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INDIVIDUAL-LEVEL DETERMINANTS OF SOCIAL CAPITAL IN EUROPE: DIFFERENCES BETWEEN COUNTRY GROUPS

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INDIVIDUAL-LEVEL DETERMINANTS OF SOCIAL CAPITAL IN EUROPE: DIFFERENCES BETWEEN COUNTRY GROUPS

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Abstract

This paper investigates the effect of various individual-level determinants on social capital in Europe, in order to find out whether there are differences between the transition and non-transition countries. The novelty lies in more comprehensive sets of both determinants and dimensions of social capital covered. Data from World Values Survey for 31 European countries (including 16 transition countries) are analysed. Based on the estimation results of the measurement and structural model for all countries separately, the countries are clustered into three groups to complement the comparison of transition and non-transition countries. Differently from the previous results, the findings of this study provide support for the argument that the sources of social capital are remarkably different in transition and non-transition countries. Moreover, the results indicate that within both of these country groups subgroups have to be distinguished.

Keywords: social capital, European regions

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1. INTRODUCTION

Social capital as a relevant factor of development at both the individual and country level has been actively dealt with in the literature over the last decade. Empirical evidence has indicated that regions and countries with relatively higher stock of social capital seem to achieve higher levels of growth and welfare (e.g. Knack and Keefer, 1997; Rose, 2000), while individuals possessing more social capital are usually also healthier and happier (e.g. Rose, 1999; Arts and Halman, 2004). Previous research has also shown that social capital may significantly differ both by individuals and by countries. For understanding and explaining these differences, which in turn may cause differences in various development outcomes, it is crucial to understand the composition and sources of social capital. However, there are yet very few empirical tests assessing the effect of different determinants on social capital.

The purpose of this article is to examine the effect of various individual-level determinants on social capital in Europe in order to find possible differences between transition and non-transition countries. The data used in this study are taken from the fourth wave (1999–2002) of the World Values Survey (WVS) (Inglehart et al, 2004; World…, 2006). 31 European countries with 39 502 observations are analysed, among them 16 transition countries and 15 non-transition countries (with no communist background).

The novelty of the current article lies mainly in following aspects. First, while most previous analyses have paid no attention to possible differences between transition and non-transition countries, the data used in this study enable to compare the sources of social capital in these two country groups. Next, this analysis covers more possible determinants of social capital than previous studies – age, gender, marital status, number of children, town size, education, employment status, income, and religiosity are considered as possible factors of social capital. Also, while previous studies have often covered less dimensions of social capital, in this study five dimensions of social capital – formal and informal

networks, general and institutional trust, and norms – are included in the analysis.

For the measurement of social capital, confirmatory factor analysis is used based on the preliminary exploratory factor analysis. The measurement model is estimated with the structural model using structural equation modelling for the whole sample and for all 31 countries separately. As the differences in the number of respondents by countries may influence the results based on the whole sample, the mean values of regression coefficients are calculated for country groups. First, countries are grouped into transition and non-transition countries. Second, the regression coefficients are saved as variables for all countries. On this basis cluster analysis is performed to find out how the European countries divide according to the individual-level sources of social capital, and whether the cluster analysis confirms that the division of countries follows the line between the transition and non-transition countries. At last, the differences between the different country groups concerning the sources of social capital are discussed.

The paper is structured as follows. Section 2 presents the theoretical background. Section 3 introduces the data and the measurement. Section 4 presents generally the results of the structural equation modelling. Section 5 introduces the results of cluster analysis and the effects of determinants on social capital by the different country groups. Section 6 comprises the discussion of the results, while Section 7 points out the limitations and makes recommendations for future research. Section 8 concludes.

2. DETERMINANTS OF SOCIAL CAPITAL

Social capital in its broadest sense refers to internal social and cultural coherence of society, the trust, norms and values that govern interactions among people and the networks and institutions in which they are embedded. Hence, social capital is a multifaceted phenomenon, which can be studied both at the individual or aggregate (country) level. At the individual level, social capital has been seen as a resource embedded in the social structure, which is useful for achieving higher reputation, power and material welfare. At the country level, social capital in the form of networks constitutes a powerful information channel, while trust and norms can help to discourage opportunistic behaviour in the presence of risk and uncertainty.

The current paper follows mostly the individual-based model of social capital (Coleman, 1988; Bourdieu, 1985), which concentrates on the ability of persons to obtain resources through networks or other social structures. In order to possess social capital, an individual must be related to others, who are the actual source of the person's advantage. In this context, determinants and sources of social capital are related to the motivation of those "others" to make their resources publicly available. So the question is: What are the reasons why people invest their time, money and effort into social relations?

Before starting the in-depth analysis of the sources of social capital, it should be emphasised that these sources should be studied in the framework where different dimensions of social capital are separated. The elements of social interaction can be divided into two parts: structural aspect, which facilitates social interaction, and cognitive aspect, which predisposes people to act in a socially beneficial way (Hjøllund and Svendsen, 2000). The structural aspect includes participation in formal and informal networks, the cognitive aspect different types of trust and civic norms, also referred to as trustworthiness (see Figure 1).

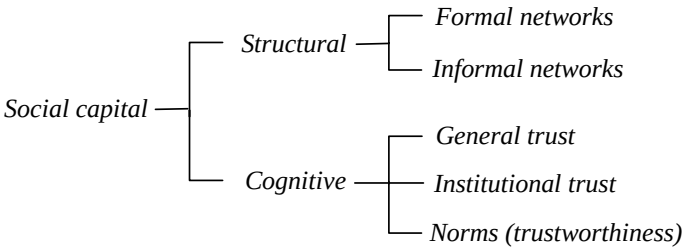

Figure 1. Dimensions of social capital.

Although there has been some inconsistency concerning the relative importance of the cognitive and structural aspects of social capital,[3] it could be assumed that these two sides of the concept work interactively and are mutually reinforcing. For example, informal communication teaches cooperative behaviour with strangers in order to achieve shared objectives, and the importance of common norms and related sanctions necessary to prevent opportunistic behaviour. Another important outcome of being involved in different types of networks is that personal interaction generates relatively inexpensive and reliable information about trustworthiness of other actors, making thus trusting behaviour less risky (Putnam, 2000). On the other hand, pre-existing generalised, diffused interpersonal trust indicates the readiness of an actor to enter into communication and cooperation with unknown people (Adam, 2006). Based on these relationships, it could be shortly summarised that social interaction requires communication skills and trust, which, in turn, tend to increase through interpersonal collaboration. Therefore, various dimensions of social capital should be taken as complements, which all are related to the same overall concept of social capital.

[3] Details about the structural aspects of social capital and their importance can be found, for example, in the work of Putnam (1993, 2000), Granovetter (1973), Narayan and Cassidy (2001). The superiority of the cognitive dimension of social capital is advocated by Fukuyama (1995, 2001), Uslaner (2000), Dehley and Newton (2005), Halpern (2005).

So far, there are only few studies about the determinants of social capital, and no comprehensive and consistent framework has been developed for such analysis. Basically, some authors tend to emphasise the role of individual factors in determining the incentive of individuals to invest in social capital, such as personal income and education, family and social status (e.g. Christoforou, 2005; Fidrmuc and Gërxhani, 2005; van Oorschot and Arts, 2005); while others offer greater weight to the effect of more institutional or systemic factors, such as income inequality, confidence in government, impartiality of policy-making bodies, and prior patterns of cooperation and association amongst individuals in a group (e.g. Alesina and Ferrara, 2000; Rothstein and Stolle, 2003; Delhey and Newton, 2005). The main shortcoming of previous empirical studies lies in the fact that they include incomplete set of social capital dimensions (mostly, only indicators of general trust and/or membership in voluntary organisations is included) and limited number of their determinants. Also, the data sources and list of countries analysed by different authors are not similar, making comparisons and generalisation of the (often varying) results complicated. The complete list and details of previous studies about the individual-level determinants of social capital are presented in Appendix A.

One of the studies of the predictors of general trust is Delhey and Newton (2005) based on the worldwide WVS data from 1990–1996, but this includes only macro-level analysis. Micro-level determinants of trust are studied by Alesina and Ferrara (2000) and Soroka et al (2003), who focus more narrowly on the U.S. and Canadian data, respectively. There are also several studies focusing on the determinants of different dimensions of social capital in Europe. Recently, Halman and Luijkx (2006) have analysed the determinants of trust and social networks based on European Social Survey data from 2002. Alternatively, van Oorschot and Arts (2005, 2006) use EVS 1999–2000 data for Eastern and Western European countries. They define specific eight-scale measurement model for social capital and consider both individual-level and contextual determinants. EVS is also used by Bartkowski and Jasińska-Kania (2004), who compare micro and macro-level determinants of formal networks in Visegrad and Western European countries. Christoforou's (2005) study of the determinants of

group membership includes EU-15 members and uses European Community Household Panel data from 1999. Glaeser et al (2002) have done similar analysis based on U.S. General Social Survey data. Further, Fidrmuc and Gërxhani (2005) have investigated the differences in the determinants of formal and informal networks between Western European and Central and Eastern European countries, using Eurobarometer survey data from the beginning of 2000s.

At the individual level, social capital is influenced by a wide range of socio-economic and contextual factors. Among them, **income and education** seem to be most influential. Empirical evidence shows that higher levels of income and education coincide with a strong probability for interpersonal trust and group membership from the part of the individual (Knack and Keefer, 1997; Denny, 2003; Helliwell and Putnam, 1999; Paldam, 2000; and others). Concerning institutional trust, the empirical results are varying. Halman and Luijkx (2006) showed that institutional trust is statistically significantly and positively influenced by education, while Oorschot et al (2005) found the same effect to be negative. However, the exact causal mechanisms behind these relationships are not clearly explained in the literature. For example, trust could be a product of optimism[4] (Uslaner 1995, 2003) generated by high or growing incomes. Similarly, education may strengthen trust and civic norms, if learning reduces uncertainty about the behaviour of others, or if students are taught to behave cooperatively (Mueller, 1989; Offe and Fuchs, 2002; Soroka et al, 2003). These processes can be self-reinforcing: if individuals know that higher education levels make others more likely to be trusting (and perhaps also more trustworthy), then they are in turn more likely to trust others (Helliwell and Putnam 1999). This implies that the returns to trusting behaviour are higher when the average levels of education increase. At the more general level it has been suggested that both formal and informal education act as mediators of social values

[4] Optimism can be viewed as a multifaceted phenomenon having four main components: (1) a view that the future will be better than the past, (2) a belief that we can control our environment to make it better, (3) a sense of personal well-being and (4) a supportive community (Uslaner 2003).

and norms between human generations (Montgomery, 1990). Yet such value transmission may not always be supportive to social capital generation – education may foster individualistic and competitive attitudes and hence reduce the motivation for cooperation.

As regards to a positive relationship between education, income and participation in community and voluntary activities, there is no simple answer to the question what causes more educated individuals to participate and volunteer more often. One possibility is to consider volunteering as a consumption good, which increases one's non-material well-being and is influenced by opportunity cost of consumption of this good (Brown and Lankford, 1992). Since higher education is associated with a higher opportunity cost of time (equal to foregone earnings), negative effect of education on volunteering could be expected. However, volunteering usually takes place out of work time, so there may be little or no trade-off. Further, part of the voluntary work takes place in the clubs of "the bold and the beautiful" (like Rotary, Lions Club, etc), implying positive relation with education and income. On the other hand, causality can also run from another direction: for example, volunteering could be seen as informal job-search, suggesting positive effects between income, education and participation. Still, this assertion is not supported by empirical evidence, which shows that horizontal networks help to find mainly low-paid jobs with low education requirements (ibid). Banks and Tanner (1998) support the joint determination of wages and volunteering, showing that then higher wages are associated with more volunteer hours. Finally, there is also a possibility that participation activity, education and wages may be determined by common omitted factors. For example, some personal traits like openness, activity, curiosity and responsibility ensure higher education and wage, and are prerequisites for active participation in community life at the same time.

Besides income and education, several other social and demographic determinants like age, gender, marital status, number of children, and others seem to be important in determining social capital. As regards the impact of **age**, there are varying empirical results. Most linear models show positive impact of age on trust and formal networks. Another basic hypothesis says that the

relation between formal networks and age is concave – with ageing the networks first increase and later decrease (Glaeser et al, 2002). At the same time in case of informal participation older individuals tend to have more limited access to social networks (Fidrmuc and Gërxhani, 2005). To the contrary, Christoforou (2005) has found that in Europe (EU-15), younger or elder non-working groups are most likely to be group members. The explanation is that working-age people have less time (although more money) for participating.[5] The impact of age on general and institutional trust and norms has been found to be positive (Halman and Luijkx, 2006; van Oorschot et al, 2005). This result is supported by theoretical argumentation of Whiteley (1999), who suggests that older people are more cooperative and trusting because they are raised and socialised in less secure circumstances, where they had to rely on each other. Broader argumentation of van Oorschot and Arts (2005) states that such age effects could be the result of differences in either generation, cohort or life stage. However, it is hard to test empirically which of these is/are actually dominating.

Concerning **gender**, previous research has shown that women tend to have significantly lower levels of overall civic participation in formal networks (e.g. Christoforou, 2005). As regards informal social networks, it has been stated that it is easier for women to find consolation when depressed and financial relief when in need of money – but they are less likely than men to find a job using their social contacts (Fidrmuc and Gërxhani, 2005); women have also more family-based social capital and they are more trustworthy (i.e. with higher norms). Concerning the effect of gender on general trust, the results are varying: Halman and Luijkx (2006) have found that women possess a bit more social trust than men, while the analyses of Soroka et al (2002) and Oorschot et al (2005) show the opposite. Institutional trust has not been found to be influenced by gender.

Further, usually it is expected that **married** couples have less social capital than on average, as family life takes time and

[5] The only exception was Greece, where the working age group appeared to be more likely to participate in groups, as opposed to the rest of Europe.

decreases the need for outside social relations (Bolin et al 2003). However, Christoforou (2005) has found that marriage increases the likelihood of being a member of a group for both men and women, while in case of men this effect is much stronger, even after women have entered the labour market and are exposed to a series of social and professional organisations. This is probably because a rise in women's group membership is at the expense of familial obligations within the household, traditionally held by women. Concerning informal networks, Fidrmuc and Gërxhani (2005) have shown no statistically significant effect of marital status on informal networks.

Theoretically, having **children** could be expected to have a similar effect as marriage, but empirical evidence is not so clear. Fidrmuc and Gërxhani (2005) found that children have a positive and significant effect on overall civic participation. After adding aggregate-level determinants the effect of children turned insignificant and negative. Concerning informal social networks, children influenced significantly and positively networks to borrow (effect on other types of networks was also positive but insignificant). Effect of household size (partly related to the number of children) turned out to be significantly negative in case of all types of networks (depressed, need of job, borrowing).

Some studies have also tested the impact of **town size** on the elements of social capital. Fidrmuc and Gërxhani (2005) have shown that living in a small or medium-sized town decreases both formal and informal participation, while Alesina and Ferrara (2000) show to the contrary that people have less informal social contacts in larger settlements. Glaeser et al (2002) have found that house owners have usually more social capital, as operating one's property requires cooperation. The proportion of private property owners, in turn, could be related to town size – there are usually more house owners in small settlements and less in large cities.

As regards **employment status**, it has been proved that a person facing unemployment has a strong disincentive to participate in social groups, partly on account of the distrust he/she tends to develop towards society (Christoforou, 2005). Fidrmuc and Gërxhani (2005) have shown empirically that being unemployed

translates into more limited access to both informal and formal networks, being employed has the opposite influence. In the work of Oorschot et al (2006) it appeared that the negative effect of unemployment holds for a wide range of social capital components, whereas the effect is stronger in case of indicators of formal participation and weaker on general trust. Analogically, the retired persons and housewives appeared to have less formal and informal networks and general trust. At the same time, unemployed and retired persons tend to be more engaged in network of friends – probably because they have more time for informal socialising.

Social capital has some of its roots in history and related ideology. In general, an ideology – for example, **religiosity** – can create social capital by forcing its followers to act in the interests of something or someone other than themselves (Knack and Keefer, 1997; Whiteley, 1999). Religiosity in general has been found to have positive impact on both formal and informal networks, norms and institutional trust (van Oorschot and Arts, 2005; Halman and Luijkx, 2006). However, different religious denominations have often different impact on social capital. It is believed that trust is lower in countries with dominant hierarchical religions like Catholic, Orthodox Christian, or Moslem (Putnam 1993; La Porta et al 1997), while Protestantism is associated with higher trust (Inglehart, 1990; Fukuyama, 1995) and norms (Oorschot et al, 2006).

Table 1 summarises the above information about possible influences of social capital determinants, based on previous empirical studies. It could be concluded that only the effects of income, employment and religiosity are robust and positive (although not always significant) concerning all dimensions of social capital. The same holds for education, except for its unclear effect on institutional trust. As regards age, its effect on social capital is mostly positive, but the results depend also on whether different age groups are analysed separately, and whether the possible non-linear effects are taken into account. The effect of gender is mixed in most of the cases. Also, the effects of age and gender on networks are highly sensitive to what types of networks are considered and how they are aggregated. Factors like marital status, having children and town size are less empirically studied

and the results show mostly that they have no large significant effect on social capital.

Table 1. Hypotheses about the character of influence of social capital determinants*

	Social capital				
	Structural		Cognitive		
Determinants of social capital	Formal networks (9)	Informal networks (5)	General trust (5)	Institutional trust (4)	Norms (3)
Age (9)	(7) ?	(5) –, ns	(5) +	(4) +	(3) +
Gender (9)	(8) +	(5) ?	(5) ?	(4) ns	(3) ?
Marital status (4)	(2) +	(2) ns	(1) ns	(0)	(0)
Children (3)	(1) ns	(2) ns	(2) ns	(1) ns	(0)
Town size (2)	(0)	(1) -	(1) ns	(0)	(0)
Education (9)	(8) +	(5) +	(5) +	(4) ?	(3) ns
Employment (5)	(4) +	(3) +	(4) +	(1) +	(1) +
Income (8)	(6) +	(4) +	(4) +	(3) +	(3) ns
Religiosity (5)	(4) +	(3) +	(5) ns	(4) +	(3) +

* Number of studies in parentheses. See Appendix A for the list of the empirical studies analysed. "+" denotes expected positive effect, "–" negative effect, "?" refers to mixed results and "ns" non-significance in previous studies.

Concerning the possible differences between the determinants of social capital in transition and non-transition countries, most previous analyses have paid no attention to these possible differences. The analysis of Fidrmuc and Gërxhani (2005) reveals that the stock of social capital at the individual level is affected by very similar factors in both of these groups of countries. Their empirical analysis has shown that there are no differences between the old and the new members[6] of European Union concerning the effects of various determinants on social capital. The results of Bartkowski and Jasińska-Kania (2004) are roughly the same, but their sample and number of indicators included is smaller. However, no

[6] The old members are non-transition countries and the new members are mainly transition countries.

solid conclusions can be made on the basis of one or two studies. The possible differences between these different country groups concerning the sources of social capital are re-examined in this study.

3. DATA AND MEASUREMENT

The data used in this study were drawn from the World Values Survey (WVS) (Inglehart et al, 2004; World…, 2006). WVS is an international research project that has collected data from more than 80 countries, including European countries, since 1981 in four waves. Among others, there are questions pertaining to most dimensions of social capital and to possible determinants of individual-level social capital. Unfortunately, not all questions of interest were covered for all European countries. Therefore, some European countries could not be included in this study. The final sample includes 31 European countries with 39 502 observations (see Appendix B for more detailed information about the countries included in the study and the numbers of observations by country). The transition countries and other European countries (with no communist background) are more or less equally represented − the sample includes 15 non-transition countries with 19 708 observations and 16 transition countries with 19 794 observations. For all these countries the data from the fourth wave (1999–2002, mainly 1999) were available (see Appendix B for the year when survey was conducted in different countries). Next, the indicators included in the analysis will be briefly introduced.

Regarding social capital, it is assumed that the hypothesised determinants can influence the different dimensions of social capital in dissimilar ways. Therefore, for describing social capital, an overall index, one variable or one latent construct cannot be used. In this study, 12 indicators are used to measure five different dimensions of social capital. The exact descriptions of the indicators of social capital included in the analysis are presented in Appendix C. Formal networks are measured by two indicators: belonging to all types of organisations and unpaid voluntary work for these

organisations. In both cases the number of organisations mentioned was calculated. Informal networks are described by the frequency of spending time with friends, importance of friends, and spending time socially with colleagues. Here and hereafter the scales are chosen so that larger values reflect a larger stock of social capital. Unfortunately, only one indicator was available to measure general trust: the answer to the question about whether most people can be trusted. Institutional trust is described by three indicators: confidence in the police, the press and the parliament. When attempting to measure norms, one has to bear in mind that claimed norms can noticeably differ from the actual behaviour. For the countries of interest, only the indicators describing norms were available, not the actual behaviour. However, even the indicators of the actual behaviour, if drawn from surveys, are subjective, because the respondents are likely to be reluctant to admit bad behaviour (Knack and Keefer, 1997). In this paper, norms are described by three indicators: justifiability of cheating on taxes, of claiming government benefits to which one is not entitled, and of accepting a bribe.

As regards the determinants of social capital, the exact descriptions of the indicators used are presented in Appendix D. First, socio-economic factors like age, gender, marital status (married or not), number of children, size of town, highest education level attained, employment status (employed or not) and income of household were included in the analysis. Religiosity is measured by three indicators: belonging to a religious denomination, attending religious services (apart from weddings, funerals and christenings) and whether a person considers oneself as a religious person or not (independently from belonging to church).

As the intention was to analyse the influence of different determinants on social capital by dimensions of social capital (formal networks, informal networks, institutional trust and norms), latent variables had to be constructed to capture all the information of several indicators into one variable. Also, as one determinant − religiosity − was described by three indicators, then in order to ensure equal weight of all determinants in analysis, latent variable of religiosity also had to be constructed. This could be done by

using confirmatory factor analysis[7] as a part of the structural equation modelling (SEM)[8] methodology. However, first, the convergent and discriminant validity had to be tested. To test whether the indicators chosen to describe a particular factor would load to the same factor, the exploratory factor analysis was conducted for the whole sample using the principal components method with equamax[9] rotation.[10] In order to test the stability of the results, other extraction methods (maximum likelihood, generalised least squares) and other rotation methods (varimax, quartimax) were implemented, but the pattern of loadings of indicators into factors remained the same.

The factor loadings and percentages of total variance explained by the factors are presented in Appendix E, Table E.1. The results show that the indicators of social capital clearly divided into five groups describing different dimensions of social capital presented on Figure 1. The extracted five factors explain altogether 63.58% of the total variance of indicators included in the analysis. Moreover, every indicator corresponds to that dimension which this indicator was assumed to measure. The factor loadings of indicators in factors which they were chosen for are ranging from 0.65 to 0.97; at the same time the factor loadings into other factors are all smaller than 0.2. Hence, the indicators chosen to describe different dimensions of social capital are valid for using them in confirmatory factor analysis as well. Analogically, principal components analysis of indicators of religiosity was performed. The

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[7] While in case of exploratory factor analysis any indicator may be associated with any factor, in case of confirmatory factor analysis the indicators describing a particular latent factor are predetermined on the basis of theoretical considerations (see, for instance, Maruyama, 1998).

[8] See, for instance, Maruyama (1998) or Kline (1998) for an overview of SEM as a method.

[9] Equamax is chosen, because it is a combination of varimax, which minimises the number of variables that have high loadings on each factor, and quartimax, which minimises the number of factors needed to explain each variable (SPSS, 2005).

[10] For the data analysis here and hereafter SPSS for Windows 11.5 and Amos 4.0 were used.

results are presented in Appendix E, Table E.2. All indicators of religiosity loaded into one factor and factor loadings are ranging from 0.82–0.84. So, these indicators can be used for describing religiosity in confirmatory analysis. Next, the results of structural equation modelling (SEM) are introduced.

4. RESULTS OF STRUCTURAL EQUATION MODELLING

In order to estimate simultaneously both the measurement model and the effects of the determinants on different dimensions of social capital, the SEM approach was used. The measurement model, which can also be referred to as confirmatory factor analysis, was constructed according to the assumptions and the results of exploratory factor analysis discussed before. Regarding the structural model, all the determinants are hypothesised to have an effect on all five dimensions of social capital[11]. Hence, the structural model consists of five (one for each dimension of social capital) equations:

$$Y_i = \sum_{j=1}^{9} \beta_{ij} X_j ,$$

where Y_i stands for *i*-th ($i = 1 \ldots 5$) dimension of social capital and X_j for *j*-th ($j = 1 \ldots 9$) determinant of social capital; β_{ij} describes the effect of *j*-th determinant on *i*-th dimension of social capital. As the number of respondents was different in different

[11] Regarding education, although previous literature has supposed non-linear effect on social capital, here only linear effect is assumed. As the intention was to perform a cluster analysis later in this study, assuming only linear effects enables to include all the effects in the cluster analysis with the equal weight. Also, the examination of the cloud of observations did not indicate non-linear relationship between education and social capital.

countries (and not connected with the population of countries), the model was estimated for all countries separately and not for the whole sample.

The full information maximum likelihood (FIML) method was used for estimation. This method enables utilising all the information available in case of missing data because in case of every observation it takes into account only variables with available data for this observation (Enders and Bandalos, 2001). All the variables were standardised before the analysis to ensure comparability of the relative fit indices calculated by AMOS. Concerning data normality, the outlier values were omitted. In order to preserve as much valuable information as possible, instead of deleting whole observations, each variable was considered separately and values more than three standard deviations away from the mean of a particular indicator (based on Kline, 1998, p. 79) were deleted. After this, the data satisfied the normality assumption with absolute values of skewness less than 3 (Kline, 1998, p. 82) and of kurtosis less than 8 (ibid.).

The estimation results for all 31 countries are not presented separately here for reasons of space. However, following generalisations can be pointed out. Regarding the fit measures, as the χ^2 (discrepancy) test may not perform adequately in case of large samples,[12] which is also the case in this study, other fit measures are used. The values of normed fit index (NFI), incremental fit index (IFI) and comparative fit index (CFI) are ranging from 0.88 to 0.96. The relative fit index (RFI) and Tucker-Lewis index (TLI) (usually showing somewhat lower values than the three above-mentioned indices for computational reasons) are ranging from 0.81–0.92. For fit indices, usually the values higher than 0.9 (Kline, 1998, p. 131;

[12] In case of large samples, the χ^2 statistic may be statistically significant (showing poor model fit) even if the differences between the observed and model-implied covariance matrix are slight (Hu and Bentler, 1999, pp. 77-78; Kline, 1998, p.128). Commonly the values of the χ^2/df ratio (discrepancy / degrees of freedom) less than 3 are considered as favourable (Kline, 1998, p. 131). Here, the values for the countries with less than 1300 observations are less than 3, but for the countries with more observations, the values are larger.

Hu and Bentler, 1999, pp. 89–91), but also those higher than 0.8 (Tsai and Ghoshal, 1998) have been considered as indicators of a good fit. Hence, all the models can be viewed as acceptable. The RMSEA (root mean square error approximation) value is ranging from 0.03 to 0.05. Whereas commonly the values less than 0.05 or 0.10 are considered as favourable (Arbuckle and Wothke, 1999), the models can be accepted according to this measure, too.

The results of the measurement model (confirmatory factor analysis) turned out to be very similar to the results of exploratory factor analysis. All the factor loadings were statistically significant at the 0.01 level (two-tailed). Hence, the confirmatory factor analysis confirms the operationalisation of the dimensions of social capital and religiosity used in this study. The results of the structural model (mean values of the regression coefficients of country groups are presented later in Table 4) showed that although many of the standardised regression coefficients are statistically significant at the 0.01 level, the absolute values of these coefficients are often lower than 0.1. The reason lies in the large sample sizes used in this study − the larger the sample size, the smaller coefficients turn out to be statistically significant. The standardised regression coefficients with absolute value less than 0.1 are often considered as small effects, while coefficients with absolute values around 0.3 can be interpreted as medium and coefficients with absolute values of 0.5 or more as large effects (Kline, 1998, pp. 149–150). However, it is questionable whether the effects with absolute values less than 0.1 indicate any influence at all. On the other hand, social capital is a quite complex phenomenon and it can be influenced by very many factors (also pointed out by Grootaert, 2004). Hence, it is reasonable to assume that the standardised coefficients describing these influences one by one cannot be very large. Taking into account these considerations, in this study the effect sizes are handled as follows. The standardised regression coefficients with absolute value between 0.07 and 0.1 are also taken into account and considered as very small effects. Regression coefficients with absolute values between 0.1 and 0.2 are considered as small effects, between 0.2 and 0.4 as medium effects, and more than 0.4 as large effects.

5. EFFECTS OF DETERMINANTS ON DIMENSIONS OF SOCIAL CAPITAL BY COUNTRY GROUPS

In order to test whether the relationships differ in the different country groups, the mean regression coefficients were computed for these country groups. First, the transition and non-transition countries are under consideration. Second, cluster analysis is used to find out whether it confirms the division of European countries into transition and non-transition countries concerning the effects of supposed determinants of social capital on its dimensions; or whether there is some other way to group these countries. Next, the methods and results of cluster analysis are briefly introduced.

The 45 regression coefficients describing the effects of nine determinants on five dimensions of social capital were saved as variables for 31 countries. Then, cluster analysis was used to group countries according to these 45 variables. The hierarchical clustering approach (see, for example, Statsoft, 2007) was used as it is considered more appropriate for small samples (Garson, 2007) and because the *k*-means clustering appeared to be very sensitive to changes in how the countries were ordered in data input. More specifically, Ward's method[13] was used, as it is an ANOVA-type approach and therefore often preferred to the other methods (ibid.); squared Euclidean distance was used as the most common distance measure (ibid.). As all variables were standardised regression coefficients, they already had same scales, so the scales were not supposed to affect the results of cluster analysis. For choosing the number of clusters the following principle was used. If adding one more cluster results in a new cluster significantly different from the previous clusters, it will be added and vice versa. Here, it seemed most reasonable to divide countries into three clusters (see Table 2).

[13] Ward's method calculates the sum of squared Euclidean distances from each case to the cluster mean of all variables. At every step, those cases are merged, which will cause the least increase in this sum (Garson, 2007; Statsoft, 2007).

Table 2. Division of countries into clusters

	Cluster 1	Cluster 2	Cluster 3
Non-transition countries	Denmark Finland Germany Iceland Nether-lands Sweden	Austria Belgium France Greece Ireland Italy Luxembourg Malta Spain	
Transition countries		Croatia Czech Republic Estonia Hungary Latvia Lithuania Poland Slovakia Slovenia	Albania Belarus Bosnia and Herzegovina Bulgaria Russian Federation Serbia and Montenegro* Ukraine

* For Serbia and Montenegro only joint data were available

As can be seen from Table 2, the first cluster includes most of the countries in Northern Europe, more specifically the northern part of it (Finland, Sweden, Iceland, Denmark) and also some adjacent countries (Germany, Netherlands), which together are forming a geographically connected region (see Figure 2). The third cluster covers the eastern part of Eastern Europe (Russian Federation, Belarus, Ukraine, Bulgaria) and eastern part of Southern Europe (Albania, Bosnia and Herzegovina, Serbia and Montenegro), also forming a geographically compact region, if the countries not included in the analysis are not taken into account. The second cluster comprises the remaining countries of Western Europe (Austria, Belgium, France, Luxembourg) adjacent to the western part of Southern Europe (Spain, Italy, Greece, Malta, Slovenia, Croatia), the western part of Eastern Europe (the Czech Republic, Hungary, Poland, Slovakia) and the southern part of Northern

Europe (Estonia, Latvia, Lithuania, Ireland). Hence, the results show three clearly geographically distinguishable and hence probably also historically and culturally distinguishable clusters. As regards the status of transition, the first cluster includes non-transition countries, the second cluster both countries, and the third cluster contains only transition countries. The first cluster can be also named as northern non-transition countries and the third cluster as eastern transition countries. The second cluster includes both southern non-transition countries and western transition countries.

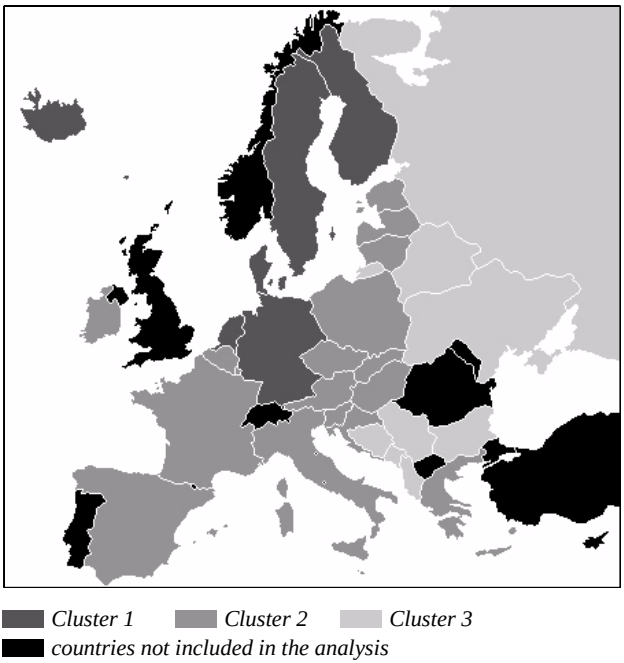

Figure 2. Geographical overview of the results of cluster analysis (blank map: Wikipedia, 2007)

To shed some light on the level of the five dimensions of social capital in the clusters analysed, as background information, the mean values of factor scores[14] describing the level of social capital

[14] To enable the comparison of countries the factor scores originate from the exploratory factor analysis of the whole sample.

by dimensions for all three clusters are introduced in Table 3. For better interpretation, for second cluster the mean values of transition and non-transition countries are presented (in parentheses) as well. Also, for comparison, mean values for all non-transition and all transition countries are added as well.

It can be seen from Table 3 that the level of social capital is higher in non-transition countries than in transition countries for all the dimensions. Considering the three clusters, the results provide support to common knowledge. The first cluster including northern part of Northern Europe, Germany and Netherlands, has on average significantly higher factor scores in all the dimensions, especially in case of formal networks and both general and institutional trust. Regarding the other two clusters, generally, the third cluster tends to have less formal networks and institutional trust compared to the second cluster. The same holds for the transition countries in the second cluster compared to the non-transition countries in the same cluster. The amount of informal networks is surprisingly lower in the second cluster than in the third cluster and when considering the second cluster separating non-transition and transition countries, it can be seen, that the main cause lies in transition countries. This can be partly explained by the assumption that in more successful transition countries the old networks are broken down and the new networks have not yet developed, while in less successful eastern transition countries the old networks are still extant. The level of general trust is almost the same in these two clusters, although inside the second cluster, the general trust is higher in non-transition countries. Hence, considering informal networks and general trust, there is a clear distinction between the transition countries belonging to the second cluster and those belonging to the third cluster. It is also worth mentioning that in case of norms the differences between clusters are quite small, however.

Table 3. Mean factor scores* for dimensions of social capital for different country groups

Dimension of social capital	All non-transition countries	All transition countries	Cluster 1 northern non-transition countries	Cluster2	(Cluster 2, divided)		Cluster 3 eastern transition countries
					(southern non-transition countries)	(western transition countries)	
Formal networks	0.23	–0.15	0.50	–0.05	(0.04)	(–0.15)	–0.14
Informal networks	0.09	–0.12	0.20	–0.11	(0.01)	(–0.23)	0.02
General trust	0.24	–0.17	0.58	–0.10	(0.01)	(–0.21)	–0.11
Institutional trust	0.24	–0.12	0.38	0.04	(0.16)	(–0.07)	–0.19
Norms	0.06	–0.10	0.16	–0.06	(–0.01)	(–0.12)	–0.08

* According to the technique of computing factor scores, the mean factor scores for the whole sample are equal or close to 0 and the factor scores are measured in standard deviations.

Table 4 presents the mean standardised regression coefficients describing the effects of determinants of social capital in the different country groups. As the coefficients presented are the mean values of the particular coefficients in countries included into the particular sample, the indicators of statistical significance of these values are not available. Still, it has to be pointed out that the results of structural model estimation showed that all coefficients with absolute value higher than 0.07 were statistically significant at least at the 0.10 level. Moreover, here, the size of effect is of more importance − a coefficient with the absolute value lower than 0.07 cannot be viewed as indicating any effect, even if it turns out to be statistically significant.

As can be seen from Table 4, age has a medium effect on informal networks in both transition and non-transition countries − younger people have more informal networks. The effect of age on norms is medium-sized in the whole sample and in transition countries, while in non-transition countries it was somewhat smaller. This effect is positive − older people have higher norms. The positive effect of age on institutional trust is very small. The effect of age on other dimensions of social capital can be viewed as non-existing or very small.

Gender and marital status appeared to have only small or very small effect on informal networks. Men tend to have more informal networks than women and this influence is somewhat stronger in transition countries. Married persons tend to have less informal networks, and this effect is somewhat stronger in non-transition countries. In addition, gender has also a rather very small effect on norms − women tend to have somewhat higher norms than men. The effects of gender and marital status on other dimensions of social capital can again be viewed as non-existing or very small. Also, it turned out that in northern non-transition countries belonging to the first cluster, unlike in other non-transition countries, there is no effect of gender on informal networks. That means that in northern non-transition countries, men and women have equal amount of informal networks. Analogically, it can be said that in eastern transition countries belonging to the third cluster, the effect of marital status on informal networks is significantly smaller than in other countries. Hence, in eastern transition countries marriage decreases the informal networks to smaller extent.

Table 4. Mean standardised regression coefficients for different country groups

Deter-minant	Dimension of social capital	All countries	All non-transition countries	All transi-tion countries	Cluster 1 northern non-transi-tion countries	Cluster 2	(Cluster 2, divided) (southern non-transi-tion countries)	(western transition countries)	Cluster 3 eastern transition countries
Age	Formal networks	0.03	0.08	–0.01	0.04	0.05	**(0.11)**	(–0.01)	–0.02
	Informal networks	**–0.32**	**–0.32**	**–0.32**	**–0.38**	**–0.33**	**(–0.27)**	**(–0.38)**	**–0.25**
	General trust	0.03	0.05	0.02	–0.01	0.06	(0.09)	(0.03)	0.02
	Institutional trust	0.08	0.09	0.07	0.04	0.09	**(0.12)**	(0.06)	**0.10**
	Norms	**0.22**	**0.18**	**0.25**	**0.18**	**0.21**	**(0.18)**	**(0.25)**	**0.24**
Gender (male)	Formal networks	0.05	0.04	0.07	0.03	0.07	(0.05)	(0.08)	0.04
	Informal networks	**0.11**	0.08	**0.14**	–0.01	**0.14**	**(0.14)**	**(0.13)**	**0.16**
	General trust	0.02	0.01	0.02	0.01	0.02	(0.02)	(0.02)	0.02
	Institutional trust	0.01	0.04	–0.01	0.05	0.00	(0.04)	(–0.03)	0.01
	Norms	–0.09	**–0.10**	–0.07	**–0.13**	–0.08	(–0.08)	(–0.08)	–0.06
Married	Formal networks	–0.02	–0.01	–0.03	0.00	–0.02	(–0.02)	(–0.03)	–0.02
	Informal networks	**–0.15**	**–0.16**	**–0.13**	**–0.17**	**–0.16**	**(–0.16)**	**(–0.16)**	–0.09
	General trust	–0.02	–0.01	–0.03	0.00	–0.04	(–0.02)	(–0.05)	–0.02
	Institutional trust	0.00	0.02	–0.01	0.03	0.00	(0.01)	(–0.01)	–0.01
	Norms	0.06	0.07	0.06	0.08	0.05	(0.06)	(0.04)	0.09
Children	Formal networks	0.01	0.00	0.01	0.01	0.00	(0.00)	(0.00)	0.02
	Informal networks	–0.08	**–0.10**	–0.07	–0.05	**–0.10**	**(–0.13)**	(–0.07)	–0.07
	General trust	0.01	–0.01	0.02	0.00	0.00	(–0.02)	(0.02)	0.02
	Institutional trust	–0.02	–0.05	0.00	–0.07	–0.02	(–0.04)	(0.00)	0.00
	Norms	0.01	0.01	0.01	–0.01	0.02	(0.02)	(0.03)	–0.02

Deter-minant	Dimension of social capital	All countries	All non-transition countries	All transi-tion countries	Cluster 1 northern non-transi-tion countries	Cluster 2	(Cluster 2, divided)		Cluster 3 eastern transition countries
							(southern non-transi-tion countries)	(western transition countries)	
Town size	Formal networks	–0.03	–0.04	–0.03	–0.04	–0.05	(–0.03)	(–0.07)	0.02
	Informal networks	–0.01	0.00	–0.02	0.01	–0.02	(–0.01)	(–0.02)	–0.03
	General trust	–0.01	–0.01	–0.01	–0.04	0.00	(0.00)	(–0.01)	–0.02
	Institutional trust	–0.03	0.00	–0.07	0.00	–0.02	(0.00)	(–0.03)	**–0.11**
	Norms	–0.01	–0.02	0.00	0.01	–0.02	(–0.04)	(0.00)	0.00
Edu-cation	Formal networks	**0.18**	**0.21**	**0.16**	**0.21**	**0.20**	**(0.21)**	**(0.18)**	**0.13**
	Informal networks	0.09	**0.10**	0.08	0.07	**0.10**	**(0.12)**	(0.08)	0.08
	General trust	**0.11**	**0.15**	0.07	**0.19**	**0.12**	**(0.13)**	**(0.11)**	0.01
	Institutional trust	0.03	0.09	–0.02	**0.11**	0.02	(0.07)	(–0.04)	0.01
	Norms	0.04	0.03	0.05	0.03	0.04	(0.03)	(0.04)	0.05
Emp-loyed	Formal networks	0.07	0.06	0.08	0.08	0.03	(0.05)	(0.02)	**0.15**
	Informal networks	0.05	0.01	0.08	–0.06	0.03	(0.05)	(0.00)	**0.19**
	General trust	0.02	0.02	0.01	0.01	0.03	(0.03)	(0.03)	–0.02
	Institutional trust	–0.07	–0.06	–0.08	–0.08	–0.06	(–0.06)	(–0.07)	–0.09
	Norms	–0.01	–0.01	0.00	–0.02	0.00	(–0.01)	(0.01)	–0.01
Income	Formal networks	0.08	**0.12**	0.05	**0.12**	0.09	**(0.11)**	(0.07)	0.03
	Informal networks	0.06	0.05	0.07	0.01	0.07	(0.07)	(0.07)	0.06
	General trust	0.07	0.09	0.05	0.06	0.08	**(0.11)**	(0.05)	0.05
	Institutional trust	0.05	0.05	0.06	0.05	0.06	(0.04)	(0.07)	0.03
	Norms	–0.01	0.02	–0.04	0.04	0.01	(0.01)	(0.00)	–0.09

Deter-minant	Dimension of social capital	All countries	All non-transition countries	All transition countries	Cluster 1 northern non-transi-tion countries	Cluster 2	(Cluster 2, divided)		Cluster 3 eastern transition countries
							(southern non-transi-tion countries)	(western transition countries)	
Reli-gious	Formal networks	**0.15**	**0.21**	**0.10**	**0.35**	**0.13**	**(0.12)**	**(0.13)**	0.06
	Informal networks	0.06	**0.10**	0.03	**0.16**	0.05	(0.06)	(0.03)	0.03
	General trust	0.04	0.04	0.04	0.04	0.04	(0.03)	(0.04)	0.04
	Institutional trust	**0.15**	**0.22**	0.09	**0.20**	**0.15**	**(0.23)**	(0.07)	**0.11**
	Norms	**0.11**	**0.16**	0.06	**0.16**	**0.12**	**(0.16)**	(0.08)	0.04

Coefficients larger than or equal to 0.10 are in bold, coefficients larger or equal to 0.07 are shaded.

Number of children proved to have no considerable effect on social capital, except a very small negative effect on informal networks − persons with more children have somewhat less informal networks. Concerning non-transition countries, it turns out that this effect exists only in southern non-transition countries, while in northern non-transition countries the number of children does not influence the amount of informal networks. Town size also appeared to have no influence with one exception − in eastern transition countries (and not in the other clusters) it appears to have an effect on institutional trust − persons living in larger towns have less confidence in institutions.

There are some interesting results concerning the influence of employment status. While considering the groups of transition and non-transition countries, there appeared to be only small or even non-existing effects of employment on both formal and informal networks, then the clustering approach showed that unlike in other countries, in eastern transition countries employed persons have a significant advantage in forming both formal and informal networks.

The education level of a person appeared to increase formal networks, especially in non-transition countries, where the effect is of medium size, while in transition countries the effect is smaller. A positive effect of education on informal networks is even smaller in all samples. In non-transition countries, the education level has also a small positive effect on general trust; in transition countries this effect is very small. In case of the positive effect of education on institutional trust, the distinction line goes rather between the transition and non-transition countries than between the clusters − the effect exists only in non-transition countries. Regarding norms, education turned out to have no effect. Regarding income, there appeared a positive effect of income on formal networks, except in eastern transition countries. At the same time, a positive effect of income on general trust is somewhat higher in southern non-transition countries than in other countries. Also, although there seems to be no effect of income on norms in either transition or non-transition countries, clustering approach shows that there is a small effect in eastern transition countries − persons with higher income have lower level of norms.

Religiosity appears to be one of the strongest determinants of social capital and the effects are larger in non-transition countries. There is a positive effect of religiosity on formal networks and it is largest in northern non-transition countries and does not exist in eastern transition countries. Unlike in other countries in northern non-transition countries religious persons tend to have a significant advantage in forming informal networks. In case of a positive effect of religiosity on institutional trust and norms, the distinction line goes rather between the transition and non-transition countries than between the clusters and the effect is larger in non-transition countries. General trust appeared not to be influenced by religiosity at all.

Based on these results, it can be concluded that clustering the countries has added much information about the determinants of social capital in the different groups of countries enabling to explore further the differences between transition and non-transition countries by dividing transition countries between the second and the third cluster, and non-transition countries between the first and the second cluster.

6. DISCUSSION

The results of this paper provide significant support for the argument that the different dimensions of social capital have to be analysed separately − this holds also for analysing the determinants of social capital. All analysed determinants appeared to have different influence on different dimensions. As one of the most striking cases, age turned out to have a negative effect on informal networks, but positive effect on norms, and in some country groups also on formal networks and institutional trust. Also, in most country groups men tend to have more informal networks, but lower norms than women. In eastern transition countries employed persons appeared to have more networks, but less institutional trust than other persons. Hence, the determinants of social capital are not the same for all the dimensions.

Next, it can be concluded that most of the results of this paper are in accordance with the theoretical suppositions and the findings of previous research. In many cases the results confirmed the supposed effect or its non-existence. In cases where previous results have given mixed results (positive or negative effect), there turned out to be no effect in this analysis. In cases where previous results have shown both statistically significant positive and statistically non-significant effect, in the current analysis the effect turned out to be positive, but small or very small.

However, there are also some results differing from previous empirical results. When previous research has shown no effect of marital status on informal networks, here it turned out that married people have significantly less informal networks. Next, previous results allowed to suppose that town size has a negative effect on formal networks, but here the effect of town size on formal networks turned out to be so small that it has to be viewed as non-existent. Analogically, it could be expected that the effect of income on institutional trust is positive, but there was rather no effect in this analysis. Also, the positive effect of religiosity on informal networks appeared only in case of northern non-transition countries, in other country groups there was no such effect. At last, while previous results concerning the effect of gender on informal networks are mixed, according to the current analysis, men tend to have more informal networks than women.

For some influences tested in the current analysis there are no previous results to compare with. Regarding the effects of marital status, number of children and town size on cognitive dimensions of social capital, mostly, there appeared to be no effect at all. There are only following exceptions: married people tend to have higher norms in some country groups; in northern non-transition countries people with more children tend to have less institutional trust; and in eastern transition countries people living in smaller towns have more institutional trust. Hence, the previously unanalysed effects are only marginal in determining social capital.

When looking at the effects by dimensions, it can be pointed out that among the dimensions of social capital, general trust is least affected by the determinants analysed in the current study. This

can be explained by the fact that the within-country variance is smaller in case of general trust than in case of other dimensions of social capital. In eastern transition countries the determinants analysed have no influence at all on general trust. On the whole, the cognitive dimensions of social capital (general trust, institutional trust and norms) are influenced by smaller number of determinants than the structural dimensions (formal networks, informal networks). On the other hand, informal networks and norms are dimensions on which the effects of determinants are most similar in all country groups. At the same time, in case of formal networks there is the greatest variation in the determinants.

On the other hand, when comparing the effects by determinants, age, education and religiosity are the most important sources of social capital among the determinants analysed in this study. These three determinants are followed by income and gender. Town size and the number of children are the determinants with the least influence on social capital.

Regarding possible differences between transition and non-transition countries, the results contradict the conclusions of Fidrmuc and Gėrxhani (2005) who argue that there are no differences between old and new members of European Union concerning the effects of various determinants on social capital. Although their analysis covered fewer countries than the current study, the country groups are basically the same − the new members are viewed as transition countries in this study and the old members as non-transition countries.[15] In this study it turned out that there are many considerable differences between these country groups. The positive effects of religiosity on institutional trust and norms are remarkably larger in non-transition countries than in transition countries. The positive effect of age on norms can serve as another example − it is also much larger in non-transition countries. However, there appeared no cases where the coefficients describing the particular effect are with different sign and both of them also statistically significant. Hence, there are differences worth pointing out, but the differences are not very

[15] The only exception is Malta, which is a new member of European Union, but is a non-transition country.

extreme − the differences are rather in the existence and size than in the sign of the effect.

In addition, it seems reasonable to distinguish subgroups of both transition and non-transition countries. The conducted cluster analysis indicated that according to the effects of determinants on social capital, transition countries can be divided into eastern and western transition countries, and analogically non-transition countries into northern and southern non-transition countries. Comparing the coefficients of these subgroups showed many considerable differences inside both the transition and non-transition countries.

Regarding non-transition countries, for example, the positive effect of religiosity on formal networks turned out to be much larger in northern countries. As the northern countries are mainly Protestant countries, this result is in accordance with the previous results, which showed that although religiosity (church attendance) had always positive effect on formal networks, Protestant religion had positive and Catholic religion negative effect (Oorschot et al, 2006) – in northern countries the positive effects cumulate, while in southern countries with more Catholic background, the positive effect of religiosity is decreased by the negative effect of Catholic background. Also, the negative effect of age on informal networks is larger in northern non-transition countries. The reason can lie in the fact that these countries have high welfare and well-developed social security system because of this and the old people live rather alone than with the family, it is also possible that in southern countries older people live rather with the family because of cultural traditions.

Also, there are some effects in southern non-transition countries, like the effects of age on formal networks and institutional trust, of gender and the number of children on informal networks, of income on general trust, which do not appear to exist in northern non-transition countries. It can be supposed that in northern non-transition countries the level of social capital is high for all persons and does not depend on socio-demographic factors to the same extent as in other countries. To the contrary, the effects of education on institutional trust and religiosity on informal networks

turned out to exist in northern, but not in southern non-transition countries. The last result confirms the supposition that in northern countries the positive influences of religiosity as a whole and Protestant background cumulate, while in southern countries the more Catholic background eliminates the positive effect of religiosity.

Concerning transition countries, analogically to non-transition countries, the negative effect of age on informal networks is larger in western non-transition countries. The explanations are similar to those discussed by non-transition countries. Again, there are some effects in eastern transition countries, which do not appear to exist in western transition countries. The negative effect of town size on institutional trust in eastern transition countries may indicate that the influences of determinants on social capital may depend on the level of social capital, and may be related to the fact that in these countries institutional trust is extremely low (see Table 3). The positive effect of employment on formal and informal networks in eastern transition countries can be explained by looking at the membership of voluntary organisations by type of organisations – in most of these countries people belong mainly to the labour unions. Also, it is possible, that in these countries the culture is more family-oriented and the employment is crucial for developing informal networks. At the same time, the effects of education on general trust and of religiosity on formal networks exist in western transition countries (like also in non-transition countries), but not in eastern transition countries. The last can be explained analogically to the case of non-transition countries, with the more Protestant background of western transition countries. Also, in eastern transition countries marriage decreases the informal networks to smaller extent. The explanation of this result can lay in a different life style − young couples stay to live with their parents or to remain in intense communication with them.

7. LIMITATIONS AND FUTURE RESEARCH

Some limitations should be recognised with respect to this study and can be viewed as possible directions for future research. First, not all European countries were included in the analysis because of data unavailability – (see also Figure 2). Therefore, when more complete data will become available, possibly, for example, after the next wave of WVS is performed, it would be interesting to rerun the analysis.

Next, this study focussed only on the direct effects of various determinants on dimensions of social capital. However, it can be assumed that the determinants of social capital also influence each-other and so have also indirect effects on social capital through other determinants. Earlier, Knack and Keefer (1997) and Glaeser et al (2002) have raised the causality issues concerning the inter-relationship between education, income, age and social capital. Hence, this study can be extended by including interrelationships between the determinants of social capital in the structural model. Thereby, the theoretical reasoning behind these relationships should be thoroughly discussed. Moreover, it can be assumed that the different dimensions of social capital also have influence on each other. After this topic has been thoroughly discussed, it could be useful to include these influences in the model as well. This approach enables to separate the direct effects of a particular determinant on a particular dimension of social capital from the indirect effect (if it exists) through another dimension.

In addition, it can be assumed that the influence of a particular determinant on a particular dimension of social capital may depend on the level of that dimension of social capital or even on the level of that particular determinant. This assumption could also be tested in future research. Also, it would be interesting to examine, whether there could be found a time lag in the influences of the determinants on social capital. So, if the appropriate data become available, the influences could be retested using time lag.

This study focussed only on the individual or micro-level determinants of social capital. Nevertheless, there are also macro-level determinants, such as national wealth, income distribution, economic freedom, corruption. On one hand, these factors certainly affect the level of social capital in different countries. On the other hand, when the analysis is performed separately for each country like in this article, the differences in values of macro-level variables between countries have no influence on the results concerning the effects of micro-level determinants. However, when analysing the differences between the transition countries and other countries with no communist background, these factors can be important both as supplementary sources of social capital and as factors influencing the effect of micro-level determinants. Therefore, future studies could supplement the findings of the current article concerning macro-level sources of social capital.

At last, this study likely does not cover all micro-level determinants as well. Grootaert (2004) has pointed out that the models trying to capture the sources of social capital (analysing the social capital as a dependent variable) are much more complex than the models addressing the possible influences of social capital on other phenomena – only the small subset of a total set of variables influencing social capital can be covered using available data. Therefore, this study can be viewed as only a step toward better understanding of sources of social capital and there are many possibilities to supplement in future studies.

8. CONCLUSIONS

In summary, this paper examined the possible sources of different dimensions of social capital at the individual level. Although previous literature is far from comprehensive, theoretical considerations and previous research allowed to assume that education and income are the strongest individual-level determinants of social capital, but also that many other determinants and religiosity have to be considered as possible determinants. In this article, age, gender, marital status, number of children, town size, education, employment status, income and religiosity were investigated as

determinants of social capital. Social capital was included in the analysis by five separate dimensions – formal and informal networks, general and institutional trust, and norms.

The data of 31 European countries, including 16 transition countries, originating from World Values Survey were analysed. Along with the factor analysis used for the measurement of latent variables, structural model including the effects of all 10 determinants on all five dimensions of social capital was estimated for both the whole sample and 31 countries separately. To test whether division of European countries concerning the sources of social capital follows the line between transition and non-transition countries, cluster analysis was conducted. Comparing the mean values of the coefficients describing the effects of various determinants on different dimensions of social capital in the different country groups, the following conclusions can be made.

First, the findings provide strong support for the argument that while analysing the determinants of social capital different dimensions of social capital have to be analysed separately. All analysed determinants appeared to have different influence on different dimensions – while a particular determinant has a positive effect on one dimension of social capital, its effect on another dimension of social capital can be negative or non-existing.

Second, most of the results of this paper are in accordance with the theoretical suppositions and the results of previous studies. Nevertheless, there are also some results differing from previous findings. In case of some effects examined in the current analysis there were no previous results to compare with – however, these effects appeared to be marginal in their size.

Third, when comparing the effects by dimensions, it turned out that among dimensions of social capital, general trust is least affected by the determinants analysed in the current study. Also, the cognitive dimensions of social capital (general trust, institutional trust and norms) are influenced by smaller number of determinants than the structural dimensions (formal networks, informal networks). At the same time, informal networks and norms are the dimensions, on which the effects of determinants are most similar in all country

groups. In case of formal networks there is the greatest variation in determinants. Looking by the determinants, age, education and religiosity are the most important sources of social capital among the determinants analysed in this study, followed by income and gender.

Fourth, regarding the possible differences between transition and non-transition countries, the results contradict the previous research − it turned out that there are many considerable differences between transition and non-transition countries. Yet, the differences are rather in the existence and size than in the sign of the effect. Also, the cluster analysis indicated that it is reasonable to distinguish subgroups of both transition and non-transition countries. The transition countries can be divided into eastern and western transition countries; the non-transition countries into northern and southern non-transition countries. There were many considerable differences inside both the transition and non-transition countries.

This study has also some limitations. Not all European countries were included in the analysis because of data unavailability. Also, the interrelationships between the different determinants of social capital and also between the different dimensions of social capital could be included in the analysis in future. In addition, the possible dependence of the influence on the levels of determinants or social capital, or the time lag in the influences could be tested. At last, the study can be supplemented by adding macro-level and possible additional micro-level determinants. However, despite these limitations, this study indicates that the sources of social capital are remarkably different in transition and non-transition countries, but also that in both of these country groups, subgroups have to be distinguished.

REFERENCES

Arts, W., Halman, L. (eds) (2004). *European Values at the Turn of the Millennium*. Brill, Leiden.

Adam, F. (2006). '*Social Capital across Europe – Findings, Trends and Methodological Shortcomings of Cross-National Surveys*'. Social Science Research Centre, Berlin.

Alesina, A., Ferrara, E. (2000). 'The Determinant of Trust'. *NBER Working Paper*, No. 7621.

Arbuckle, J. L.; Wothke, W. (1999) '*Amos 4.0 User's Guide*.' Chicago: SPSS, 452 p.

Banks, J.; Tanner, S. (1998). 'Modelling Voluntary Labour Supply'. *Institute for Fiscal Studies Working Paper,* No. 17.

Bartkowsky, J., Jasińska-Kania, A. (2004). 'Voluntary Organizations and the Development of Civil Society'. In Arts, W. and Halman, L. (eds), *European Values at the Turn of the Millennium*. Brill, Leiden, pp. 109-138.

Bjørnskov, C. (2003). 'Corruption and Social Capital'. *Aarhus University Working Paper Series*, No. 13.

Bolin, K.; Lindgren, B.; Lindström, M.; Nystedt, P. (2003). 'Investments in Social Capital – Implications of Social Interactions for the Production of Health'. *Social Science & Medicine*, Vol. 56, pp. 2379–2390

Bourdieu, P. (1985). 'The Forms of Capital'. In J. G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education*, Greenwood, New York, pp. 241–258.

Brown, E.; Lankford, H. (1992). 'Gifts of money and gifts of time: estimating the effects of tax prices and available time'. *Journal of Public Economics*, Vol. 47, pp. 321–341.

Christoforou, A. (2005). 'On the Determinants of Social Capital in Greece Compared to Countries of the European Union'. *FEEM Working Paper*, No. 68.

Coleman, J. (1988). 'Social Capital in the Creation of Human Capital'. *American Journal of Sociology*, Vol. 94 (Supplement).

Delhey, J.; Newton, K. (2005). 'Predicting Cross-National Levels of Social Trust: Global Patterns or Nordic Exceptionalism'. *European Sociological Review*, Vol. 21, No. 4, pp. 311–327.

Denny, K. (2003). 'The Effects of Human Capital on Social Capital: A Cross-Country Analysis'. *The Institute for Fiscal Studies Working Paper* No. 16, [http://www.ifs.org.uk/wps/wp0316.pdf] 30.06.2005

Enders, C. K.; Bandalos, D. L. (2001) 'The Relative Performance of Full Information Maximum Likelihood Estimation for Missing Data in Structural Equation Models.' – *Structural Equation Modeling*, Vol. 8, No. 3, pp. 430–457.

Fidrmuc, J.; Gerxhani, K. (2004). 'Formation of Social Capital in Eastern Europe: Explaining Gap vis-à-vis Developed Countries'. *CEPR Discussion Paper* No. 5068.

Fukuyama, F. (1995). *Trust: The Social Virtues and the Creation of Prosperity.* New York, The Free Press.

Fukuyama, F. (2001). 'Social Capital, Civil Society and Development'. *Third World Quarterly*, Vol. 22, No. 1, pp. 7–20.

Garson, G. D. (2007) '*Cluster analysis*' [http://www2.chass.ncsu.edu/garson/PA765/cluster.htm], 16.04.2007.

Glaeser, E. L.; Laibson, D.; Sacerdote, B. (2002). 'The Economic Approach to Social Capital'. *The Economic Journal*, Vol. 112, pp. F437–F458.

Granovetter, M.S. (1973). 'The Strength of Weak Ties'. *The American Journal of Sociology*, Vol. 78, No. 6, pp. 1360–1380.

Grootaert, C.; Narayan, D; Woolcock, M.; Nyhan-Jones, V. (2004). 'Measuring Social Capital: An Integrated Questionnaire', *World Bank Working Paper*, No. 18.

Halman, L.; Luijkx, R. (2006). 'Social Capital in Contemporary Europe: Evidence from the European Social Survey'. *Portuguese Journal of Social Science,* Vol. 5, No. 1, pp. 65–90.

Halpern, D. (2005). *Social Capital*. Polity Press, London.

Helliwell, J. F.; Putnam, R. D. (1999). 'Education and Social Capital'. *NBER Working Paper Series*, No. 7121.

Hjøllund, L.; Svendsen, G. T. (2000). 'Social Capital: A Standard Method of Measurement'. *Aarhus University Working Paper Serie*s, No. 9.

Hu, L.-T.; Bentler, P. M. (1995) 'Evaluating Model Fit.' (1995) In R. H. Hoyle (Ed.) *Structural equation modeling: Concepts, issues and application*. Thousand Oaks, CA: Sage, pp. 76–99.

Inglehart, R. (1990). *Culture Shift in Advanced Industrial Society.* Princeton, NJ, Princeton University Press.

Inglehart, R.; Basánez, M; Díez-Medrano, J.; Halmann, L.; Luijkx, R. (eds.) (2004) '*Human beliefs and values: a cross-cultural sourcebook based on the 1999–2002 values surveys.*' Mexico City: Siglo XXI Editores.refs43213070000000000466.pdf], 16.01.2007.

Kline, R. B. (1998) '*Principles and Practice of* Structural *Equation Modeling*.' New York, NY: Guilford Press, 354 p.

Knack, S.; Keefer, P. (1997) 'Does social capital have an economic payoff? A Cross-country investigation.' *Quarterly Journal of Economics*, Vol. 112, No. 4, pp. 1251–1288.

Maruyama, G. M. (1998) '*Basics of Structural Equation Modeling*.' Thousand Oaks, CA: Sage, 311 p.

Montgomery, J. (ed). (1990). *Values in Education: Social Capital Formation in Asia and the Pacific*. Hollis, New Hampshire, Hollis Publishing Company.

Mueller, D. (1989). *Public Choice II*. Cambridge, UK, Cambridge University Press.

Narayan, D.; Cassidy, M. F. (2001). 'A Dimensional Approach to Measuring Social Capital: Development and Validation of a Social Capital Inventory'. *Current Sociology*, Vol. 49, No. 2, pp. 59–102.

Offe, C., Fuchs, S. (2002). 'A Decline of Social Capital? The German Case'. In Putnam, R. (ed), *Democracies in Flux: The Evolution of Social Capital in Contemporary Society,* Oxford University Press, Oxford.

Paldam, M. (2000). 'Social Capital: One or Many? Definition and Measurement'. *Journal of Economic Surveys*, Vol. 14, No.5, pp. 629–653.

Putnam, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, Princeton University Press.

Putnam, R. (2000). *Bowling Alone*. Simon and Schuster.

Rose, R. (1999). 'What Does Social Capital Add to Individual Welfare? An Empirical Analysis of Russia'. *The World Bank Social Capital Initiative Working Paper*, No. 15.

Rothstein, B. and Stolle, D. (2003). 'Social Capital, Impartiality, and the Welfare State: An Institutional Approach'. In M.Hooghe and D. Stolle (eds.) *Generating Social Capital*, Palgrave, pp. 141–156.

Soroka, S. N., Helliwell, J. F., Johnston, R. (2003). 'Measuring and Modelling Trust'. In Kay, F. and Johnston, R. (eds) *Diversity, Social Capital and the Welfare State*, Vancouver, BC: University of British Columbia Press.

SPSS (2005) SPSS Base 14.0 User's Guide. [http://cmsprod.bgu.ac.il/NR/rdonlyres/ 838C0ECE-46F7-432B-A503-BE016AFF689F/0/SPSSBaseUserGuide140.pdf], 13.01.2007.

Statsoft (2007) '*Cluster analysis*' [http://www.statsoft.com/textbook/stcluan.html#k], 16.04.2007.

Tsai, W.; Ghoshal, S. (1998) 'Social Capital and Value Creation: The Role of Intrafirm Networks.' *Academy of Management Journal*, Vol. 41, No.4, pp. 464–476.

Uslaner, E. M. (1995). 'Faith, Hope, and Charity: Social Capital, Trust, and Collective Action'. Mimeo, University of Maryland, College Park.

Uslaner, E. M. (2002). 'Strategic Trust and Moralistic Trust'. In *The Moral Foundations of Trust*, Cambridge University Press, pp. 14–50.

Uslaner, E. M., (2003). 'Trust and Civic Engagement in East and West'. In Badescu, G.; Uslaner, E. M. (eds), *Social Capital and the Transition to Democracy*, pp. 81–94.

van Oorshot, W., Arts, W. (2005). 'Social Capital of European Welfare States: the Crowding Out Hypothesis Revisited'. *Journal of European Social Policy*, Vol. 15, No. 1, pp. 5–26.

van Oorshot, W.; Arts, W., Gelissen, J. (2006). 'Social Capital in Europe: Measurement, and Social and Regional Distribution of a multi-faceted phenomenon'. *CCWS Working Paper* No. 44, Aalborg University.

Whiteley, P. (1999). ,The Origins of Social Capital'. In Van Deth, J.W., Maraffi, M. and Whiteley, P. (eds), *Social Capital and Europesn Democracy*. London, Routledge, pp. 25–44.

Wikipedia (2007) '*Europe*' [http://en.wikipedia.org/wiki/Europe], 17.04.07.

World Values Survey (2006) [http://www.worldvaluessurvey.org/], 20.03.2007.

KOKKUVÕTE

Sotsiaalkapitali mõjurid indiviidi tasandil Euroopas: erinevused riigigruppide vahel

Viimasel kümnendil on sotsiaalkapital leidnud aktiivset käsitlemist arengufaktorina nii indiviidi- kui ka riigi tasandil. Samuti on varasem uurimistöö näidanud, et sotsiaalkapital võib nii indiviiditi kui riigiti märkimisväärselt erineda. Nende erinevuste mõistmiseks on vajalik mõista sotsiaalkapitali koostist ja allikaid. Kahjuks on sotsiaalkapitali mõjureid seni empiiriliselt vähe uuritud. Käesoleva artikli eesmärgiks on selgitada erinevate faktorite mõju sotsiaalkapitalile Euroopas indiviiditasandil ning uurida, kas selles osas on erinevusi vanade lääne demokraatiate ja siirderiikide vahel. Kasutatakse Maailma Väärtushinnangute Uuringu andmeid 31 Euroopa riigi (neist 16 siirderiigid) kohta.

Artikli uudsus seisneb järgmistes aspektides. Esiteks pole enamus varasemaid uuringuid pööranud tähelepanu siirderiikide ja nn mittesiirderiikide erinevustele. Teiseks hõlmab käesolev uurimus rohkem võimalikke mõjureid kui varasemad uuringud: vanus, sugu, perekonnaseis, laste arv, elukohaks oleva asula suurus, haridus, hõive staatus, sissetulek ja religioossus. Lisaks, kui varasemad uurimused on tihti piirdunud väiksema hulga sotsiaalkapitali dimensioonidega, vaadeldakse käesolevas artiklis viit dimensiooni: formaalsed ja informaalsed võrgustikud, üldine ja institutsionaalne usaldus ning normid.

Sotsiaalkapitali mõõtmiseks kasutatakse avastaval faktoranalüüsil tuginevat kinnitavat faktoranalüüsi. Nii mõõtmismudel kui ka struktuurne mudel on hinnatud kõigi 31 riigi jaoks eraldi. Et riigiti on vastanute arv erinev, siis on leitud mõjusid kirjeldavate regressioonikoefitsientide keskmised esmalt siirderiikide ja mittesiirderiikide jaoks. Seejärel on kõik mõjukoefitsiendid salvestatud muutujana kõigi 31 riigi jaoks. Saadud muutujate alusel on läbi viidud klasteranalüüs kontrollimaks, kas klasteranalüüs kinnitab riikide jaotust siirde- ja mittesiirderiikideks. Klasteranalüüsi tulemusena saadi kolm klastrit: esimesse klastrisse koondusid põhjapoolsed

mittesiirderiigid, teise lõunapoolsed mittesiirderiigid ja läänepoolsed siirderiigid, kolmandasse idapoolsed siirderiigid.

Tulemused näitavad, et sotsiaalkapitali allikate analüüsil tuleb kindlasti vaadelda sotsiaalkapitali erinevaid dimensioone eraldi − mõjurite mõju erinevatele sotsiaalkapitali erinevatele dimensioonidele on erinev. Samuti võib öelda, et enamus saadud tulemusi on kooskõlas varasemate tulemustega. Võrreldes mõjusid sotsiaalkapitali dimensiooniti selgus, et üldine usaldus on kõige vähem mõjutatud vaatlusaluste mõjurite poolt. Samuti on kõik kognitiivsed dimensioonid (üldine ja institutsionaalne usaldus ja normid) mõjutatud vähemate mõjurite poolt kui strukturaalsed dimensioonid (formaalsed ja informaalsed võrgustikud). Mõjude erinevused riigigrupiti on kõige suuremad formaalsete võrgustike puhul. Mõjurite kaupa vaadeldes võib välja tuua, et kõige rohkem mõjutavad sotsiaalkapitali vanus, haridus ja religioossus, samuti sissetulek ja sugu.

Siirderiikide ja mittesiirderiikide erinevuste osas olid tulemused erinevad varasemast vastavasisulisest uurimusest − ilmnes, et nimetatud riigigruppide vahel on erinevused olemas. Siiski seisnevad erinevused pigem mõju suuruses ja selle eksisteerimises, aga mitte selle mõju märgis. Lisaks näitas klasteranalüüs, et nii siirdekui ka mittesiirderiikide puhul saab eristada veel nn alamgruppe: siirderiikide puhul ida- ja läänepoolsed, mittesiirderiikide puhul põhja- ja lõunapoolsed.

Käesolevat uurimust on võimalik täiendada ja edasi arendada, kui andmed saavad kättesaadavaks enamate Euroopa riikide kohta. Samuti võib pakkuda huvi kaasata analüüsi nii sotsiaalkapitali dimensioonide kui selle mõjurite omavahelised mõjud. Lisaks võib oletada, et mõjud võivad erineda sõltuvalt sotsiaalkapitali tasemest. Kasutada võib ka ajalist nihet. Lõpuks võib lisaks mikromõjuritele analüüsi kaasata ka makromõjurid. Vaatamata toodud arenguvõimalustele näitab käesolev uurimus, et sotsiaalkapitali allikad on märkimisväärselt erinevad siirde- ja mittesiirderiikides ning erinevusi saab välja tuua ka nende riigigruppide sees.

Appendix A. Previous studies about the individual-level determinants of social capital

Survey, authors	Data source, sample	Dimensions (indicators) of social capital	Determinants of social capital
Alesina and Ferrara (2000)	U.S. General Social Survey (GSS), 1974–1994	General and institutional trust	Age, gender, education, income, religion, ethnic origin, married, children
Glaeser, Laibson and Sacerdote (2002)	U.S. General Social Survey (GSS), 1972–1998	Average group membership	Age, mobility, gender, income, education, occupation, house-ownership, ethnicity, size of the place
Soroka, Helliwell, Johnston (2003)	Canadian Equality, Security and Community Survey (ESC)	Formal networks, generalised trust and wallet questions	Age, gender, education, income, economic outlook, religion, health, immigrant
Bolin, Lindgren, Lindström and Nystedt (2003)	Swedish Survey of Living Condition, 1980–1997	Having close friends outside the immediate family	Age, gender, marriage, wage, wealth, employment, children, education
Bartkowski and Jasinska-Kania (2004)	EVS 1999, 29 European (both transition and non-transition) countries	Formal membership and activity in voluntary organizations	Education, gender, interest in politics, interpersonal and institutional trust, norms
Christoforou (2005)	European Community Household Panel data from 1999, EU-15 members	Group membership	Income, education, employment, age, gender, marital status, GDP, income distribution

Survey, authors	Data source, sample	Dimensions (indicators) of social capital	Determinants of social capital
Fidrmuc and Gërxhani (2005)	Multiple Eurobarometer surveys in the beginning of 2000s, 27 European countries	Formal networks (average participation, Olson and Putnam groups), informal networks (help when depres-sed, in need of job or money), altruism (spending money and time for helping others)	Age, gender, married, children, education, income, employment, town size
Van Oorschot and Arts (2005)	European Values Survey (EVS) 1999–2000, 23 European countries (9 transitional and 14 non-transitional)	Eight-scale model of social capital, including norms, institutional and, interpersonal trust, active and passive participation, friends, family and political engagement	Welfare effort and regime, income inequality, GDP, gender, age, education, income, employment, religion and church attendance
Van Oorschot, Arts and Gelissen (2006)	European Values Survey (EVS) 1999–2000	Second-order factor analysis of 8 initial dimensions of social capital, resulting in 3 factors: networks, trust and civism	Gender, age, education, income, religion and church attendance, political stance, status (retired, housewife, student, unemployed)
Halman and Luijkx (2006)	European Social Survey (ESS) 2002, 21 European countries	Interpersonal and institutional trust, norms, formal engagement and informal social activity (attitudes)	Education, age, gender, political left-right, individualism, moral sense, religiosity, life experiences and satisfaction.

Appendix B. Countries and observations analysed

Country	Year	Sample size
Austria	1999	1522
Belgium	1999	1912
Denmark	1999	1023
Finland	2000	1038
France	1999	1615
Germany	1999	2036
Greece	1999	1142
Iceland	1999	968
Ireland	1999	1012
Italy	1999	2000
Luxembourg	1999	1211
Malta	1999	1002
Netherlands	1999	1003
Spain	2000	1209
Sweden	1999	1015
Total of non-transition countries		19 708
Albania	2002	1000
Belarus	2000	1000
Bosnia and Herzegovina	2001	1200
Bulgaria	1999	1000
Croatia	1999	1003
Czech Republic	1999	1908
Estonia	1999	1005
Hungary	1999	1000
Latvia	1999	1013
Lithuania	1999	1018
Poland	1999	1095
Russian Federation	1999	2500
Serbia and Montenegro*	2001	1520
Slovakia	1999	1331
Slovenia	1999	1006
Ukraine	1999	1195
Total of transition countries		19 794
Total of all countries		39 502

* For Serbia and Montenegro only joint data were available

Appendix C. Indicators of social capital

Dimension of social capital	Indicator	The exact name of indicator and the scale used
Formal networks	Belonging to voluntary organisations	Belong to all types of organisations (religious or church organisations; education, arts, music or cultural activities; youth work; professional associations; political parties or groups; labour unions; social welfare service; local community action; third world development or human rights; conservation, environment, animal rights groups; sports or recreation; women's groups; peace movement; voluntary organisations concerned with health; other voluntary organisations), number of organisations mentioned
	Unpaid work for voluntary organisations	Unpaid voluntary work for all types of organisations (religious or church organisations; education, arts, music or cultural activities; youth work; professional associations; political parties or groups; labour unions; social welfare service; local community action; third world development or human rights; conservation, environment, animal rights groups; sports or recreation; women's groups; peace movement; voluntary organisations concerned with health), number of organisations mentioned
Informal networks	Spending time with friends	How often spend time with friends, frequency on scale 1–4
	Spending time socially with colleagues	How often spend time socially with colleagues from work or your profession, frequency on scale 1–4
	Friends important in life	Importance of friends in life, on scale 1–4
General trust	General trust	Most people can be trusted (1) or you can’t be too careful in dealing with people (0)
	Confidence in parliament	Confidence in parliament, on scale 1–4

Dimension of social capital	Indicator	The exact name of indicator and the scale used
Institutional trust	Confidence in the police	Confidence in the police, on scale 1–4
	Confidence in the press	Confidence in the press, on scale 1–4
Norms	Cheating on taxes, not justified	Cheating on taxes if you have a chance, not justified (vs. justified), on scale 1–10
	Claiming government benefits, not justified	Claiming government benefits to which you are not entitled, not justified (vs. justified), on scale 1–10
	Someone accepting a bribe, not justified	Someone accepting a bribe in the course of their duties, not justified (vs. justified), on scale 1–10

Appendix D. Indicators of determinants of social capital

Indicator	The exact name of indicator and the scale used
Age	Age of respondent in years (15 and older)
Gender (male)	Sex of respondent, male (1) or female (0)
Married	Marital status of respondent, married or living together as married (1), other answers (0)
Children	Number of children of respondent, 1–8, 8 stands for 8 or more children
Town size	Size of town, on scale 1–8
Education	Highest education level attained, on scale 1–8
Employed	Employment status of respondent, full time, part time or self-employed (1), other answers (0)
Income	Income of respondent's household, counting all wages, salaries, pensions and other incomes that come in, on scale 1–10
Belonging to religious denomination	Do you belong to a religious denomination, yes (1) or no (0)
Attending religious services	Apart from weddings, funerals and christenings, about how often do you attend religious services these days, frequency on scale 1-8
Religious person	Independently of whether you go to church or not, would you say you are a religious person, on scale 1–3

Appendix E. Results of exploratory factor analysis

Table E.1. Results of factor analysis of social capital indicators (rotated component matrix*)

Indicators	Factors				
	Norms	Institutional trust	Formal networks	Informal networks	General trust
Cheating on taxes, not justified	0.79				
Claiming government benefits, not justified	0.75				
Someone accepting a bribe, not justified	0.73				
Confidence in parliament		0.78			
Confidence in the police		0.75			
Confidence in the press		0.69			
Unpaid work for voluntary organisations			0.89		
Belonging to voluntary organisations			0.86		
Spending time with friends				0.81	
Friends important in life				0.70	
Spending time socially with colleagues				0.65	
General trust					0.97
Variance explained (%)	14.77	13.86	13.27	13.13	8.55
Cumulative variance explained (%)	14.77	28.63	41.90	55.03	63.58

* For reasons of simplicity and clarity, the coefficients with absolute values less than 0.2 are suppressed.

Table E.2. Results of factor analysis of indicators connected with religiosity

Indicator	Factor loadings	Variance explained (%)
Belonging to religious denomination	0.83	
Attending religious services	0.82	67.74
Religious person	0.84	