractionalisation (income, ethnicity, religion and language) are included in one model, only income inequality is negatively and significant associated with trust. Alesina and La Ferrara (2000) also consider the effect of the age distribution within the population. They conclude that the age fragmentation is not significantly, though generally negatively, correlated with the level of social capital.

Costa and Kahn (2003) do not use a multilevel analysis, but restrict their explaining model for the individual-level of social capital to contextual variables. They conclude that volunteering, membership and trust among 25- to 54- years-old are lower in heterogeneous communities, particularly those in which wage inequality is high.

Experimental research by Glaeser e.a. (2000) confirms above-mentioned conclusions. Specifically, they look at the importance of ethnic diversity in the formation of social capital through two-person trust games. They find that Harvard undergraduates from different races or nationalities behave in a less trustworthy manner towards one another and conclude that the degree of social connection predicts the level of trust and trustworthiness between two individuals. This implies that racial

diversity within groups restricts trust in others and the reliability of someone's behaviour towards others.

Studies focusing on the social level have focused strongly on analyses at the country level. Two of these regard only the effect of income inequality. Using aggregated individual-level survey data, Rothstein and Stolle (2001) show that income inequality is strongly correlated with generalised trust. The higher the income inequality, the lower the level of trust. Along similar lines, Rothstein and Uslaner (2004) present international evidence that income inequality is related to lower levels of trust. High trust countries as the Scandinavian countries, the Netherlands and Canada are characterized by income equality. These are also the countries that have policies on the creation of equal opportunities in, amongst others, the organisation of the public education and the labour market.

Three other studies have a slightly broader aim. Knack and Keefer's (1997) comparative analysis of 29 countries based on the World Values Study points out that income inequality and ethnic heterogeneity are strongly correlated with less trust and less social involvement. A study of 40 countries by La Porta e.a. (1997) finds a similar negative relation between ethno-linguistic heterogeneity and social capital. Delhey and Newton (2004), in a comparative study on social trust in 60 countries, confirm these results. They show that countries with high levels of trust are characterised by their ethnic homogeneity and income inequality. Interestingly, ethnic homogeneity seems to have a direct effect on trust as well as an indirect effect via the consequences of ethnic homogeneity on good governance, welfare and income equality.

Finally, Hero (1998; 2003) regards the relation between Putnam's (1993) index of social capital and racial inequality in 48 American states. He measures heterogeneity as the percentage of individuals from African, South-American or Asian origin in the States. The results indicate that there is a strong and negative association between racial heterogeneity and the level of social capital in the state.

ANALYSIS

Measuring social capital ¹

In line with, among others, Putnam (1993; 2000) and Newton (2001), we understand social capital as an aggregate concept and we therefore operationalise it as a characteristic of communities rather than individuals. For the definition of social capital at the aggregate level, two basic options are available. In the first, social capital is defined using aggregate-level data on, say, the density of voluntary organisations or the rates of political participation. The second strategy relies on individual-level survey data that are aggregated to the municipality, regional or even country level. We follow the

¹ This section draws heavily on the description of the social capital variable in Coffé and Geys (2005).

former approach and use only macro-indicators for the measurement of social capital. Indeed, the absence of survey-based data at the municipal level in Flanders precludes the incorporation of such variables in our social capital index. Specifically, we include three different indicators to measure the level of social capital in the Flemish municipalities.

Our first indicator of social capital measures *associational life*. Voluntary associations are seen as creators of social capital because of their socialization effects on democratic and cooperative values and norms. Moreover, the trust and norms of reciprocity that people generate in associations are spread over the whole community, encompassing citizens that are not equally active in associational life (Stolle, 2000). We use the number of a wide variety of organisations (per capita) in each municipality to measure the density of associational activity. Besides sports clubs, this measure also includes associations of retired people, women associations, associations of parents and the like (Lauwerysen and Colpaert, 2004; Bloso, 2004).² A dense network of these organisations refers to a high level of social capital.

In correspondence with Putnam (2000), Costa and Kahn (2003) and Casey (2004), we use *electoral turnout* in the 2000 municipal elections as a second indicator of social capital. This is measured as the number of votes cast on Election Day (valid as well as invalid) divided by the number of registered voters. It refers to civic involvement and participation in public affairs. Importantly, voting is compulsory in Belgium. Still, this compulsory character is to a large extent ‘symbolic’ as penalisation is virtually non-existent in practise.³ Moreover, turnout rates ranged from 87.95 percent to 98.46 percent in the election under study and thus show significant variation between the Flemish municipalities. This lack of prosecution and the significant variation in actual turnout rates allows us to interpret high turnout levels as signalling an engagement toward the ‘common good’ (and thus a high level of social capital). The extent of associational life and electoral turnout are indicators that cover the structural component of social capital.

Putnam (1993), Fukuyama (1995) and Inglehart (1997) suggest that social norms, but in particular trust among citizens, establish the cultural aspects of social capital. As Delhey and Newton (2004) show that distrust accompanies conflict, the crime rate can be conceived as an indicator for the level of generalized trust within a municipality and thus as an objective proxy for the attitudinal (or

² Note that we lack data on informal contacts people may have. Still, we are not overly concerned by this absence. Though loose and amorphous networks of individuals who come together on a casual basis might also facilitate civic attitudes and behaviours, the broadening of the social capital concept to include various types of social interaction might constitute a conceptual problem as it becomes fuzzier and its relationship to performance less obvious (Stolle, 2003).

³ A recent survey among the 27 Belgian judicial areas indicates that non-voters in the 2000 municipal elections were prosecuted in but two of these (Turnhout and Mechelen) and that exactly 391 individuals were prosecuted. On a total of 628,957 non-voters during the election, this leads to a prosecution rate of approximately 0.06 percent (Geys, 2004).

cultural) component of social capital. Hence, and thereby following Rice and Sumberg (1997), the *crime rate* per capita in each municipality is used as our third indicator of social capital. Clearly, as crime in societies will lower citizens’ respect and trust in one another, low crime rates are expected to be indicative of a high level of social capital.

The three above indicators are expected to be measuring a similar underlying concept (i.e. social capital). Hence, we combine them into a single index using Principle Component Analysis (PCA).⁴ This mitigates the influence of idiosyncratic measurement error within each of the variables and maximizes the likelihood of measuring the underlying concept more precisely. Thus, even though the individual indicators of social capital are arguably less than ideal and their choice might be criticized, the component retrieved from the PCA-analysis “probably measures social capital better than any single indicator” (Bjørnskov, 2003: 7; see also Rice and Sumberg, 1997; Knack, 2002). The results of the PCA are summarized in Table 1.

Table 1: The social capital component

Component Measure	Component Loading
Electoral turnout	0,84
Crime rate	-0,75
Associational life	0,60

Eigenvalue: 1,62
 Percentage variance: 54,08

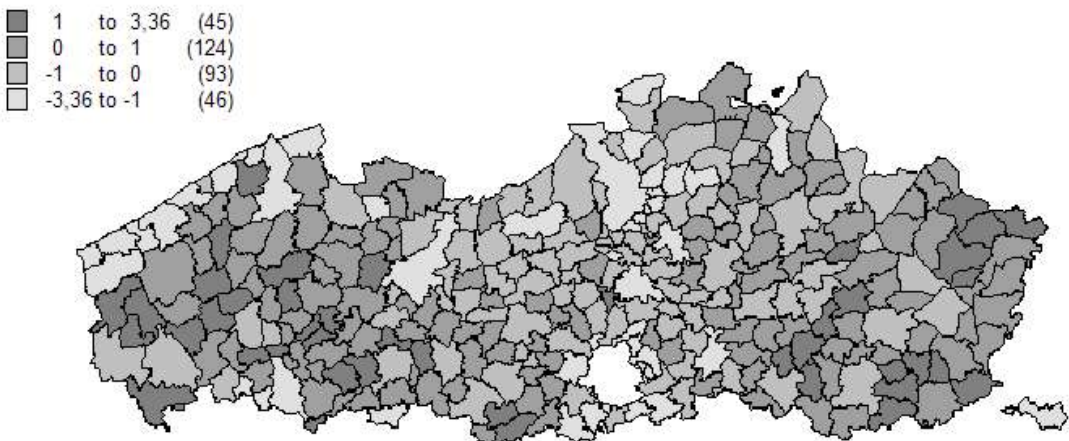
It is clear from Table 1 that the absolute value of the component loadings of all three indicators is above the critical value of 0.35 (Pennings e.a., 1999). Hence, each of the elements loads powerfully onto one underlying component extracted from the data. Note also that with the use of all three indicators into one principal component, our index of social capital comprises both structural aspects (that is associational life and political involvement) and a cultural aspect (that is the crime rate as a proxy for trust). Hence, our social capital index takes account of the dual nature of the concept.⁵

⁴ A preliminary analysis on the suitability of the data for PCA indicates that this is indeed in the case. Specifically, the Keiser-Meyer-Olkin measure of sampling adequacy is above the critical 0.50 level (KMO = 0.55) and the Bartlett test of sphericity significantly rejects the null hypothesis that the intercorrelation matrix comes from a population in which the variables are non-collinear ($\chi^2(3) = 100.89; p < 0.001$). This implies that our three indicators are strongly correlated. Indeed, municipalities with high electoral turnout are also those with a close woven fabric of civic and sports associations and with a low crime rate.

⁵ By merging indicators for both structural and cultural aspects of social capital into one index, we follow the main strand of the literature. We should note, however, that some authors indicate a need for caution about constructing social capital indices that mix indicators of social connectedness with indicators of generalized trust and reciprocity (see Knack and Keefer, 1997; Newton, 1999; Knack, 2002). They rather argue that all the indicators should be kept apart and the relations between them treated as a matter of investigation.

In Figure 1, we display the level of social capital across the 308 Flemish municipalities in 2000. We thereby distinguish four categories (with index values smaller than -1, -1 to 0, 0 to 1 and larger than 1). Higher values of the social capital index point to higher levels of social capital and are progressively darker coloured in Figure 1.⁶ Two interesting patterns can be observed in Figure 1. The first is that larger cities (such as Antwerp, Ghent and Bruges) and the coastal area (in the upper left of the figure) are characterized by low levels of social capital. The second is that there is a remarkable geographical pattern in the figure. Indeed, it can be observed that the centre of Flanders has relatively low levels of social capital while the Eastern and Western parts tend to be high social capital areas. We will return to these observations later on.

Figure 1: Level of social capital in Flemish municipalities (2000)



Measuring community heterogeneity

We measure community heterogeneity through indices for income inequality and ethnic diversity. Figures 2 and 3 graphically present these data for all 308 Flemish municipalities. Income inequality (INCCOEF) is measured by the fraction of the interquartile difference in income and the median income level in the municipality: $[(Q3 - Q1) / \text{Median}]$. This essentially quantifies how strongly income levels in the municipality are dispersed about the median level. Higher values for the index point to higher levels of income inequality. Similar to the presentation of social capital levels, we

⁶ Note that we do not include the Brussels Capital Region in our analysis. Consequently, the large white area in the lower middle of Figure 1 does not refer to the fact that social capital is low in Brussels. The same remark holds for Figure 2 and Figure 3.

distinguish between four categories of income inequality (smaller than 90, 90 to 95, 95 to 100 and higher than 100). Municipalities with darker shades of grey indicate that income diversity is larger.

Figure 2: Income inequality in Flemish municipalities (2000)

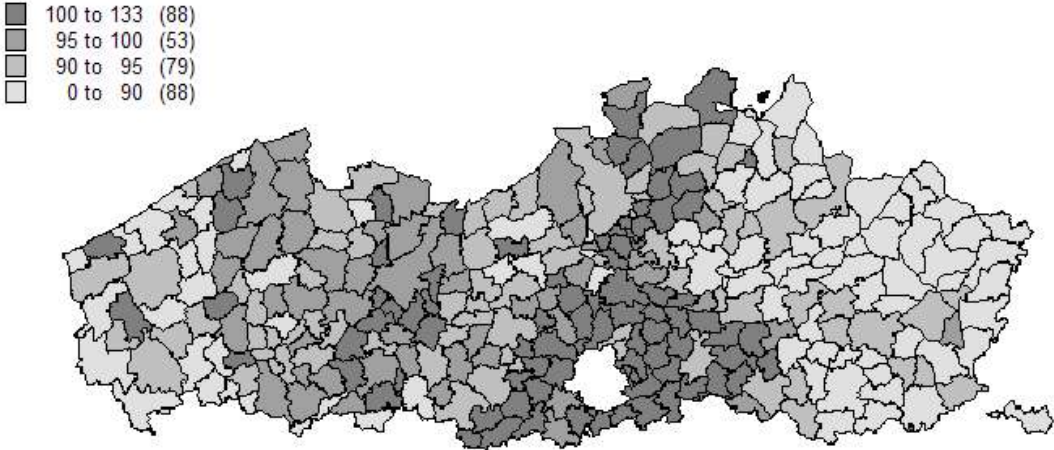
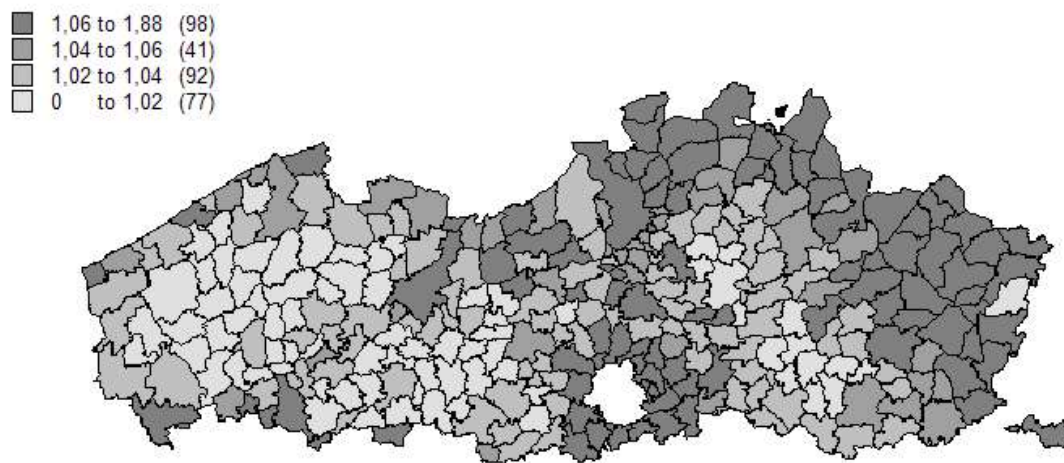


Figure 2 clearly shows that income diversity is highest in the centre of the Flemish Region (roughly the area between the Brussels Capital Region and Antwerp), while it is much less prevalent in the far east and west of Flanders. In line with Figure 1, we thus observe a prominent geographical pattern in the data. Also, the level of income diversity is remarkably higher in the direct neighbourhood of large cities such as Antwerp, Gent, Brussels and Bruges. A possible explanation for this may be a flight from the city centre of the very rich (towards the surrounding municipalities) and the concentration of poorer inhabitants closer to the centre of the cities (see e.g. Ashworth e.a., 2003).

In Figure 3, we present our data for the ethnic diversity (ETHNIC) of Flemish municipalities' populations. This more specifically points to the diversity of the population based on the nationality of its inhabitants. We measure this by the 'effective' number of nationalities in the population, which is the inverse of the *Herfindahl-Hirschmann concentration-index*: $1/\sum_{i=1}^n p_i^2$ with p_i equal to the share of nationality i and n equal to 22 (indicative of the 22 most frequent nationalities in Belgium). We only include 22 nationalities due to data availability. Indeed, for the period relevant for this study (i.e. prior to 2001) the National Institute for Statistics (NIS) provides data 'only' for these 22 nationalities. Higher values for the index point to higher levels of community heterogeneity. As in the other figures, we split up the municipalities into four distinct groups (with effective number of nationalities below 1.02, between 1.02 and 1.04, between 1.04 and 1.06 and above 1.06). More ethnically diverse municipalities take on a darker shade.

Figure 3: Ethnic diversity in Flemish municipalities (2000)



It is shown that, similar to income inequality, ethnic diversity is high in the municipalities surrounding Brussels. Also, large cities such as Antwerp, Ghent, Ostend, Kortrijk and, though to a lesser extent, Bruges have a high ‘effective’ number of nationalities within its populace. Interesting about Figure 3 is the observation that municipalities at or near a border are generally much more ethnically diverse than municipalities in the centre of Flanders. This holds for the borders with France in the west, Wallonia in the south and, especially forcefully, the borders with Germany in the East and the Netherlands in the north. Finally, the high levels of ethnic diversity in the East of Belgium are remarkable. An historical explanation for this is that the mining industry attracted numerous Italian and Turkish immigrants in the 1960’ies. Most of these have remained in the area, even though all mining activity has been shut down.

The three figures show that various areas high in social capital (displaying a darker colour in Figure 1) tend to have low levels of income inequality and ethnic diversity (thus being lightly coloured in Figures 2 and 3). This is especially the case for the inland municipalities in the west of Flanders. Reversely, municipalities in the direct vicinity of large cities such as Brussels, Ghent, Antwerp and Bruges often display low levels of social capital in connection with high levels of both community heterogeneity measures. This observation indicates – in line with previous research (see Section 2.2) – that there is a negative relation between community heterogeneity and social capital. This negative relation is supported by bivariate correlation coefficients, which show that both income inequality and ethnic diversity are significantly negatively connected to social capital ($r = -0.16$ and $r = -0,30$ respectively).

Empirical model

Though our bivariate correlation coefficients provide supportive evidence that the depressing effect of community heterogeneity on social capital found in the international literature also applies to Flemish municipalities, these results should be regarded as a first general examination of the data. While estimating the effect of community heterogeneity on social capital, it is imperative to control for the possible importance of rival explanations. Hence, in the present section, we estimate a multivariate regression model including, besides our two central variables income inequality (INCCOEF_i) and ethnic diversity (ETHNIC_i), a number of socio-economic control variables based on the findings in earlier research. More specifically, we estimate the following empirical model for 307 Flemish municipalities (with subscripts *i* stands for the municipalities and SOCKAP_i refers to the level of social capital as described in Table 1):⁷

$$\text{SOCKAP}_i = a + b_1 \text{INC}_i + b_2 \text{EDUC}_i + b_3 \text{UNEM}_i + b_4 \text{AGE}_i + b_5 \ln(\text{POP}_i) + b_6 \text{CONC}_i \\ + b_7 \text{MIGR}_i + b_8 \text{HOME}_i + b_9 \text{INCCOEF}_i + b_{10} \text{ETHNIC}_i + e_i$$

First of all, we control for four socio-demographic elements that have proven to be important determinants of social capital at the individual level. Though the theoretical foundation for a relation of these variables to social capital at the aggregate level is (at the very least) imperfect, we feel that not controlling for their effects in our analysis may yield inconsistent estimates due to omitted variable bias. As such, we include per capita taxable income (in 1000 Euro) (INC_i) and, related to income, the level of education within a community (EDUC_i). The educational level is measured by the percentage of the population (older than 20 years) with a college or university degree. A third socio-demographic control variable is the unemployment rate (UNEM_i). It is defined as the percentage of the total municipal population that is unemployed. The fourth and final socio-demographic variable included in the model is the share of elderly (over age 65) within a community (AGE_i).

Secondly, we control for the effects of four contextual variables. To control for the anonymity and alienation that are characteristic of large cities (Wirth, 1938; Weber, 1947) and the fact that a large population tends to weaken the force of ethical rules (Buchanan, 1965), we include population size (POP_i) and the density of the population (CONC_i). Population size equals the number of inhabitants in the municipality (the natural logarithm controls for the highly skewed distribution of this variable). Population density is measured by the number of inhabitants per square kilometre. Additionally, we control for the residential stability of the population by means of the in- and outward migration in the

⁷ Missing data prevent the inclusion of the small municipality Herstappe.

municipality during one year as a percentage of the total population (MIGR). We expect mobility to reduce social capital as “leaving a community tends to destroy established bonds, thus depriving family and children of a major source of social capital” (Portes, 1998, 11; see also Bowles and Gintis, 2002). In connection to this, we also add the extent of homeownership (HOME). After all, the ownership of a house does not only imply that one is likely to stay longer in a region, but also entails a financial investment in a certain environment (Green and White, 1997; DiPasquale and Glaeser, 1999). As the quality of the (social) environment influences housing prices, homeownership creates an additional incentive to invest in social capital. This leads us to expect a positive relation between homeownership and social capital levels. Homeownership is measured by the percentage of houses with a known resident that are occupied by the owner.

Empirical results

The results of our analysis are given in Table 2. Before we discuss the findings, it is important to point out two crucial methodological issues. Firstly, we employ two different estimation techniques. Columns (1) and (2) present the results using simple OLS. However, this technique does not control for the limited range of values that our dependent variable takes. This could lead to biased estimation results and incorrect inferences (Thomas, 1997). To accommodate this issue, in columns (3) and (4), we report results using an ‘interval’ regression technique where we impose that the dependent variable is limited to a given interval. Mathematically, this is equivalent to performing a Tobit-estimation while imposing both a top and bottom boundary to the estimation. It is clear from Table 2 that the results from both estimations are very similar. The results in columns (2) and (4) are obtained by removing the non-significant variables one by one from the model (taking care not to compromise the diagnostic tests).

Secondly, we should note that the direction of causality is not always unambiguous for each of the variables included in the model. For example, one could argue that higher education levels lead to higher investment in social capital (Verba e.a., 1995), but it has also been shown that social capital has a positive effect on school results (La Porta e.a., 1997). To minimize the problems associated with this reverse causality, we operationalize each of our explanatory variables one year prior to the measurement of social capital (i.e. using data from 1999).⁸ The reason is that historical municipal characteristics may well be used to explain the current level of social capital, while that level of social capital is less appealing as an explanation for historical characteristics of the local population.⁹

⁸ The sole exceptions to this rule are the level of education and homeownership. For both these variables, we use data from 1991 (due to availability).

⁹ As it is rather arbitrary to use data one year earlier, we repeated the analysis with data from two (and three) years prior to the determination of social capital. These analyses gave similar results as those presented in Table 2. Also, the use of historical data as instruments for the present values of the explanatory variables (through 2SLS) leaves the general tenor of the results unaffected (results available upon request).

Table 2: Explanations for the level of social capital in Flemish municipalities (2000)

Variables	(1) OLS	(2) OLS	(3) INT	(4) INT
Intercept	8.359 *** (6.99)	8.103 *** (7.41)	8.378 *** (7.09)	8.126 *** (7.48)
INC	-0.199 *** (-3.81)	-0.138 *** (-4.23)	-0.201 *** (-3.89)	-0.140 *** (-4.26)
EDUC	0.011 (0.71)	-	0.011 (0.73)	-
UNEM	-0.054 (-0.95)	-	-0.055 (-0.97)	-
AGE	-9.088 *** (-5.44)	-8.718 *** (-5.47)	-9.092 *** (-5.50)	-8.713 *** (-5.50)
POP (ln)	-0.537 *** (-7.97)	-0.555 *** (-8.43)	-0.539 *** (-8.09)	-0.557 *** (-8.52)
CONC	-0.0002 (-1.49)	-0.0002 * (-1.88)	-0.0002 (-1.47)	-0.0002 * (-1.87)
MIGR	-9.925 *** (-4.27)	-9.436 *** (-4.08)	-10.020 *** (-4.36)	-9.518 *** (-4.14)
HOME	0.025 *** (3.78)	0.025 *** (4.07)	0.025 *** (3.82)	0.026 *** (4.10)
INCCOEF	0.003 (0.51)	-	0.004 (0.55)	-
ETHNIC	-0.898 *** (-2.74)	-0.881 *** (-2.74)	-0.896 *** (-2.76)	-0.877 *** (-2.74)
N	307	307	307	307
R ²	65.08	64.64	57.81	56.69
F (K)	55.16 ***	78.07 ***		
Chi ² (K)			320.40 ***	316.43 ***
RESET ³ (Chi ² (2))	1.38	1.60	2.94	3.33

Note: t-values between brackets; *** significant at 1%, ** at 5% and * at 10%. R² values in the interval regression are McFadden (1974) pseudo-R². F (K) and Chi² (K) point out the joint significance of all variables in respectively the OLS-model and the interval estimation – with K the number of regressors in the model. RESET³ is Ramsey's (1969) specification test. The results indicate the absence of functional form misspecification.

The model presented has substantial explanatory power. In fact, the results from the OLS estimations indicate that approximately 65% of the variation in social capital levels across the Flemish municipalities can be explained by the variables introduced in the model.¹⁰ Importantly, it is clear that

¹⁰ Note that McFadden's pseudo-R² has no similar interpretation (Thomas, 1997). Nonetheless, it can likewise be seen from the Wald Chi²-test that in the interval-regression, all variables are jointly significant at (far) beyond the 1% level.

even after controlling for the influence of various socio-economic control variables, ethnic heterogeneity has a significant depressing effect on social capital (in line with the bivariate results in Section 3.3). When the effective number of nationalities within a municipality increases, the level of social capital, *ceteris paribus*, decreases. This effect is statistically highly significant and robust over all estimations.¹¹ This result is in line with findings from previous research at the macro-level using data across countries or American States (Knack and Keefer, 1997; Hero, 1998, 2003). The creation of groups and the formation of bonds of trust and reciprocity thus appears to be less problematic in communities where people share a common nationality. As mentioned, this could be explained by ethnic prejudices and the existence of an ‘*us versus them*’ philosophy between various groups in the population. The latter argument is further supported by Coenders (2001), who shows that ethnic exclusion is higher on average in countries where the population is more ethnically divided.

In contrast to the results for ethnic heterogeneity, we no longer find any effects of economic diversity on social capital in the multivariate analysis. The significant bivariate finding from section 3.3 thus appears to be due to other socio-economic determinants that are controlled for in the regression equation. This lack of correlation is in contrast to previous findings at the individual (Costa and Kahn, 2003; Leigh, 2004a, b) and the aggregate level (Knack and Keefer, 1997). This could indicate that income diversity across the Flemish municipalities is too limited to generate (economically and statistically) significant effects. Indeed, relative to income inequality across countries (Knack & Keefer, 1997), the differences among Flemish municipalities are rather low. Another possible explanation is that the Flemish population cares little about income differences within their community when deciding whether or not to invest in social capital.

Switching to the socio-economic control variables, we observe that mean level of income has a significant negative effect on social capital in the Flemish municipalities. Lower levels of average income are associated with higher levels of social capital. This corresponds to the findings of Oliver (1999), who finds that relatively rich neighbourhoods generally tend to have lower participation rates. However, research at the individual level has provided evidence that high income individuals have higher levels of social capital (Delhey and Newton, 2004; Leigh, 2004a, b). This illustrates once more that findings at the individual level cannot just be translated to the aggregate level, nor vice versa (see also King, 1997). A similar conclusion holds for the (lack of) effect from unemployment. While Hooghe (2003) finds at the individual level that the unemployed in Belgium participate at significantly lower levels, our analysis indicates that the share of unemployed in the municipality has a negative – though insignificant – effect on social capital.

¹¹ Inclusion of dummy variables for four of the five Flemish provinces as a proxy for possible historical-geographical effects does not affect this result. These dummies indicate that – all else being equal – social capital is significantly lower in the province of Antwerp, while none of the other provinces differ statistically significantly from one another.

Municipalities with high levels of highly educated individuals are characterized by higher levels of social capital. Nonetheless, in line with findings by Hooghe (2003), we find that his effect is rather weak – in contrast to the much stronger findings at the individual level. According to Hooghe (2003), this divergence at the individual and aggregate level corroborates the hypothesis of ‘relative education effects’. This states that not the absolute level of education is important, but rather the level relative to ones peers and neighbours (Nie e.a., 1996). Those within a community or age cohort with the highest education levels will take up the most important social positions within the group, irrespective of the sheer height of their educational attainments.

The share of elderly (over age 65) in the population has a significant negative effect on a municipality’s level of social capital. This contrasts with Putnam’s (2000) conclusion that older people tend to have a higher level of social capital. He points to the change in generation to explain this effect and the effect of experiencing World War II at a relatively young age on the social sentiments of the ‘long civic generation’. Our findings, on the other hand, are more in line with the conclusions from individual-level research in Flanders by Breda e.a. (2003). They find that the elderly in Flanders are more often subject to feelings of insecurity and social exclusion.¹²

Population size as well as population concentration are negatively associated with the level of social capital in the municipality. This indicates that trust and norms of reciprocity tend to be easier to maintain in smaller municipalities. This supports the idea that anonymity and alienation are characteristic of large cities (Wirth, 1938; Weber, 1947) and that a large population tends to weaken the force of ethical rules (Buchanan, 1965). Finally, we find that the residential stability of the population has an important effect on social capital. Both the negative effect of in- and outward migration in the municipality and the positive effect of homeownership indicate that residing in a community for longer periods of time increases involvement in the community (and thereby social capital). Also, given that both effects are statistically significant, the ownership of a house creates an additional incentive to invest in social capital (due to one’s financial investment in the community).

CONCLUSION

The concept of social capital has in recent years obtained considerable attention from both the scientific and political world. This is largely a consequence of the rapidly increasing number of

¹² Testing for non-linearity of the age effect by including a squared term indicates that social capital decreases at an increasing rate with the level of elderly in the population. Given that this non-linearity is substantively very weak and that the other results are not affected by its inclusion (or exclusion), we opted to retain only the results without the quadratic term in the main text (results available upon request).

findings in the scientific literature that social capital has a supporting effect on various socio-economic phenomena such as economic and institutional performance. Such findings naturally trigger the question what factors promote (or block) the emergence of this constructive force and in what social contexts it grows most expeditiously. Indeed, different societal environments imply varying limitations or possibilities with respect to the development of associations, bonds of solidarity and generalized trust (de Hart and Dekker, 2003). In the present paper, we concentrated on one aspect of this social context, namely the heterogeneity of the population. Previous studies found that community heterogeneity has an important influence on the creation of social capital across countries (Knack & Keefer, 1997) and American States (Hero, 1998, 2003). Studies of this effect at the local level have, however, been disregarded. However, Rice en Sumberg (1997) specifically pointed towards the lower levels of government as an important new area of research for social capital scholars. This paper takes a first step to bridge this gap in the literature.

Our results illustrate that, after controlling for various relevant socio-economic contextual variables, social capital in the Flemish municipalities is not significantly related to the level of income inequality. However, we do find – as suggested by previous analyses – that more extensive ethnic diversity within the community is significantly and negatively associated with social capital. This contrasts with the positive view that is commonly entertained of the multicultural society in which multiple ethnic groups live together and appears – given the globalisation of our society – to present an hardly encouraging view of the future. Still, with respect to policy initiatives, our results should *not* be brought into play to plead for the reduction of the number of non-Belgians in the population (nor do we plead to reduce ethnic heterogeneity in other countries for that matter). Social capital is in fact only one element in a complex multitude of political and social factors that policy makers should be taking into account. In line with this, Costa and Kahn (2003: 109) rightfully state that “from society’s perspective, racial and ethnic heterogeneity and equality of access may be more important values than achieving greater participation.” Moreover, the negative effect of ethnic heterogeneity on social capital does not imply that diversity is an ‘evil’. Various groups are often complementary in terms of expertise and skills such that heterogeneity may reduce social capital, but might well lead to an improved approach towards (technical) problems (Bowles and Gintis, 2002). Each of these issues should be kept in mind before judicious decisions can be made with respect to, among others, immigration policy.

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