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**The size and heterogeneity of egocentric networks and social integration
in Hungary¹**

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Abstract

In this study we examine the relationship between objective and subjective dimensions of social integration and the size and the heterogeneity of egocentric network using nationally representative databases from Hungary. On the one hand, we define social integration with its 'objective' dimensions: a high level of trust and a high level of public participation. On the other hand, we analyse the 'subjective' or perceived component of integration as well, which is based on individuals' self-evaluation of whether they are integrated or not. Subjective integration has two sides: external, which refers to the perception that someone feels that she is a respected part of society, and internal which means that she feels that she is recognised for being the person she is.

Our results show that while the size and heterogeneity of the egocentric network associate positively, the proportion of relatives among strong ties correlates negatively with objective indicators of social integration. The heterogeneity of weak ties is related positively to public participation. The correlation between the size and composition of egocentric networks and subjective integration is less clear: the proportion of relatives among strong ties seems to be unrelated to the external side of perceived social integration, while it is associated positively with the internal side of subjective integration. The number of strong ties seems to be positively correlated with both sides of subjective integration.

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These results suggest that higher level of social integration cannot be achieved without concentrating on more than one of its dimensions. They also underline the need to pay more attention to network characteristics and social support not only regarding perceived social integration, but also regarding objective indicators of social integration.

Keywords: egocentric network, social integration, trust, participation,

1. Introduction

Social ties and social networks are usually regarded as terms equivalent to social integration². Papers handle the lack of ties as an obvious sign of disintegration or segregation³, however, it is also obvious that for a better understanding of integration, the examination of having or lacking relations is not sufficient. As part of a more sophisticated approach, we state that the structure and size of egocentric networks matters as well. First, individuals with ties to different social groups can access more information, thus they treat uncertainty and crisis in their lives (e.g. unemployment) better⁴. Also they are more likely to have contact with members of higher strata, which might raise the chance of their mobility⁵. Second, it seems to be an advantage if someone has weak and strong ties⁶. Strong ties have an important role in social support and provide economic and mental stability⁷, whereas weak ties are more important in the effective mobilization of resources⁸. In sum, a person is regarded as well integrated if she has ties that are heterogeneous and consist of both weak and strong ties.⁹

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Although the terms connected to social ties and social networks are used interchangeably with social integration, it may be argued that 'social integration' is more than only having social ties: solidarity, commitment, belonging, trust and public participation are also important dimensions to take into account. This interpretation is closely related to the term 'social cohesion', but whereas social cohesion denotes a collective quality, social integration is able – in this interpretation – to capture the quality and strength of the individual's ties to society.¹⁰ For example, O'Reilly, Caldwell and Barnett¹¹ propose a definition of social integration as "attraction to the group, satisfaction with other members of the group, and social interaction among the group members". This definition goes beyond the social ties perspective. To sum up, in this paper we define social integration with three dimensions: social ties (strong ties and weak ties), trust (generalised trust or trust in other people and confidence in institutions) and public (civil and political) participation.

These factors can be called the 'objective' dimensions of social integration since social scientists and policy makers decide which aspects are most important regardless of the individual's own feelings or own evaluation of being integrated. Thus, as another dimension of integration, namely 'subjective' or perceived social integration must also be taken into account.

The subjective evaluation of social integration is captured through the individual's perception of her own safety and how she perceives herself as an important member of society. This approach is beneficial because it is able to take into account the diversity of opinions about the important aspects of social integration¹². Subjective integration means, on the one hand, that someone

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feels that she is part of society, she has a particular role in it, or her opinion is respected (and at least partially shared) by others. This could be called the collective or 'external' side of perceived social integration. On the other hand, being integrated also means that someone feels safe and supported by her kin and her close friends, she feels that she or what she does is accepted by others, and that she is recognised for being the person she is. This could be called the 'internal' side of perceived social integration.

This multi-dimensional nature of social integration allows relations between its components to be examined. This approach is closely related to Banfield's ¹³ work. Examining a small town in Southern Italy, characterized by low public participation, low economic growth and networks centred on the family, Banfield describes the phenomenon of amoral familism. He shows that "in a society of amoral familists, no one will further the interest of the group or community except as it is to his private advantage to do so" ¹⁴. Amoral familism may be seen as a special social condition ¹⁵ in which general trust is low, political and social participation is weak, and individuals follow their self-interest instead of the community's and they assume that others act the same way. In such societies, kin relationships are extremely strong, trust in relatives is high, whereas trust in any other member of society is very low.

When trust – either trust in fellow citizens or confidence in institutions – is low, people assume that others do not share their values and beliefs, people do not expect cooperation from others, consequently, they follow their own self-interests ¹⁶. Trust and confidence are extremely important to engage in any type of participation: when generalised trust is high, people might

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think that others would participate as well, thus the costs and risks of participation would decrease. In a society characterised by low trust, perceived costs and risks are high, therefore people tend to stay passive. Furthermore, without the belief that institutions will respond to our efforts to express opinions or to find solutions to common problems, political participation seems superfluous¹⁷.

Based on Banfield¹⁸, in this paper we examine how social ties (the size and the heterogeneity of egocentric network) are associated with the other two objective dimensions (trust and public participation) and the subjective dimension of social integration, using nationally representative Hungarian survey data.

The association between characteristics of egocentric networks and 'objective' dimensions of integration is supposed to be mostly positive: the larger and the more heterogeneous the individuals' networks are the more trusting, confident or active they will be. Since strong ties are expressive, and multi-functional relations connecting us to our family and close friends, they are supposed to increase the level of perceived social integration as well. On the other hand, these strong ties might have some less favourable characteristics: they are highly influenced by the "like me" principle¹⁹, meaning that someone makes close friends with similar others. Thus, one might feel well-integrated when her close egocentric network is homogenous, but as demonstrated by Banfield's Southern Italian town, this homogeneous network might be negatively related to public participation and trust, i.e. to the objective dimensions of social integration.

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Our paper contributes to the literature by pointing out that association between dimensions of social integration might vary, and individuals might be characterised by a high level of social integration in one dimension, while by a lower level of integration in another dimension. Using data from Hungary provides novel answers to the research question since countries in this Central-Eastern-European region have below-average levels of trust in people and in institutions, below-average public participation and have weak scores on social networks indicators²⁰. Although people are not well integrated “objectively”, they might feel that they are relatively well-integrated “subjectively” because in their close circles they are respected, they feel safe and supported by their kin and close friends. This might be the process that maintains the relatively low level of social integration in Hungary (and in Eastern-Europe in general).

The paper is structured as follows. Section 2 provides the summary of the previous literature and our hypothesis. The next section describes the data and the estimation methods we used. Section 4 shows the results. Section 5 concludes.

2. Literature and hypotheses

In the following section, we briefly discuss the main research results and literature about the relationship between the structure of egocentric networks and other objective and subjective dimensions of social integration. Based on this literature, we formulate our hypotheses.

Egocentric networks and trust

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Dense networks play a crucial role in creating social cohesion and high level of trust²¹. According to Coleman²², dense networks are important to make decisions about the trustworthiness of others: when direct information is not available about a person's trustworthiness, the only possible source of information is the opinion provided by this person's acquaintances. Furthermore, when everybody knows each other in a group, interpersonal ties and mutual commitments might increase trust and decrease non-cooperative behaviour. On the other hand, excessively dense networks might lead to distrust and suspicion among members of the network by over-controlling individuals' life. Obligations of reciprocity and sharing resources are closing these networks further and cause the formation of non-transparent networks, where - as in Banfield's theory - people outside these networks might become a threat to members²³. Besides density, the heterogeneity of ties might be important as well: in a heterogeneous environment, intergroup conflicts are less likely to emerge²⁴. According to experimental research, direct interactions among individuals are reliable predictors of mutual trust²⁵.

Egocentric networks and participation

The size of egocentric network correlates positively with various forms of public participation²⁶. Angelusz and Tardos²⁷ identify this phenomenon in national and local election participation. Moreover, many argue that the correlation between network size and public participation is even stronger in the case of participation in civil organizations and other, extra-parliamentary forms, as signing a petition or participation in a demonstration²⁸. However, it is important to emphasise that the direction of the causality is not clear. On the one hand, it is possible that participation

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contributes to the maintenance of a larger network. On the other hand, it is also possible that it is easier to make people with more acquaintances get involved in the work of associations and other forms of participation.

The relationship between heterogeneity of the egocentric network and participation is less clear. From a democratic participation point of view, building heterogeneous networks is desirable, since it implies that people from different strata and social groups are able to discuss public issues. However, the “like me” principle²⁹ and other factors are working against this desirable state. Some research suggests that heterogeneous egocentric networks decrease the probability of electoral participation³⁰. Mutz³¹ argues that various opinions might lead to uncertainty, whereas according to Noelle-Neumann³² in an environment with many opinions differing from the individual's, she might feel that she differs from the dominant norms of her social circles. Finally, Coleman³³ argues that closed groups are able to provide the social support necessary to increase electoral participation.

The classic assumption about civil associations is that they create cross-cutting ties among social groups.³⁴ However, other studies find that membership in civil associations is a way of creating social capital, thus people from higher strata form associations with people from a similar social background rather than with others of lower social status³⁵. This does not rule out the possibility that members of civil associations are able to create ties with people of a different social status, but the efforts to create connections within these associations might decrease the chances to make and maintain other connections outside these associations.

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Research on Hungarian associations has shown that people participating in associations are quite a homogenous group. They tend to be similar to each other and differ from others who do not participate, a finding that might support the claim that associations strengthen homogenous ties³⁶. Other studies examining primarily weak ties have found positive correlations between civil participation and the heterogeneity of weak ties³⁷.

Egocentric networks and subjective integration

People having closed networks might feel safer since strong ties provide not only material goods and instrumental help, but strengthen opinions and provide psychical and emotional support³⁸. Strong ties are often born from the “like me” principle: people like to choose friends from people similar to them³⁹. Moreover, strong ties are often transitive, which means that the ego’s two close contacts are more likely to get to know each other than the ego’s two other acquaintances connected by weak ties to the ego⁴⁰. If the “like me” principle is working, the ego’s two close friends will be similar not only to the ego but to each other as well. Thus, the tie between them is also more likely to be strong, which results in closed, homogenous networks. Members of these networks will have continuous support from each other, strengthening the network even more, and making new ties to people outside these networks less likely to form.⁴¹

Although the literature mostly stresses mechanisms based on similarity and affection, in creating networks, mechanisms based on repulsion are also important. Skvoretz⁴² argues that homogenous groups might be formed not only by the selection of similar people but also by

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keeping a distance from certain groups. This might be especially important in the evolution of territorial segregation.

We assume that whether homogenous networks are formed by affection or repulsion, they certainly strengthen the feeling of safety. If the network is based on affection, the main cause is strong social support, whereas if it is based on repulsion, the main cause might be having negative images, negative expectations and fear of others. On the other hand, the external side of perceived social integration might depend more on the higher heterogeneity of an egocentric network since feeling an important part of society might require positive feedback from people with various status and various social backgrounds.

Based on the reviewed literature, it seems that the size of the egocentric network and its composition (its heterogeneity or homogeneity) affect social integration. Thus we formulate the following hypotheses:

H1. The size of an egocentric network is positively correlated with other dimensions of social integration.

H2. If egocentric networks are composed mostly of kin-relations, the level of trust and public participation might be lower. In other words, the heterogeneity of the network might be positively correlated with trust and public participation.

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H3. If egocentric networks are composed mostly of kin-relations (i.e. the heterogeneity of an egocentric network is small), the level of perceived internal social integration might be higher, whereas the level of perceived external social integration might be lower.

3. Data and methods

We used data from the Hungarian Election Study for the year 2008⁴³ and the European Quality of Life Survey second wave (2007)⁴⁴.

The Hungarian Election Study contains data for 3100 individuals and is representative for the adult population of Hungary. Since egocentric network questions were asked only from two thirds of the sample, our initial sample size was 2120. The questionnaire asked respondents about their membership in voluntary organisations, political participation, voting behaviour and confidence in institutions. Using these questions, we had three indicators for the first component of social integration (trust) and two indicators for the second component of social integration (public participation).

Our first indicator of social integration was membership in voluntary organisations. Respondents were asked if they were members of each of ten types of voluntary organizations (e.g. sports club, professional association, charity organization and trade union). This indicator measures if the respondent is a member in at least one voluntary organisation.

Our second indicator was participation in political activities. Respondents were asked if they participated in any of 13 political activities in the previous few years. The scope of these activities

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was broad: the list included activities from working in a political party or action group over taking part in a lawful public demonstration to voting via SMS in a television show.⁴⁵ The variable of participation in political activities indicates whether the respondents participated in any of the 13 political activities. The third indicator is also related to political activity: it measures if respondents voted in the last general election preceding the survey.

The fourth and fifth indicators of social integration were confidence in governmental and non-governmental institutions, respectively. Respondents were asked how much they trust eight governmental (government, courts, parliament, constitutional court, army, president, police, and local governments) and four non-governmental (churches, political parties, trade unions, and NGOs) institutions on a 4-point scale. Variables of confidence in governmental and non-governmental institutions are calculated as the mean of these 8 and 4 answers.⁴⁶

The number of strong ties was measured with the name generator approach. Respondents were asked to name people with whom they share three particular types of social relations (discussing intimate and personal matters; going out together; getting help with everyday tasks). They could list up to five people in each of the three situations (altogether maximum 15 people), and they were asked to indicate the type of relationship these people had to them (e.g. husband/wife/partner, son/daughter, parent, other relative, friend, colleague etc.). The number of strong ties is calculated as the number of people listed in these three questions. We have also been able to calculate the proportion of relatives among strong ties as an indicator of heterogeneity of strong ties.

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The number of weak ties was measured with the position generator technique. It measured a respondent's relationships to particular types of alters. Respondents were asked to indicate whether or not they have a contact with anyone in particular occupations (e.g. high school teacher, engineer, skilled worker, waiter/waitress – altogether 22 occupations). The number of weak ties is calculated as the number of occupations the respondents had contact with. The heterogeneity of weak ties is measured as the variance of the prestige scores (from the Treiman's Standard International Occupational Prestige Scale) of the occupations the respondents had contact with.

The Hungarian data of the second wave (2007) of the European Quality of Life Survey (EQLS) contains data for 1000 individuals and it is representative for the adult persons living in private households. This questionnaire included questions about subjective social integration. Respondents were asked to what extent they agreed or disagreed on a 5-point scale with four statements regarding perceived social exclusion.

- 1) I feel left out of society.
- 2) Some people look down on me because of my job situation or income.
- 3) I don't feel the value of what I do is recognised by others.

High values of the variables reflect disagreements with the statements, i.e. they reflect perceived social integration (or lack of social exclusion or low social exclusion). It has to be noted that these variables do not measure the external and internal sides of perceived social integration to the same degree. Specifically, the first variable reflects mostly the external side

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of integration, since the statement refers to the whole society. The second statement also refers to society, but in a functional or stratification-related way, as it connects integration to occupation and income. On the other hand, the third variable is assumed to measure the support and recognition of others, or in other words, it concentrates more on the emotional side of integration. To sum up, from statement 1 to statement 3, the three questions measure the internal side of perceived integration increasingly, whereas from statement 1 to statement 3, they measure the external side decreasingly.

The EQLS questionnaire lacked the standard measures of egocentric networks (i.e. the position generator or name generator). The number of strong ties is captured using a question asking respondents who they would get support from in five situations⁴⁷. They had to choose the most important person in each situation, indicating if this person was their partner/spouse, other family member, colleague, friend, neighbour or someone else. The number of strong ties is calculated as the number of situations respondents could get support in. The proportion of relatives among strong ties is calculated as the share of naming partner/spouse, or other family members in these situations. It has to be noted that this measure is far from ideal, since respondents were able to name only one person in each situation, thus in most situations they named a relative. Moreover, the questions about strong ties measure the availability of strong ties in different areas instead of their absolute number. Thus, as we noted above, the variables can be regarded only as proxy measures of the number and heterogeneity of strong ties. Questions for weak ties were lacking in the questionnaire.

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We estimated a linear relationship between the size and the heterogeneity of egocentric networks and the indicators of social integration using OLS models.⁴⁸ The estimated model regarding data from the Hungarian Election Study is the following:

$$SI_i = \beta_0 + \beta_1 N_i^{ST} + \beta_2 R_i^{ST} + \beta_3 N_i^{WT} + \beta_4 H_i^{WT} + \beta_5 \mathbf{X}_i + \varepsilon_i,$$

where SI_i is the indicator of social integration, N_i^{ST} is the number of strong ties⁴⁹, R_i^{ST} is the proportion of relatives among strong ties⁵⁰, N_i^{WT} is the number of weak ties, H_i^{WT} heterogeneity of weak ties, \mathbf{X}_i is the vector of personal characteristics of the individual⁵¹. Finally, the equation includes the usual error term (ε_i).⁵²

The estimated model regarding data from the European Quality of Life Survey is the following:

$$SI_i = \beta_0 + \beta_1 N_i^{ST} + \beta_2 R_i^{ST} + \beta_3 \mathbf{X}_i + \varepsilon_i,$$

where SI_i is the indicator of social integration, N_i^{ST} is the number of strong ties, R_i^{ST} is the proportion of relatives among strong ties⁵³, \mathbf{X}_i is the vector of personal characteristics of the individual⁵⁴, ε_i is the error term.⁵⁵

4. Results

Table 1 and Table 2 show the results for objective and subjective indicators of social integration, respectively. Dependent variables of Columns 1-3 in Table 1 are variables of public participation (membership in voluntary organizations, participation in political activities and voting in the last

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general election, respectively). The numbers of strong and weak ties are mostly positively related to variables of public participation – the one exception is voting in the last general election, which is determined more by socio-demographic variables. Compared to having no strong ties, having 7 or more strong ties correlates with a higher likelihood of membership in voluntary organisations, whereas having 1-6 strong ties makes statistically no difference in the likelihood of membership. On the other hand, having one strong tie is associated with a 14.2 percentage point higher likelihood of participation in political activities compared to having no strong tie, having even more than one strong tie is associated with a linearly increasing likelihood of political activities. A one standard deviation increase in the number of weak ties is associated with a 6.0 percentage point increase in membership in voluntary organizations, and with a 5.5 percentage point increase in participation in political activities. This means that individuals with larger egocentric networks are more likely to participate in public life than people with smaller egocentric networks. Regarding voting, the estimated coefficient on the number of weak ties is not statistically significant, whereas the effect of the number of strong ties is non-linear. Those with no strong ties voted with the highest likelihood in the last general election. Compared to them, those with one strong tie were 11.3 percentage point less likely to have voted. Those with more strong ties voted with statistically no different likelihood, i.e. the relationship between the number of strong ties and voting seems to show a U-shape.

Heterogeneity of weak ties correlates positively with two of the three variables of participation.

A one standard deviation increase in heterogeneity of weak ties is associated with a 2.2

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percentage point increase in membership in voluntary organizations, and with a 3.6 percentage point increase in participation in political activities. The results corroborate the findings using American (Magee, 2008) and Japanese data (Miyata et al, 2008). As noted above, these results do not indicate any direction of causality. It is possible that public participation strengthens the connections between different groups of society, while it is also possible that a heterogeneous network provides the basis of acquiring communication skills necessary in public participation.

According to our hypothesis, the higher the proportion of relatives among strong ties the less likely the membership in voluntary organisations, and the less likely the participation in political activities. A one standard deviation increase in the proportion of relatives is associated with a 2.5 percentage point decrease in voluntary organisation membership and 5.4 percentage point decrease in political activities. On the other hand, its association with voting in the last general election is insignificant.

These results might be explained by the different nature of the three types of public participation. Participation in voluntary organisations and participation in political activities require persistent cooperation with others, whereas voting in an election is a single event, where an individual acts alone. According to Banfield⁵⁶, those who have strong ties mostly in their family trust other people less and are less likely to cooperate with others, which might explain the negative coefficients for the first two indicators and the insignificant coefficient for voting.⁵⁷

On the other hand, the elderly are more likely to vote in general elections than the young, whereas they have smaller networks as well, thus the correlation between network size, the

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heterogeneity of the egocentric network and voting is rather weak. It is also possible that voting is a more or less ritual or routine event, thus it depends less on social contacts and network characteristics.

Table 1: OLS regression coefficients for indicators of social integration

	(1) Membership in voluntary organisations (NGOs)	(2) Participation in political activities	(3) Voted in the last general election	(4) Confidence in governmental institutions	(5) Confidence in non- governmental institutions
Number of strong ties: 0	ref.	ref.	ref.	ref.	ref.
1	0.015 (0.050)	0.142*** (0.050)	-0.113* (0.058)	0.133* (0.075)	0.148* (0.085)
2-3	0.048 (0.048)	0.149*** (0.048)	-0.049 (0.052)	0.189*** (0.067)	0.194** (0.077)
4-6	0.033 (0.049)	0.192*** (0.048)	-0.049 (0.052)	0.209*** (0.066)	0.175** (0.076)
7+	0.143** (0.069)	0.237*** (0.066)	-0.069 (0.065)	0.163* (0.088)	0.188* (0.100)
Proportion of relatives among strong ties	-0.001** (0.000)	-0.002*** (0.000)	0.000 (0.000)	-0.001** (0.000)	-0.001** (0.001)
Number of weak ties	0.012*** (0.002)	0.011*** (0.002)	0.003 (0.002)	-0.002 (0.003)	-0.002 (0.004)
Heterogeneity of weak ties	0.001** (0.000)	0.002*** (0.001)	0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Adjusted R ²	0.110	0.118	0.100	0.069	0.058
N	2053	2053	2028	2039	1978

Data from Hungarian Election Study 2008. Standard errors are in parentheses. Control variables: age, squared age, sex, marital status, education, labour force status, subjective social class, activity limitation, household size, per capita household income, type of settlement and region. Dummies are included for missing income variable.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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In the case of confidence in governmental and confidence in non-governmental institutions (Column 4 and Column 5 in Table 1), regarding strong ties, the results are similar: the number of strong ties correlates positively with the type of confidence in institutions. The real difference appears to be firstly between those who have no strong ties and who have some strong ties (at least 0.13-0.15 point higher trust compared to the former group), and secondly between those who have one strong tie and those who have two or more strong ties (0.04-0.08 point higher trust compared to the former group).

The proportion of relatives among strong ties correlates negatively with both trust variables. A one standard deviation increase in proportion of relatives among strong ties is associated with a 1.4 percentage decrease in confidence in governmental organisations, and with a 2.0 percentage decrease in confidence in non-governmental organisations. The number and heterogeneity of weak ties seems to be unrelated to confidence in institutions.

Table 2 shows the results for models where the dependent variable is perceived (subjective) social integration. The dependent variable of model 1 is that the respondent feels left out of society, the dependent variable of model 2 is that the respondent feels that some people look down on her because of her job situation or income, and the dependent variable of model 3 is that the respondent does not feel that what she does is recognised by others. As we noted above, these statements reflect increasingly the internal side of perceived integration (and decreasingly its external side).

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The coefficient on the number of strong ties is positive and significant in all the three models, which means that the higher the egocentric network the more integrated individuals see themselves – regardless of the degree of the internal and the external side of integration. The estimated coefficient on the proportion of relatives among strong ties is insignificant in model 1 and model 2, whereas it is positive and significant in model 3. It is worth noting that the size of the coefficient is increasing as the dependent variable reflected increasingly the internal side of subjective integration (0.013, 0.200, 0.452 in model 1, model 2 and model 3, respectively). These results could be interpreted as suggesting that the proportion of relatives in the egocentric network is positively related to the internal side of perceived social integration, but it does not seem to be correlated with its external side. However, we have to note again that the measure of egocentric networks in the EQLS questionnaire is far from ideal and as the questionnaire lacked questions on weak ties, we were unable to include these variables in our models. Hence, the results are only indicative and we must be careful when drawing strong conclusions from them.

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Table 2: OLS regression coefficients for indicators of perceived social integration

	(1) Being left out of society (disagreement)	(2) Feeling that some people look down on her (disagreement)	(3) Feeling that her value is not recognised by others (disagreement)
Number of strong ties	0.086* (0.051)	0.097* (0.055)	0.101* (0.053)
Proportion of relatives among strong ties	0.021 (0.150)	0.224 (0.175)	0.472*** (0.173)
r2_a	0.133	0.177	0.075
N	951	927	900

Data from European Quality of Life Survey 2007. Standard errors are in parentheses. High values of the dependent variables reflect disagreement with the statements (high level of perceived social integration). Control variables: age, squared age, sex, marital status, education, labour force status, health problem, subjective financial situation, household size, per capita household income, type of settlement, and region. Dummies are included for missing income variable.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Hypothesis 1 seems to be supported by our results. A higher number of strong ties is associated with better social integration according to both objective and subjective indicators. The number of weak ties, however, correlates positively only with membership in NGOs and participation in political activities, with those two types of activities that require more or less persistent cooperation with others.

Hypothesis 2 is also mostly supported by our results. The proportion of relatives among strong ties correlates negatively with four of the five objective indicators of social integration, whereas the heterogeneity of weak ties correlates positively with indicators of public participation, but it is not related to voting and confidence in institutions. Overall, it seems that the heterogeneity of the egocentric network is positively related to being well-integrated.

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The results do not falsify hypothesis H3 either. The proportion of relatives among strong ties seems to be positively related to the internal side of perceived social integration, whereas it is not correlated with indicators of subjective integration measuring mostly the external side of social integration. Thus, we may conclude that egocentric networks composed mostly of relatives are beneficial regarding feeling safe and being supported by others (internal side of perceived social integration), whereas it has no negative impact on the external side of subjective integration. However, the lack of correlation might be caused by the question design in EQLS, in which the availability of kin in different situations is measured more than their proportion in the egocentric networks.

5. Summary

In this paper, we have analysed the association between the size and heterogeneity of egocentric networks and objective and subjective indicators of social integration, using nationally representative databases from Hungary.

Our results show that the size and heterogeneity of the egocentric network associates positively with objective indicators of social integration (public participation and confidence in institutions). The number of strong and weak ties correlates positively with objective indicators of social integration, whereas the higher the proportion of relatives among strong ties is the less likely it is that an individual participates in public activities, and the less likely she is to trust institutions. Heterogeneity of weak ties is related positively to public participation. On the other hand, due to lack of good-quality secondary data regarding the subjective indicator of social

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integration, our results are less clear. The proportion of relatives among strong ties seems to correlate positively with the internal side of perceived social integration, but it seems to be unrelated to its external side. The number of strong ties is associated positively with both the internal and external sides of subjective integration.

Due to data limitation, we were unable to test whether the effects of the number and heterogeneity of strong ties on perceived social integration remain unchanged if the number and heterogeneity of weak ties are also included in the models. It is possible that the effect of the heterogeneity of weak ties is the inverse of those of heterogeneity of strong ties, i.e. the heterogeneity of weak ties might be positively related to the external side of subjective integration. Further research is needed to answer this question.

These results suggest that the multi-dimensional nature of social integration cannot be neglected, drawing attention to the fact that higher level of social integration cannot be achieved concentrating only one of its dimensions. Our results also underline that homogeneous egocentric networks are not beneficial regarding trust and participation, however they might have a positive effect on feeling safe, supported and recognized by others for being the person an individual is.

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Appendix

Table A1: Descriptive statistics, Hungarian Election Study 2008

	Mean	SD	Min	Max	N
Membership in voluntary organisations (NGOs)	0.204	0.403	0	1	2119
Participation in political activities	0.255	0.436	0	1	2119
Voted in the last general election	0.759	0.428	0	1	2091
Trust in governmental institutions	2.518	0.565	1	4	2101
Trust in non-governmental institutions	2.200	0.609	1	4	2036
0 strong tie	0.046	0.209	0	1	2120
1 strong tie	0.169	0.375	0	1	2120
2-3 strong ties	0.392	0.488	0	1	2120
4-6 strong ties	0.349	0.477	0	1	2120
7 or more strong ties	0.044	0.204	0	1	2120
Proportion of relatives among strong ties (%)	70.908	33.580	0	100	2116
Number of weak ties	11.192	5.182	0	24	2108
Heterogeneity of weak ties	47.195	20.329	0	154.3	2108
Age	47.855	17.899	18	96	2112
Sex	1.542	0.498	1	2	2120
Single	0.243	0.429	0	1	2116
Married/living with partner	0.533	0.499	0	1	2116
Separated	0.096	0.295	0	1	2116
Widowed	0.128	0.334	0	1	2116
Education: Primary	0.244	0.430	0	1	2116
Education: Vocational	0.320	0.466	0	1	2116
Education: Secondary	0.299	0.458	0	1	2116
Education: Tertiary	0.138	0.345	0	1	2116
Budapest	0.168	0.374	0	1	2120
County seat	0.213	0.409	0	1	2120
Town	0.285	0.452	0	1	2120
Village	0.334	0.472	0	1	2120
Employed/self-employed	0.510	0.500	0	1	2111
Retired	0.330	0.470	0	1	2111
Unemployed	0.048	0.214	0	1	2111
In education	0.064	0.244	0	1	2111
Other	0.048	0.213	0	1	2111
Activity limitation	0.241	0.428	0	1	2110
Subjective social class: upper class	0.022	0.146	0	1	2094
Subjective social class: middle class	0.403	0.491	0	1	2094
Subjective social class: lower middle class	0.262	0.440	0	1	2094
Subjective social class: lower and working classes	0.313	0.464	0	1	2094
Household size	2.803	1.236	1	5	2118
Per capita household income (HUF)	73971	70097	6000	1000000	1219

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Central Hungary region	0.254	0.435	0	1	2120
Central Transdanubia region	0.123	0.328	0	1	2120
Western Transdanubia region	0.106	0.309	0	1	2120
Southern Transdanubia region	0.104	0.306	0	1	2120
Northern Hungary region	0.127	0.333	0	1	2120
Northern Great Plain region	0.155	0.362	0	1	2120
Southern Great Plain region	0.131	0.337	0	1	2120

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Table A2: Descriptive statistics, European Quality of Life Survey 2. wave

	Mean	SD	Min	Max	N
I feel left out of society	4.071	1.021	1	5	987
Some people look down on me because of my job situation or income	3.793	1.170	1	5	964
I don't feel the value of what I do is recognised by others	3.366	1.113	1	5	936
Number of strong ties	4.314	0.887	0	5	1000
Proportion of relatives among strong ties (%)	0.789	0.274	0	1	1000
Sex	0.536	0.499	0	1	1000
Age	46.479	17.694	18	95	1000
Education: Primary	0.553	0.497	0	1	1000
Education: Secondary	0.332	0.471	0	1	1000
Education: Tertiary	0.115	0.319	0	1	1000
Living with partner	0.620	0.486	0	1	993
Separated	0.088	0.283	0	1	993
Widowed	0.110	0.312	0	1	993
Single	0.183	0.387	0	1	993
Employed/self-employed	0.457	0.498	0	1	1000
Retired	0.315	0.465	0	1	1000
Unemployed	0.075	0.264	0	1	1000
In education	0.058	0.234	0	1	1000
Other	0.095	0.293	0	1	1000
Health problem	0.287	0.452	0	1	976
HH makes ends meet: easily	0.254	0.436	0	1	992
HH makes ends meet: with some difficulty	0.379	0.485	0	1	992
HH makes ends meet: with difficulty	0.206	0.405	0	1	992
HH makes ends meet: with great difficulty	0.161	0.367	0	1	992
Household size	2.976	1.247	1	5	1000
Per capita household income (EUR)	248.3	190.8	13	2362.3	742
Village	0.535	0.499	0	1	999
Town	0.280	0.449	0	1	999
Budapest	0.185	0.388	0	1	999
Central Hungary region	0.289	0.454	0	1	1000
Central Transdanubia region	0.124	0.330	0	1	1000
Western Transdanubia region	0.147	0.354	0	1	1000
Southern Transdanubia region	0.134	0.341	0	1	1000
Northern Hungary region	0.097	0.296	0	1	1000
Northern Great Plain region	0.099	0.299	0	1	1000
Southeast Great Plain region	0.109	0.312	0	1	1000

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Notes

¹ The paper is part of the research project “Integration and disintegration in Hungarian Society (HAS, Institute of Sociology; TÁRKI) - National Research, Development and Innovation Office – NKFIH, 108836”.

² Lisa F. Berkman et al., ‘From Social Integration to Health: Durkheim in the New Millennium’^{dup}, *Social Science & Medicine* 51, no. 6 (15 September 2000): 843–57, doi:10.1016/S0277-9536(00)00065-4; J. House, K. Landis, and D. Umberson, ‘Social Relationships and Health’, *Science* 241, no. 4865 (29 July 1988): 540–45, doi:10.1126/science.3399889.

³ Fruzsina Albert and Beáta Dávid, ‘Az Interperszonális Kapcsolathálózati Struktúra Átrendeződése Magyarországon’, in *Társadalmi Integráció a Jelenkori Magyarországon*, ed. Imre Kovách et al. (Budapest: Argumentum - MTA Társadalomtudományi Kutatóközpont Szociológiai Intézet, 2012), 343–56; Dr Ichiro Kawachi and Dr Lisa F. Berkman, ‘Social Ties and Mental Health’, *Journal of Urban Health* 78, no. 3 (September 2001): 458–67, doi:10.1093/jurban/78.3.458.

⁴ Mark Granovetter, ‘The Strength of Weak Ties: A Network Theory Revisited’, *Sociological Theory* 1 (1983): 201–33, doi:10.2307/202051.

⁵ E. O. Laumann, ‘A 45-Year Retrospective on Doing Networks’, *Connections* 27 (2006): 65–90, doi:10.1.1.211.8478; Nan Lin, ‘Social Networks and Status Attainment’, *Annual Review of Sociology* 25 (1999): 467–87, doi:10.1146/annurev.soc.25.1.467.

⁶ Strong ties refer to intense, expressive relationship to family members and close friends, who are likely to be similar to the Ego. Weak ties are relationships tend to connect people belong to different social circles or groups. Weak ties are less intense, more instrumental relationships basically helping the flow of information and resources see Granovetter, ‘The Strength of Weak Ties’, 1983; John Scott, *Social Network Analysis: A Handbook*, 2nd edition (London; Thousands Oaks, Calif: SAGE, 2000).

⁷ Catherine A. Heaney and Barbara A. Israel, ‘Social Networks and Social Support’, in *Health Behavior and Health Education: Theory, Research, and Practice*, ed. Karen Glanz, Barbara K. Rimer, and K. Viswanath (San Francisco: John Wiley & Sons, 2008), 189–210.

⁸ Mark Granovetter, ‘The Strength of Weak Ties’, *American Journal of Sociology* 78, no. 6 (1 May 1973): 1360–80, doi:10.1086/225469; Nan Lin, ‘Social Resources and Social Mobility: A Structural Theory of Status Attainment’, in *Social Mobility and Social Structure* (Cambridge: Cambridge University Press, 1990), 247–71; Lin, ‘Social Networks and Status Attainment’.

⁹ We are aware that strong ties are often referred to as ‘bonding’, while weak ties as ‘bridging social capital’ See Hilde Coffé and Benny Geys, ‘Toward an Empirical Characterization of Bridging and Bonding Social Capital’, *Nonprofit and Voluntary Sector Quarterly* 36, no. 1 (1 March 2007): 121–39, doi:10.1177/0899764006293181; Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000).. In our study, we do not use these terms, since bonding and bridging social capital are more often used as group level

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characteristics (e.g. groups with dense networks have a large stock of bonding social capital), while our approach examines individuals.

¹⁰ Chan, To and Chan 'Reconsidering Social Cohesion: Developing a Definition and Analytical Framework for Empirical Research', *Social Indicators Research* 75, no. 2 (January 2006): 290, doi:10.1007/s11205-005-2118-1. give a definition of social cohesion that includes social ties, trust, sense of belonging and participation. These components are regarded as key elements also by Dickes and Valentova Paul Dickes and Marie Valentova, 'Construction, Validation and Application of the Measurement of Social Cohesion in 47 European Countries and Regions', *Social Indicators Research* 113, no. 3 (4 July 2012): 827–46, doi:10.1007/s11205-012-0116-7. and Janmaat 'Social Cohesion as a Real-Life Phenomenon: Assessing the Explanatory Power of the Universalist and Particularist Perspectives', *Social Indicators Research* 100, no. 1 (2011): 61–83..

¹¹ 'Work Group Demography, Social Integration, and Turnover', *Administrative Science Quarterly* 34, no. 1 (1989): 22, doi:10.2307/2392984.

¹² Ed Diener et al., *Well-Being for Public Policy* (New York: Oxford University Press, 2009).

¹³ *The Moral Basis of a Backward Society* (Glencoe, Illinois: The Free Press, 1958).

¹⁴ *Ibid.*, 85.

¹⁵ Csaba Dupcsik and Olga Tóth, 'Family Systems and Family Values in Twenty-First-Century Hungary', in *Family and Social Change in Socialist and Post-Socialist Societies*, ed. Zsombor Rajkai (Leiden; Boston: Brill, 2014), 210–49.

¹⁶ Peter Brann and Margaret Foddy, 'Trust and the Consumption of a Deteriorating Common Resource', *The Journal of Conflict Resolution* 31, no. 4 (1987): 615–30; David M. Messick et al., 'Individual Adaptations and Structural Change as Solutions to Social Dilemmas', *Journal of Personality and Social Psychology* 44, no. 2 (1983): 294–309; Tom R. Tyler and Peter DeGoe, 'Collective Restraint in Social Dilemmas: Procedural Justice and Social Identification Effects on Support for Authorities', *Journal of Personality and Social Psychology* 69, no. 3 (1995): 482–97, doi:10.1037/0022-3514.69.3.482.

¹⁷ Christian Welzel, Ronald Inglehart, and Franziska Deutsch, 'Social Capital, Voluntary Associations and Collective Action: Which Aspects of Social Capital Have the Greatest "civic" Payoff?', *Journal of Civil Society* 1, no. 2 (1 September 2005): 121–46, doi:10.1080/17448680500337475.

¹⁸ *The Moral Basis of a Backward Society*.

¹⁹ E. O. Laumann, 'A 45-Year Retrospective on Doing Networks', *Connections* 27 (2006): 65–90, doi:10.1.1.211.8478.

²⁰ Bertelsmann Stiftung, *Social Cohesion Radar. Measuring Common Ground. An International Comparison of Social Cohesion* (Gütersloh: Bertelsmann Stiftung, 2013); Johanna Giczi and Endre Sik, 'Trust and Social Capital in Contemporary Europe', in *TÁRKI European Social Report 2009*, ed. István György Tóth (Budapest: TÁRKI, 2009), 63–82; Caire Wallace, Florian Pichler, and Christian Haerpfer, 'Changing Patterns of Civil Society in Europe and America 1995-2005 Is Eastern Europe Different?', *East European Politics & Societies* 26, no. 1 (1 February 2012): 3–19, doi:10.1177/0888325411401380.

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- ²¹ Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000).
- ²² *Foundations of Social Theory* (Cambridge, MA: Belknap Press of Harvard University Press, 1990).
- ²³ Hilde Coffé and Benny Geys, 'Toward an Empirical Characterization of Bridging and Bonding Social Capital', *Nonprofit and Voluntary Sector Quarterly* 36, no. 1 (1 March 2007): 121–39, doi:10.1177/0899764006293181; Salvatore Di Falco and Erwin Bulte, 'A Dark Side of Social Capital? Kinship, Consumption, and Savings', *The Journal of Development Studies* 47, no. 8 (1 August 2011): 1128–51, doi:10.1080/00220388.2010.514328.
- ²⁴ Gordon W. Allport, *The Nature of Prejudice* (Oxford, England: Addison-Wesley, 1954).
- ²⁵ Alex Pentland, *Social Physics: How Good Ideas Spread - The Lessons from a New Science* (New York: The Penguin Press, 2014).
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- ²⁸ Róbert Angelusz and Róbert Tardos, 'Választási Résztvétel És Politikai Aktivitás', in *Törések, Hidak, Hálók. Választói Magatartás És Politikai Tagolódás Magyarországon*, ed. Róbert Angelusz and Róbert Tardos (Budapest: DKMKA, 2005), 323–84; Susánszky and Gerő, 'A Civil Résztvételt Segítő És Gátló Tényezőkről'.
- ²⁹ Laumann, 'A 45-Year Retrospective on Doing Networks'.
- ³⁰ Zoltán Kmetty, 'Politikai Diskurzus És Partecipáció', in *A Nyilvánosság Elemzésétől a Választáskutatásig - Tanulmányok Angelusz Róbert Emlékére*, ed. Márton Gerő et al. (Budapest: ELTE Angelusz Róbert Társadalomtudományi Szakkollégium, 2012), 63–93.
- ³¹ 'The Consequences of Cross-Cutting Networks for Political Participation', *American Journal of Political Science* 46, no. 4 (2002): 838–55, doi:10.2307/3088437.
- ³² 'The Spiral of Silence A Theory of Public Opinion', *Journal of Communication* 24, no. 2 (1 June 1974): 43–51, doi:10.1111/j.1460-2466.1974.tb00367.x.
- ³³ *Foundations of Social Theory*.
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- ³⁵ P. Pichler and C. Wallace, 'Social Capital and Social Class in Europe: The Role of Social Networks in Social Stratification', *European Sociological Review* 25, no. 3 (2009): 319–32, doi:10.1093/esr/jcn050.
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³⁷ Marc Porter Magee, 'Civic Participation and Social Capital: A Social Network Analysis in Two American Counties', in *Social Capital: An International Research Program*, ed. Nan Lin and Bonnie H. Erickson (Oxford: Oxford University Press, 2008), 308–27; Kakuko Miyata, Ken'ichi Ikeda, and Tetsuro Kobayashi, 'The Internet, Social Capital, Civic Engagement, and Gender in Japan', in *Social Capital: An International Research Program*, ed. Nan Lin and Bonnie H. Erickson (Oxford: Oxford University Press, 2008), 206–33.

³⁸ Róbert Angelusz and Róbert Tardos, 'A Kapcsolathálózatok, Mint Kontextusok', in *Hálózatok, Stílusok, Struktúrák* (Budapest: ELTE Szociológiai Intézet, 1991), 33–54; Pernille Due et al., 'Social Relations: Network, Support and Relational Strain', *Social Science & Medicine* 48, no. 5 (March 1999): 661–73, doi:10.1016/S0277-9536(98)00381-5.

³⁹ Laumann, 'A 45-Year Retrospective on Doing Networks'.

⁴⁰ Mark Granovetter, 'The Strength of Weak Ties: A Network Theory Revisited', *Sociological Theory* 1 (1983): 201–33, doi:10.2307/202051.

⁴¹ The "like me" principle might be counterweighted by the "prestige principle", meaning that people try to get to know others from higher strata. Links to members of more prestigious groups might help social mobility and mobilise resources.

⁴² 'Diversity, Integration, and Social Ties: Attraction versus Repulsion as Drivers of Intra- and Intergroup Relations', *American Journal of Sociology* 119, no. 2 (1 September 2013): 486–517, doi:10.1086/674050.

⁴³ TÁRKI Joint Research Center – *TDATA-H27: Hungarian Longitudinal Election Survey 2008-2009*. data sheet. Version: 2010-08-24 http://www.tarki.hu/cgi-bin/katalogus/tarkimain_en.pl?sorszam=TDATA-H27 last accessed 2016. 05.01.

⁴⁴ European Foundation for the Improvement of Living and Working Conditions, *European Quality of Life Survey, 2007* [computer file]. Colchester, Essex: UK Data Archive [distributor], October 2009. SN: 6299, <http://dx.doi.org/10.5255/UKDA-SN-6299-1>

⁴⁵ The 13 activities were the following: contacted a politician, government or local government official; worked in a political party or action group; worked in another organisation or association; worn or displayed a campaign badge/sticker; signed a petition; taken part in a lawful public demonstration; boycotted certain products; purchased any products for political, environmental or ethical reasons; donated money to a political organization or group; participated in a protest movement, that was not permitted; written an article or comment on an issue; made a call to a radio line-up; voted via SMS or commented on a television show.

⁴⁶ We calculated the mean of the variables if there were at least four valid answers regarding governmental trust and at least three valid answers regarding non-governmental trust.

⁴⁷ if they needed help around the house; if they needed advice about a serious personal or family matter; if they needed help when looking for a job; if they were feeling a bit depressed and wanting someone to talk to; if they needed to urgently raise €500 to face an emergency.

⁴⁸ Regarding binary dependent variables, these models were linear probability models. With these dependent variables we also estimated logit models. The results were qualitatively identical.

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⁴⁹ The variable was included as a categorical variable: 0 strong tie, 1 strong tie, 2-3 strong ties, 4-6 strong ties, 7 or more strong ties, since a two-way relationship with voting appeared to be non-linear.

⁵⁰ Since the variable of the proportion of relatives among strong ties is calculated as the number of relatives among strong ties divided by the number of strong ties, those with no strong ties would have to be taken out of our sample. We reckoned the proportion of relatives for these respondents as 0. We also estimated models where we excluded those with no strong ties, and the results remained the same.

⁵¹ Age, squared age, sex, marital status, education, labour force status, subjective social class, activity limitation, household size, per capita household income, type of settlement, region.

⁵² Table A1 in the Appendix provides descriptive statistics of the variables.

⁵³ We reckoned proportion of relatives for respondents with no strong ties as 0. We also estimated models restricted the sample for those who have at least 1 strong tie, and the results were the same.

⁵⁴ Age, sex, marital status, education, labour force status, health problem, subjective financial situation, household size, type of the household, per capita household income, region, urban or rural area, accommodation problems, environmental problems (e.g. noise, air pollution, lack of access to recreational areas etc.).

⁵⁵ Table **Hiba! A hivatkozási forrás nem található.** in the Appendix provides descriptive statistics of the variables.

⁵⁶ *The Moral Basis of a Backward Society*.

⁵⁷ Naturally, it is possible that participation in voluntary organizations and in political activities results in a higher proportion of non-relatives among strong ties.