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non-Roma secondary school students**

LÁSZLÓ LŐRINCZ

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Inter-ethnic dating preferences of Roma and non-Roma secondary school students

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# **Inter-ethnic dating preferences of Roma and non-Roma secondary school students**

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## **Abstract**

Adolescent romantic relationships are sources of social influence concerning educational achievement and delinquent behavior. Integrated schooling is known to induce inter-ethnic friendship relations, however, it also creates the opportunity of inter-ethnic dating. Based on contact theory, inter-ethnic personal relationships or long-term exposure decreases ethnic prejudice, thus it is proposed that willingness to date between ethnic groups may also increase. The question arises, whether in the school context exposure is enough for this mechanism to emerge, or personal contact is necessary. It must be also taken into account, that romantic relationships are embedded in status relations within schools. Previous studies on intermarriage and homogamy found a “social exchange” mechanism, that lower status members of majority groups are more likely to choose minority partners. Translated to the adolescent society, it is assumed, that the less popular members of the majority groups are those, who are more willing to form inter-ethnic dating relations. To address the above questions empirically, the first wave of the Hungarian network panel “Wired into Each Other” was analyzed, containing data of 1214 9th grade students in 43 classes of seven secondary schools. Inter-ethnic dating preferences of Roma and non-Roma students were measured by dyadic attribution of physical attractiveness, and nominations of willingness to date. Statistical analysis was carried out using multilevel p2 models. They suggest that mixed groups are not sufficient, but personal contacts are necessary to decrease same ethnicity preferences in dating. An additional tendency is that among majority students, those who are isolated from the friendship networks are the ones who are more willing to date with the minority group.

**Keywords:** romantic relationships; dating; intergroup contact; adolescents; Roma minority; Hungary.

**JEL classification:** J13, J15

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# Etnikai preferenciák a párkapcsolatokban roma és nem roma középiskolások között

Lőrincz László

## Összefoglaló

A serdülőkori szerelmi kapcsolatok a társas befolyás fontos tényezői például a tanulmányi előmenetel vagy a devianciák szempontjából. Ismert, hogy az integrált oktatás elősegítheti az etnikumok közötti barátságok létrejöttét, de emellett a szerelmi kapcsolatok kialakulását is lehetővé teszi. A csoportközi kapcsolatok elmélete alapján az etnikumok közötti személyes kapcsolatok, illetve a hosszú távú egymásnak kitettség csökkenti az előítéleteket, így feltételezhető, hogy a párválasztási preferenciákat is befolyásolja. Felmerül a kérdés, hogy az iskolai kontextusban a vegyes csoportok elegendőek-e e mechanizmus kialakulásához, vagy a személyes kapcsolatok szükségesek. Figyelembe kell továbbá venni, hogy a szerelmi kapcsolatok beágyazottak az iskolai státuszrendszerbe. A párválasztás során megjelenő státuszhatások elemzése során a kutatások a társadalmi csere mechanizmusát azonosították, miszerint a többségi csoport alacsonyabb státuszú tagjai gyakrabban választanak kisebbségi, míg a kisebbségi csoport magasabb státuszú tagjai többségi csoporthoz tartozó partnert. Az iskolai kontextusra lefordítva feltételezhető, hogy a nem roma tanulók közül a kevésbé népszerűek azok, akik jobban elfogadnának a kisebbséghez tartozó partnert. A fenti kérdések empirikus vizsgálata az MTA TK RECENS „Egymásba gabalyodva” adatbázisa alapján történt, 1214 9. osztályos tanuló adatai alapján. A párválasztási preferenciákat a roma és nem roma etnikumok között a diádok szintjén mértük, azon kérdések alapján, hogy a kérdezett kiket tart vonzónak, illetve kikkel járna szívesen. A statisztikai elemzésre használt *multilevel p2* modellek eredményei azt mutatták, hogy a vegyes csoportok nem elegendőek, személyes (barátság) kapcsolatok szükségesek a preferenciák módosulásához. További tendencia, hogy azon nem roma tanulók, akik a barátságálózatban izoláltak, nagyobb valószínűséggel választanának roma társat.

**Tárgyszavak:** szerelmi kapcsolatok, csoportközi viszonyok, kamaszok, roma kisebbség

**JEL kódok:** J13, J15

## 1. INTRODUCTION

Consequences of ethnically integrated schooling are often analyzed by examining its effect on school performance and racial attitudes. Scholars of social networks analyzed the effect of interracial friendship relations, as previous studies suggested that peer acceptance contributes to educational motivation and success, decreases the probability of drop-out (Lubbers 2003), and close interracial friendships influence racial attitudes (Powers & Ellison 1995).

In contrast to friendships, interethnic romantic relationships got less attention, although their influence in adolescent communities is equally important. Romantic partners influence each other in several domains, similarly to friendship relations. Dating with high achievers improve one's own school performance (Giordano et al. 2008), but smoking and drinking behavior, and delinquency of the partner may induce engagement in such activity (Haynie et al. 2005, Kreager & Haynie 2011, Kreager, Haynie, & Hopfer 2013). Dating relationships also function as bridges among subgroups of friends, therefore it allows to spread these behaviors across the adolescent networks (Kreager & Haynie 2011).

The current study focuses on Roma population, which on the Eastern side of Europe corresponds to social problems concerning black and Hispanic population in the U.S, and immigrant population in Western European countries. Roma people are one of Europe's largest ethnic minorities, and their disadvantage can be observed on several fields. Only 15% of young Roma adults complete upper secondary or general vocational education, less than third of the adult population is in paid employment, and one third of the population reports unemployed status. About 45% of the population lives in poor housing conditions (FRA 2012).

Attitudes of the majority towards the Roma represent salient social distance in many European societies, including Hungary (Csepeli, Fábrián, & Sík 1998). In Hungary, the Roma are estimated to comprise 5 to 6 percent of the total population and 10 to 12 percent of the young adolescent population (Kemény & Janky 2006). Concerning education, the gap between Roma and non-Roma students in standardized test scores is substantial (similar to the Black-White gap in the United States in the early 1980s). It is in large part explained by differences in income, wealth and parental education, however school segregation also adds to this difference (Kertesi & Kézdi 2011, Kertesi & Kézdi 2014). Policy consequences of these problems also got attention. It was shown that the policy of free school choice diminished the role of residential distribution because many students commute to schools of their choice. Unobtrusive segregationist policies of schools could also be observed (Kertesi & Kézdi 2013). Subsequent recommendations included abolishing "special education needs" classification

and gradually diminishing school level segregation in 2008 (Havas 2008). An additional argument for integration was that school integration induced positive effect on educational outcomes not only for the minority students (Kézdi & Surányi 2009). However, no further de-segregation policies were put into force, possibly due to opposition of the public opinion.

School integration, from the point of view of partner choice, increases inter-ethnic contact opportunities, which may contribute to decreasing ethnic homophily (the tendency of people to choose partners with the similar ethnicity). However, the more interesting and policy relevant question is, whether students do change their behavior in such a more heterogeneous setting. If people interact most often with others with the same ethnicity, that means racial division, not integration (Moody 2001). Thus, the mechanisms, which need to be studied are that the size and number of ethnic groups themselves generate a certain level of homophily, but additionally, the choice of individuals can be altered in contrast to pure random selection, which adds to this effect. These are called baseline and inbreeding (or choice) homophily (McPherson, Smith-Lovin, & Cook 2001).

An assumption, that more exposure to minority groups may increase the inclination of inter-ethnic dating may be put forward based on contact theory. It predicts that interethnic contacts (personal relationships or long-term exposure, when contact is unavoidable) decrease prejudice towards other groups (Pettigrew & Tropp 2006). However, the question arises, whether in the school context exposure is enough for this mechanism to emerge, or personal contact is necessary. Although vast empirical evidence supports contact theory, it is less evident, that group composition itself has an effect on inter-ethnic relations. For example, when analyzing friendship segregation and racial integration in schools, Moody (2001) found that friendship segregation actually increased and not decreased, if group diversity was elevated from low to moderate levels. About the romantic issues, Clark-Ibáñez & Felmlee (2004) found that school diversity did not, only friendship heterogeneity did increase the chance of inter-ethnic dating.

We should also take into account, that romantic relationships are embedded in status relations within schools. Popularity is a key asset for developing dating relations. Thus, the status position of a student constrains the possible pool of partners, and when choosing partner, its status consequences are also taken into account. Therefore, it is assumed, that the less popular members of the majority groups are those, who are more willing to form inter-ethnic relations.

To address the above questions empirically, a sample of 1214 secondary school students from seven Hungarian schools were asked, whom they find attractive, and whom they would date in the class. These observations are structured in dyads, where the preference may be influenced by individual characteristics of the pair of students, and reciprocity may also be present. The observations have a multilevel structure, that the dyads are observed within

(pairs of) individuals, which are observed in classes. These effects can be taken to account with using multilevel p2 models.

## **2. BACKGROUND**

In partner selection homophily, and homogamy, can be observed widely in societies. Theories of partner selection traced back this phenomenon to two factors: preferences and choice opportunities (Kalmijn 1998). Concerning ethnicity, this means that the trend that people select same-ethnicity partners may be the consequence of that people prefer same race partners for dating, but may also occur because people usually meet same race others in societal settings.

A strong same race preference in fact can be found about partner choice. In earlier studies from the field of psychology direct questions were used to reveal this phenomenon. For example, Sprecher, Sullivan, & Hatfield (1994) used the unmarried subsample of a representative survey asking about desirability of attributes of potential mates. Having different race got one of the lowest desirability in the list, below items like significant age difference, difference in religion, or having less education or income.

In recent years, general diffusion of new dating services created new opportunities for economists to deduce the preferences from the behavior of individuals (so called revealed preferences method). Hitsch, Hortaçsu, & Ariely (2010) analyzed the log file of an online dating service, and compared that which profiles were actually connected from those that were viewed by the users. They found negative effect of dissimilarity in race for Blacks, Whites, Asians and Latinos. Similar results were obtained using speed dating experiments, when Fisman et al. (2008) created a replica of a real speed dating service, and analyzed the choices of the participants. Preferences for interethnic dating may vary in different groups of societies. For example conservative political views and religion decreases one's willingness to date other races based on the analysis of online personals (Yancey 2007).

In Hungary, partner preferences of Roma and non-Roma population have been studied as a measure of xenophobia and social distance: in a national representative sample respondents were asked if they would object if a close family member would marry someone with Roma origin (Csepeli, Fábíán, & Sík 1998). The figure that 58% of respondents would oppose or strongly oppose it indicates the presence of a non-tolerant norm. Regarding intermarriage, a very high, 84% in-marriage rate of the Roma population can be observed, which is significantly higher than this ratio for other minorities in Hungary (Tóth & Vékás 2008).

In addition to preferences, composition of the available marriage markets influence partner selection (Lichter et al. 1992). The founders of this research tradition are Blau &

Schwartz (1984), who have shown that relative size of different groups in US metropolitan areas influence partner selection, and heterogeneity decreases homogamy. On the other hand, if availability of preferred partners is decreased in a context, people tend to turn elsewhere for potential candidates. For example in schools, where same-race partners are scarce, students of these ethnicities tend to select partners outside of the schools (Strully 2013).

To understand the interaction between group composition and preferences, the research tradition of contact theory provides important insights. This originates in Allport (1954), who examines the conditions under which social contacts between individuals decrease prejudice. About the underlying mechanism Pettigrew (1998) created a model. According to this, under specific conditions (equal status of the groups, existence of common goals, intergroup cooperation and support of the authorities), based on the characteristics and experience of individuals, initial contact between groups emerges leading to liking on the individual level, and over time established personal relationships result in decreased prejudice. However, this positive change only applies to the groups as a whole, if the contact is arranged between group members, where the in-group and out-group members can be regarded as typical representatives of their groups (Brown & Hewstone 2005). A meta-analysis of the rich research tradition using 515 empirical studies supports the relationship between personal interaction and decreasing prejudice. Moreover, this relationship seems to hold even without Allport's original necessary conditions (Pettigrew & Tropp 2006).

A possible consequence of the theory regarding inter-ethnic dating relationships is that increased intergroup contact subsequently results in more positive attitudes, which may also manifest in dating preferences. About increased contact, Pettigrew & Tropp (2006) emphasizes that physical proximity of the two ethnic groups is not enough, established contact should be assumed. This may be assumed in long-term situations where contact is unavoidable such as in small classrooms, or it can be observed directly.

An observed evidence for inter-ethnic contact may be the presence of inter-ethnic friendship relations. Empirical results support this link between friendships and dating: having interethnic friendships influenced positively the likelihood of interethnic dating in the sample of Asian American college students (Mok 1999). Qualitative results from an elite college study also suggested, that segregation of friendship network contributes to maintaining racial homophily in dating (McClintock 2010). Beyond the contact hypothesis, Clark-Ibáñez & Felmler describes three mechanisms about the effect of family and friendship networks on interethnic dating: (1) networks act as the source of information, thus reduce uncertainty, (2) support from these networks influence the viability of the relationship, and (3) networks set norms and sanction non-normative behavior. Using survey data of college students they have found that friends' ethnic diversity influences positively the chance of



interethnic dating. On the other hand, ethnic diversity of respondents' neighborhood and high school did not have such independent effect. Keels & Harris (2014) have also shown that more heterogeneous friendship networks increases the likelihood of inter-ethnic dating study using survey data from 24 predominantly white colleges. Moreover, in contrast to the above results, lower share of the same ethnicity students in the college had an additional positive effect of interethnic dating in their study.

Based on these, group composition may have a dual role in partner selection. Naturally, in ethnically heterogeneous groups finding appropriate same ethnicity partner is more difficult; therefore the chance of interethnic dating increases. But additionally, based on contact theory, more contact to minority groups may contribute to increased contact, which may result in that the majority group considers them more worthy for dating.

On the other hand, there is evidence about an opposite effect between minority group size and attitudes. The core proposition of ethnic competition theory is that the level of competition on the individual and contextual levels reinforces ethnic exclusionism (Scheepers, Gijsberts, & Coenders 2002). Applying to the question of anti-immigration attitudes, it was shown that increase in non-European immigration is associated with more exclusionist attitudes among the population with lower level of formal education or working in low status jobs (Scheepers, Gijsberts, & Coenders 2002, Semyonov, Raijman, & Gorodzeisky 2006)

About these potential conflicting effects Vermeij, van Duijn, & Baerveldt (2009) notes, that contact theory does not refer to casual and superficial contact – according to Allport this would rather enhance hostility, thus for those types of relationships prediction of ethnic competition theory applies. In fact, ethnic competition theory typically examines casual and superficial contacts in large scale settings. Therefore, it can be assumed that in a small scale setting with frequent contact, like school classes the positive effect of contact with minorities may balance, or even dominate the negative one.

This positive effect can be measured on two levels. Assuming unavoidable contacts in the classrooms, it can be proposed that with increasing share of minority students, inclination of majority students to date with them increases (H.1.)

Additionally, explicit presence of social ties, such as friendships with the minority group may have an additional effect. Therefore, it is assumed that preferences of same ethnicity in dating are weaker for those majority students, who had friendships with the minority ones (H.2.).

An interesting question is, which of these effects are dominant when examining the classroom setting. Are they additional, or one dominates the other when both effect is entered in the model? Examples from previous research can be found for no effect of group

heterogeneity (on the school level) beyond an existing effect of friendship diversity (Clark-Ibáñez & Felmlee 2004), and for additional effect of group (college) heterogeneity and friendship diversity (Keels & Harris 2014). As classes are relatively small in contrast to the groups analyzed by these studies, an additional effect beyond friendship diversity may be assumed (H.3.)

In addition to the general tendency of attitudes towards dating with minorities, it is also interesting to analyze, which students will form inter-ethnic relations. To study this, interdependence of status and romantic relationships must be taken into account. Friendship relations were found important about the development of developing dating relations. Size of same sex friendship network was related to the size of the other sex friendship network, which had a positive effect of developing dating relations in the subsequent years in early adolescence (Connolly, Furman, & Konarski 2000, Connolly et al. 2004). Popularity itself was found an important predictor of developing dating relationships (McCarthy & Casey 2008), and it also influences partner selection (Simon, Aikins, & Prinstein 2008) On the other hand, experience with the opposite gender directly influence popularity within the peer groups (Kreager & Staff 2009). Thus, the status position of a student constrains the possible pool of partners, and when choosing partner, status consequences of the choice also needed to be taken into account. Such status considerations of partner selection are analyzed in the social exchange framework. This approach is based on a utility maximization assumption, that “Each individual is assumed to carry an approximate market value, depending on the degree to which he or she possesses valued traits such as beauty, intelligence, charm, wealth, and social status. It is assumed that if every individual seeks the best value in a mate, individuals of approximately equal value will tend to pair up” (Kenrick et al. 1993: 951). However, it is not necessary, that couples with equivalent resources are actually similar in all relevant characteristics, as “the equivalence could result from a balance of pluses and minuses in different areas” (Schoen & Wooldredge 1989). Empirical studies of the status-caste exchange have shown, that choosing partners from minorities (which is assumed to be associated with lower status) is often compensated by their higher educational status (Schoen & Wooldredge 1989, Kalmijn 1993, Fu 2001). Translated to the adolescent society, an ethnicity-popularity exchange may suggest, that the less popular members of the majority groups are those, who are more willing to form inter-ethnic relations. (H.4.)

### **3. METHODS**

#### **SAMPLE**

The study is based on data from the "Wired into Each Other: Network Dynamics of Adolescents in the Light of Status Competition, School Performance, Exclusion and Integration" project of the Hungarian Research Center for Education and Network Studies. The sample includes seven secondary schools from Hungary: two from the capital, two from a major city in Eastern Hungary, and three from nearby smaller towns. As one of the research goals was to examine social inclusion, a selection criterion of cities was the existence of Roma minority. Another restriction of the sample was the quota for school types: either in the case of Budapest, in the major city and in the smaller towns, grammar schools and schools providing vocational training were included. As in the research we used this targeted sampling, the sample cannot be considered as representative of the region or Hungary. The target group includes all students of the selected schools, who were in 9th grade in the academic year 2010-11. This study uses wave 1 of the data collection, carried out two and half months after the students entered secondary school (9th grade) in 2010, using paper and pencil questionnaire. At the time of the data collection their median age was 15.2 years.

Altogether 1,356 students were contacted from 44 classes of the seven secondary schools. Students, who were absent on the day of the examination, and those, whose parents objected their kids participating in the survey were excluded. Additionally, one class was excluded from the sample, as it contained only males. These resulted in the data of 1,214 students, which was used for analysis.

#### **DEPENDENT VARIABLES**

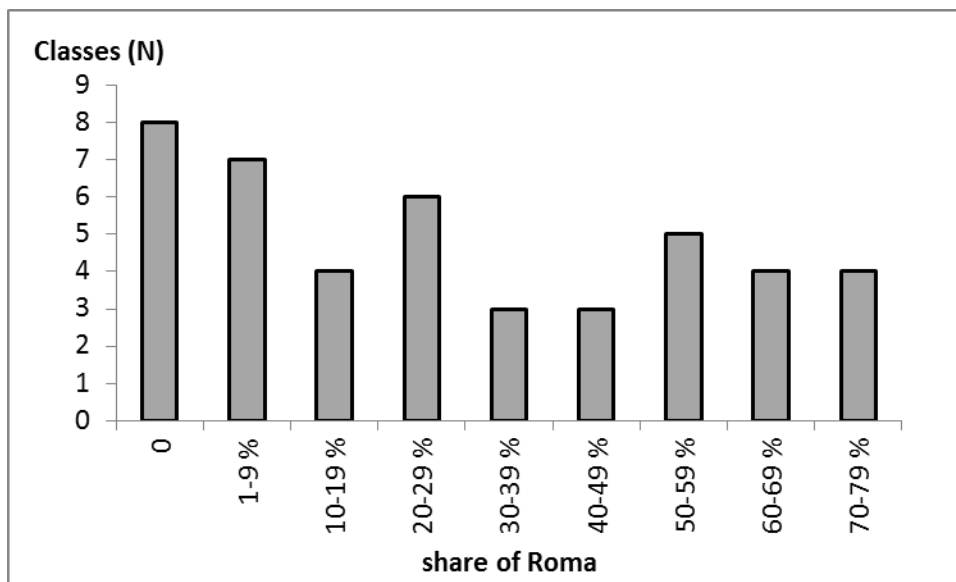
Two measures of dating preferences were selected for analysis. First, in order to measure willingness to date directly, respondents were asked to mark those, "Who they would date with" from the list of their classmates. This is a dyad level observation, which is available for every potential dyads in the class on 0/1 level. In addition, the measure of attraction was analyzed, by asking respondents to mark those, "Who they think to be pretty or handsome" from the list of all members of the class, as it is known from previous studies that physical attractiveness is a very strong predictor of dating preferences for males and females (Hitsch, Hortaçsu, & Ariely 2010, Fisman et al. 2008). Frequency distributions of attraction and dating willingness differed notably. Students marked 10.6% of their opposite gender classmates as attractive, but they would date only with 2.5% of them.

## INDEPENDENT VARIABLES

The main independent variable in the analysis is ethnic origin. Roma origin was measured using self-assessment. 27.4% of the students reported that they have Roma or partly Roma family background (and there were 8.3% missing values due to nonresponse). Share of Roma students was measured on the class level, calculated from the above variable. The ethnic composition of classes was diverse. In eight classes no one identified herself as Roma, in seven classes less than 10%, but in eight classes share of the Roma exceeded 60% (Figure 1).

Figure 1.

### Distribution of share of Roma students in the sample classes



The inter-ethnic friendship measure is based on a question asking students to indicate their relationship towards each of their classmates, whether it is “-2: I hate her, she is my enemy -1: I don’t like her, 0: neutral, 1: I like her, 2: she is a good friend of mine”. The answers indicating “2” were used to identify friendships. Afterwards, these variables were transformed to capture relationship of non-Roma students with Roma: for any non-Roma respondent relationship with Roma was identified if she indicated friendship with at least one Roma classmates. 30.9% of non-Roma respondents reported such friendships.

To measure status within the group, popularity (number of friends) may be a valid measurement. As individual preferences are our interest, individual perception of popularity is relevant. Therefore, instead of friendship indegree, friendship outdegree was used. In the basic specification, the proxy of low status vs. not low status is isolated position (outdegree = 0) vs. non-isolated (outdegree >0). For alternative specification the measurement of the outdegree itself was also used.

Additionally, romantic relationships were found to be based on mixed-gender friendships. Although it was not shown for the dyadic level (that friendships evolve to romantic affiliations), but only on the individual one (that having mixed gender friendships forecast developing having romantic relationships) (Connolly, Furman, & Konarski 2000, Connolly et al. 2004), if it also exist on the dyadic level, it provides an alternative explanation for the potential correlation between mixed-ethnicity friendships and romantic preferences. Therefore the dyadic indication of friendship was used as a control variable, (for all respondents and for non-Roma-Roma dyads), thus the original variable can capture the effect that the respondent have friendships with Roma classmates beyond the one person, the romantic relationship is examined with.

## STATISTICAL MODELS

When observations refer to social networks, one should expect that social mechanisms, such as reciprocity, homophily, and transitivity, are present, which in traditional regression models these may cause biased estimation (Snijders 2011). Concerning friendship networks, it was shown that both transitivity mechanism (the fact that two friends of mines also tend to be friends) and reciprocity amplifies homophily (Wimmer & Lewis 2010).

Accordingly, multilevel p2 models (Zijlstra, van Duijn, & Snijders 2006) were chosen for analysis. This is based on the p2 model (Duijn, Snijders, & Zijlstra 2004), which is specified to measure directed ties in social networks. In this setting a relationship between two actors are measured by the variable  $Y_{ij}$ , which equals 1 if there is a directed tie from actor  $i$  to  $j$ . The model estimates the four possible outcomes (0,0; 0,1; 1,0; 1,1) of the dyadic relationship using a sender, a receiver, a density and a reciprocity parameter. The possibility to add covariates for these effects makes the model capable to analyze the influence of individual and network characteristics on these parameters. The p2 uses an exponential function to model these probabilities, similarly to logistic regression models, thus the interpretation of the parameters are similar to ones of logistic regressions (Zijlstra, Veenstra, & Van Duijn 2008).

The multilevel p2 extends the original model for the analysis of multiple networks. It assumes identical p2 specifications for each networks, which can be different in size. It adds a group level random effect to the original sender, receiver, density and reciprocity parameters as they are observations from different networks, and a group level parameter for density and reciprocity, which allows the analysis of group level covariates. Therefore it can be regarded as a three level random effects model, where ties (level 1) are cross-nested in individuals (level 2), who are nested in groups (level 3) (Zijlstra, van Duijn, & Snijders 2006)

Consequently, the model address reciprocity directly, therefore eliminates potential biases from this source. Transitivity and other triadic effects the other hand are less relevant for dating networks, as no direct triad can be assumed in a heterosexual dating network. Additionally, it considers the multilevel structure of the data as well.

Ethnic considerations in the individual preferences can be inferred by adding ethnic covariates to the p2 models. For this purpose three effects were used. “Sender Roma” represents that the respondent is Roma, “Receiver Roma” shows that the alter in the dyad is Roma, and the “mixed ethnicity” dyadic covariate (absolute difference in ethnicity between ego and alter) compares ethnically similar and dissimilar dyads, so it can be interpreted as an inverse homophily parameter. To measure class composition effect, three further effects were used. The main effect of the share of the Roma students in the class (“Share of the Roma” group covariate) estimates the average effect of class composition on liking. Its interaction with the “Receiver Roma” variable (“Share x receiver Roma”), indicates, how the share of the Roma students in the class alters the desirability of Roma students, thus it is my key interest regarding H.1. The “Both Roma” variable (“Share x both Roma” dyadic covariate) measures if the effect of the share of the minority students on their desirability is different due to Roma respondents compared to non-Roma respondents.

For analysis of H.2.-H.4. the corresponding variables will be entered to the models as dyadic covariates.

#### **4. RESULTS**

To test the hypotheses, effects are added to the p2 models in the following order. First, the basic multilevel p2 model is considered, containing no covariates, only density and reciprocity effects. Second, individual level ethnic covariates are added to the model. Third, parameters of group level ethnic composition is added, to test H1. Fourth, interethnic contact covariate is included. It is followed by the friendship status covariate, and finally the dyadic level friendship controls. Coefficients of the model with dependent variable attraction is presented in table 1, and table 2 displays the results with the willingness to date dependent variable in similar structure.

First taking into account the model of finding someone attractive (Table 1), it turns out that a moderate level of reciprocity is present (Column A), which is typical for social network studies, but here it shows that even attraction tend to be symmetric in the classes. Concerning the ethnic parameters, the main effects of sender and receiver ethnicity is not statistically significant, but the mixed ethnicity covariate is significant and negative, indicating that students find same ethnicity classmates more attractive, compared to dissimilar ones (Column B). When including group level effects, “Share x receiver Roma”

dyadic covariate, indicates, that the increasing share of Roma students in the class raises the probability that they are marked as attractive, which corresponds to H.1. This effect is independent of the ethnicity of the respondent (sender), as the coefficient of “Share x Both Roma” interaction is not statistically significant. The group level covariate of the share of the Roma in the class is also significant and negative, showing that in classes with more Roma students the probability of attraction between two students is decreased (Column C). Adding the inter-ethnic personal contact variable to the model (that the respondent has at least one Roma friend), interacted with the Non-Roma  $\rightarrow$  Roma dyads, it does turn to be statistically not significant (Column D). However, after adding the non-isolated status interacted with the Non-Roma  $\rightarrow$  Roma dyads, it is apparent, that in the previous specification two opposite effects were present, which extinguished each other: non-isolated status in the friendship network decreases the likelihood of non-Roma to be attracted to Roma (thus isolated status increases it, corresponding to H.4.), furthermore, having contact to Roma (after controlling for isolation) also increases attraction, corresponding to H.2. (Column E.). On the other hand, with the inclusion of these variables, effect of group composition becomes insignificant, suggesting that group heterogeneity only has effect on inter-ethnic preferences, if friendship relationships are present, which is in contrast to H.2. assuming additional effects. Finally, if dyadic level friendship controls are added to the models (friendship nomination, and its interaction with Non-Roma  $\rightarrow$  Roma dyads), they turn out to be nonsignificant, and inclusion of them does not change the significance of the previous parameters (Column F).

Turning to the models of willingness to date (Table 2), a similar reciprocity effect can be observed, but the density parameter indicates a much sparser network than in the previous case (Column A). The ethnic parameters show similar tendencies to the attractiveness model, that none of the main effects are significant, but the negative mixed ethnicity parameter indicates significant preference for same ethnicity partners (Column B). Entering the group level ethnicity covariates to the model, the mixed ethnicity and the Share x Receiver Roma parameters look to be similar to the above results, but they are not significant in this model (Column C). With the inclusion of effect of interethnic friendship and being isolated in the friendship networks for Non-Roma  $\rightarrow$  Roma dyads, the results are the same as previously, that inter-ethnic friendship has a significant positive effect on Non-Roma students’ willingness to date with Roma ones, and isolated status also increases this likelihood. (Column E). Adding the dyadic level friendship controls does not change these results either (Column F).

Table 1.

**Multilevel p2 estimates of ethnicity, class composition, personal contact and isolated status on liking**

| Effect                     | Column A     | Column B       | Column C      | Column D       | Column E       | Column F       |
|----------------------------|--------------|----------------|---------------|----------------|----------------|----------------|
| Density                    | -4.89 (0.21) | -4.70 (0.20)   | -4.81 (0.26)  | -4.72 (0.27)   | -4.87 (0.19)   | -4.82 (0.31)   |
| Reciprocity                | 1.48 (0.15)  | 1.50 (0.15)    | 1.50 (0.15)   | 1.50 (0.14)    | 1.47 (0.15)    | 1.48 (0.14)    |
| <b>Sender covariates</b>   |              |                |               |                |                |                |
| Sender Roma                |              | -0.15 (0.19)   | 0.53 (0.38)   | 0.59 (0.40)    | -0.20 (0.44)   | -0.29 (0.36)   |
| <b>Receiver covariates</b> |              |                |               |                |                |                |
| Receiver Roma              |              | 0.22 (0.17)    | -0.61 (0.38)  | -0.60 (0.44)   | -0.29 (0.45)   | 0.20 (0.45)    |
| Share x receiver Roma      |              |                | 1.96 (0.81)*  | 1.64 (0.87)    | 1.05 (0.92)    | 0.24 (0.84)    |
| <b>Dyadic covariates</b>   |              |                |               |                |                |                |
| Mixed ethnicity            |              | -0.54 (0.11)** | -0.48 (0.26)* | -0.57 (0.22)** | 0.32 (0.32)    | 0.32 (0.29)    |
| Share x both Roma          |              |                | 0.36 (1.10)   | 0.37 (0.94)    | 1.01 (0.98)    | 1.03 (0.94)    |
| Has Roma friends x NR→R    |              |                |               | 0.35 (0.24)    | 0.73 (0.27)**  | 0.81 (0.28)**  |
| Has any friends x NR→R     |              |                |               |                | -1.92 (0.43)** | -1.98 (0.43)** |
| Friend                     |              |                |               |                |                | -0.04 (0.08)   |
| Friend x NR→R              |              |                |               |                |                | -0.09 (0.30)   |
| <b>Class covariates</b>    |              |                |               |                |                |                |
| Share of Roma              |              |                | -1.90 (0.97)* | -1.77 (0.91)*  | -2.09 (0.96)*  | -1.86 (0.82)*  |
| <b>Random effects</b>      |              |                |               |                |                |                |
| Class density variance     | 1.28 (0.41)  | 1.15 (0.41)    | 1.15 (0.43)   | 1.14 (0.45)    | 1.24 (0.42)    | 1.10 (0.41)    |
| Sender variance            | 2.23 (0.19)  | 2.10 (0.19)    | 2.13 (0.20)   | 2.11 (0.19)    | 2.14 (0.20)    | 2.06 (0.18)    |
| Receiver variance          | 2.22 (0.20)  | 2.21 (0.19)    | 2.23 (0.20)   | 2.20 (0.20)    | 2.26 (0.20)    | 2.21 (0.20)    |
| Sender receiver covariance | -0.16 (0.12) | -0.22 (0.12)   | -0.22 (0.13)  | -0.21 (0.13)   | -0.20 (0.14)   | -0.21 (0.13)   |
| Number of dyads            | 51,768       | 42,825         | 42,825        | 42,690         | 42,690         | 42,690         |

Notes: Posterior mean (Posterior S.D.), \*\*: p<0.01, \*: p<0.05

The “attraction” and “willingness to date” models are consistent in point of the H.2-H.4. hypotheses, suggesting that inter-ethnic friendships have positive effect on inter-ethnic dating preferences (H.2.), they dominate the effect of class composition (in contrast to H.3.), and the preferences seem to reflect strategic considerations of status exchange: being isolated from friendships is associated with decreased same-ethnicity preferences in dating (H.4.). Concerning H.1., the effect of ethnic composition of classes is only significant in the attraction model.



Table 2.

**Multilevel p2 estimates of ethnicity, class composition, personal contact and isolated status on willingness to date.**

| Effect                     | Column A     | Column B      | Column C     | Column D      | Column E      | Column F      |
|----------------------------|--------------|---------------|--------------|---------------|---------------|---------------|
| Density                    | -6.84 (0.26) | -6.81 (0.31)  | -6.90 (0.33) | -6.70 (0.28)  | -6.95 (0.26)  | -6.95 (0.48)  |
| Reciprocity                | 1.70 (0.50)  | 1.52 (0.56)   | 1.52 (0.54)  | 1.69 (0.50)   | 1.51 (0.60)   | 1.63 (0.48)   |
| <b>Sender covariates</b>   |              |               |              |               |               |               |
| Sender Roma                |              | 0.03 (0.31)   | 0.74 (0.61)  | 0.86 (0.64)   | 0.16 (0.78)   | 0.09 (0.68)   |
| <b>Receiver covariates</b> |              |               |              |               |               |               |
| Receiver Roma              |              | -0.03 (0.24)  | -0.59 (0.55) | -0.71 (0.64)  | 0.03 (0.64)   | -0.07 (0.63)  |
| Share x receiver Roma      |              |               | 1.85 (1.33)  | 0.99 (1.30)   | 1.11 (1.46)   | 0.94 (1.16)   |
| <b>Dyadic covariates</b>   |              |               |              |               |               |               |
| Mixed ethnicity            |              | -0.46 (0.18)* | -0.63 (0.50) | -0.94 (0.42)* | -0.17 (0.61)  | 0.07 (0.55)   |
| Share x both Roma          |              |               | -0.77 (2.08) | -0.38 (1.82)  | -0.44 (1.88)  | 0.23 (1.42)   |
| Has Roma friends x NR→R    |              |               |              | 1.16 (0.51)*  | 1.63 (0.63)** | 1.54 (0.66)** |
| Has any friends x NR→R     |              |               |              |               | -2.00 (0.96)* | -2.07 (0.94)* |
| Friend x NR→R              |              |               |              |               |               | 0.78 (0.13)** |
| <b>Class covariates</b>    |              |               |              |               |               |               |
| Share of Roma              |              |               | -1.34 (1.43) | -1.12 (1.43)  | -1.08 (0.41)  | -1.44 (1.42)  |
| <b>Random effects</b>      |              |               |              |               |               |               |
| Class density variance     | 0.53 (0.24)  | 0.49 (0.31)   | 0.41 (0.24)  | 0.44 (0.27)   | 0.57 (0.32)   | 0.48 (0.26)   |
| Sender variance            | 3.98 (0.51)  | 4.22 (0.58)   | 4.34 (0.64)  | 4.09 (0.59)   | 4.38 (0.63)   | 4.18 (0.85)   |
| Receiver variance          | 1.45 (0.28)  | 1.55 (0.31)   | 1.63 (0.29)  | 1.55 (0.25)   | 1.68 (0.27)   | 1.39 (0.39)   |
| Sender receiver covariance | -0.62 (0.25) | -0.56 (0.30)  | -0.60 (0.33) | -0.64 (0.28)  | -0.62 (0.29)  | -0.74 (0.27)  |
| Number of dyads            | 51,633       | 42,690        | 42,825       | 42,690        | 42,690        | 42,690        |

Notes: Posterior mean (Posterior S.D.), \*\*: p<0.01, \*: p<0.05

Regarding the previous specifications same questions arise logically. First, it is interesting, to what extent these effects are present in willingness to date preference if we control by attributed attractiveness. Results of this specification are presented in Table 3 Column A. It is visible that the effects of interests regarding H1.-H3. are not significant in this specification, thus these social effects were already present when considering attractiveness. After the reported attractiveness is taken account, no such social considerations are visible. Thus, it is not the case that students may consider someone attractive, but having “wrong” ethnicity, but they do not even report them attractive. Over physical attraction only

friendship nomination remains significant predictor of willingness to date is in the specification.

Table 3.

**Alternative specifications of the multilevel p2 models**

| Effect                     | Column A                    | Column B                   | Column C                    |
|----------------------------|-----------------------------|----------------------------|-----------------------------|
|                            | Dependent variable          |                            |                             |
|                            | Willingness to date someone | Finding someone attractive | Willingness to date someone |
| Density                    | -8.23 (0.25)                | -4.64 (0.26)               | -7.06 (0.30)                |
| Reciprocity                | 0.20 (0.56)                 | 1.48 (0.16)                | 1.84 (0.48)                 |
| <b>Sender covariates</b>   |                             |                            |                             |
| Sender Roma                | 0.33 (0.72)                 | 0.46 (0.34)                | 0.54 (0.74)                 |
| <b>Receiver covariates</b> |                             |                            |                             |
| Receiver Roma              | -0.23 (0.68)                | -0.41 (0.38)               | -0.51 (0.59)                |
| Share x receiver Roma      | -0.04 (1.23)                | 0.96 (0.94)                | 0.86 (1.44)                 |
| <b>Dyadic covariates</b>   |                             |                            |                             |
| Found attractive           | 5.31 (0.20)**               |                            |                             |
| Mixed ethnicity            | -0.06 (0.69)                | -0.33 (0.27)               | -0.34 (0.54)                |
| Share x both Roma          | 0.44 (2.31)                 | 1.25 (1.07)                | 0.26 (1.94)                 |
| Has Roma friends x NR→R    | 1.27 (0.77)                 |                            |                             |
| Has any friends x NR→R     | -0.80 (1.19)                |                            |                             |
| N. of Roma friends x NR→R  |                             | 0.26 (0.09)**              | 0.28 (0.15)*                |
| N. of friends x NR→R       |                             | -0.05 (0.05)               | -0.06 (0.08)                |
| Friend                     | 0.80 (0.19)**               | -0.05 (0.08)               | 0.76 (0.14)**               |
| Friend x NR→R              | -0.04 (0.55)                | -0.45 (0.33)               | -0.37 (0.56)                |
| <b>Class covariates</b>    |                             |                            |                             |
| Share of Roma              | -0.30 (1.34)                | -1.87 (0.70)**             | -1.23 (1.26)                |
| <b>Random effects</b>      |                             |                            |                             |
| Class density variance     | 0.21 (0.12)                 | 1.12 (0.40)                | 0.41 (0.23)                 |
| Sender variance            | 4.00 (0.58)                 | 2.11 (0.18)                | 4.44 (0.62)                 |
| Receiver variance          | 0.18 (0.10)                 | 2.21 (0.19)                | 1.56 (0.27)                 |
| Sender receiver covariance | -0.24 (0.26)                | -0.20 (0.13)               | -0.77 (0.25)                |
| Number of dyads            | 42 690                      | 42,618                     | 42,618                      |

Notes: Posterior mean (Posterior S.D.), \*\*: p<0.01, \*: p<0.05

It is also interesting that to what extent the results are dependent on the presented specifications. Inter-ethnic personal relationship was coded as present or not, depending on the fact, whether the non-Roma student had zero or positive number of Roma friends. Low status was coded if the respondent had zero outdegree in the friendship network. However, both variables could have been measured on a continuous scale. These results are presented in Table 3 Column B and C. They show that the above conclusions regarding the inter-ethnic friendship effects remain valid also when it is measured by the number of Roma friends, however the social exchange hypothesis does not hold in this specification, suggesting that this is only present for the lowest status students: isolated students tend to prefer inter-ethnic relationships more than non-isolated ones, but the tendency is not true if students with many and moderate number of friendship ties are compared.

## **5. DISCUSSION**

The first aim of the study was to analyze the interaction between ethnic composition of classes and ethnic preferences in dating. Using multilevel p2 models on the sample of 9th grade Roma and non-Roma students in Hungary, actually the following interaction was found: In classes with higher share of Roma students, non-Roma respondents found more attractive Roma classmates. On the other hand, this effect was not significant for the question asking about whom the respondent would date.

The second goal was to test the effect of cross-ethnic friendship relationships. It was shown in previous studies that ethnic diversity of friendships influences interethnic dating (Clark-Ibáñez & Felmlee 2004, Keels & Harris 2014), and I argued that a possible source of this effect can be the change of preferences. Results supported the hypothesis that having Roma friends increased the probability that non-Roma respondents find their Roma classmates attractive, and also that they would date with Roma classmates.

Of these two effects, the latter was found to be the key mechanism: inclusion of inter-ethnic friendships to the models ruled out group composition effect. This suggests that ethnically heterogeneous groups are not sufficient, actual personal relationships are the ones that do influence inter-ethnic (dating) preferences.

The positive effect of inter-ethnic contact, which was found, is not surprising in light of the research tradition of contact theory in general (Pettigrew & Tropp 2006), however, its application to the Roma – non-Roma population is less frequent. For the lack of independent effect of group diversity on inter-ethnic dating preferences one can also find examples. Lubbers (2003) found no effect of ethnic class composition on inter-ethnic friendships, and Clark-Ibanez & Felmlee (2004) found no effect of ethnic composition of schools on inter-

ethnic dating relationships. However, it should be noticed that the correspondence to this study is not complete, as the key interest here was dating preferences.

It must be added, that although the above mechanisms were presented as basically different, in practice they can be imagined as a continuum. Ethnic structure of groups may influence dating intentions, as in classes the two ethnicities have opportunity to interact, and different types of interactions do occur. Ethnic integration itself cannot have such effect if no interaction is assumed, and what was found empirically is the fact that the share of minority students is important to the extent, it generates contacts (friendships) between the two ethnicities.

Considering the results one may doubt their attribution to the presented contact mechanism. Is it not possible that they are rooted earlier than the observed period? To test this, additional information from the questionnaire was used. A network question asked the respondents about each of their classmates, if they knew them well before the class was created. From this question, similarly to the variables of inter-ethnic friendships, the variable was created, if the respondent knew any of his/her Roma classmates well, before the class was created. Inclusion of this variable to the models (results not shown here) indicated that knowing Roma classmates before secondary school did not influence attraction and willingness to date between non-Roma and Roma classmates, but having Roma friends two month after the class was created has positive effect on these. This observation corresponds to the original hypothesis that what we see in the models is the result of inter-ethnic contact. However, it does not eliminate all alternative explanations. The observed relationship is identified from cross-sectional observations, therefore other non-observed heterogeneity effects may be present – for example the effect of ethnic composition of the towns / neighborhoods, the students come from, which may influence attitudes towards minorities.

After taken into consideration the methodological limitations, it can be concluded that if the identified effects at least partly remain stable and the preferences manifest in actual interethnic dating relationships, than the results may have implications for studying the effects of integrated education. The role of interethnic romantic relationships may manifest in decreased prejudice towards minorities, in educational performance (Giordano et al. 2008), in deviant behavior (Haynie et al. 2005), and in social mobility through marriage.

The second aim of the study was to test the presence of a status – ethnicity social exchange mechanism, or more precisely, the strategic adjustment of the preferences according to this exchange. Being isolate in the friendship network signifies low status within the class. As status is an important asset to be successful in dating (McCarthy & Casey 2008), students may form their preferences accordingly, to avoid disappointments. Thus, relatively low status members of the majority (high status) group will be willing to choose partners from the minority (low status) groups. This hypothesis was supported by the data, however, it

was sensitive to specification: data supported isolated students accept inter-ethnic dates more than non-isolated ones, but this tendency is not true if we compare students with many and moderate number of friendship ties.

The results above were presented as ethnic effects. However, these classmates probably differ in many other characteristics, for example is socio-economic status, or popularity in the class, which may also influence partner choice. Not including these variables in the models was intentional. In case of socio-economic status the reason was that classification of the Roma is highly dependent on socio-economic status (Ladányi & Szelényi 2006), therefore in this case it would be misleading to calculate net effects of Roma ethnicity independently from status. In case of social network variables, one might assume that social exclusion of the Roma influence these network positions as well. Therefore, controlling for these would mean that I try to measure the net exclusion in dating controlled for other types of exclusions, which are present, which was not the purpose of this research. In this respect, the present measurement is similar to ones used in revealed preference studies (Hitsch, Hortaçsu, & Ariely 2010, Fisman et al. 2008), where one can infer preferences from choices, however, not all attributes of the actors (which are possibly correlated to race or ethnicity) are known, therefore the race or ethnicity coefficient actually includes their effects too.

## 6. REFERENCES

- Allport Gordon, W. 1954. *The Nature of Prejudice*. Reading, MA: Addison-Wesley.
- Blau, Peter Michael, & Joseph E. Schwartz. 1984. *Crosscutting Social Circles: Testing a Macrostructural Theory of Intergroup Relations*. Transaction Publishers.
- Brown, Rupert, & Miles Hewstone. 2005. „An integrative theory of intergroup contact”. *Advances in experimental social psychology* 37 (37): 255–343.
- Clark-Ibáñez, Marisol, & Diane Felmlee. 2004. „Interethnic Relationships: The Role of Social Network Diversity”. *Journal of Marriage and Family* 66 (2): 293–305. doi:10.1111/j.1741-3737.2004.00021.x.
- Connolly, Jennifer, Wendy Craig, Adele Goldberg, & Debra Pepler. 2004. „Mixed-Gender Groups, Dating, and Romantic Relationships in Early Adolescence”. *Journal of Research on Adolescence* 14 (2): 185–207. doi:10.1111/j.1532-7795.2004.01402003.x.
- Connolly, Jennifer, Wyndol Furman, & Roman Konarski. 2000. „The role of peers in the emergence of heterosexual romantic relationships in adolescence”. *Child development* 71 (5): 1395–1408.
- Csepeli, György, Zoltán Fábrián, & Endre Sík. 1998. „Xenofóbia és a cigányságról alkotott vélemények”. In *Társadalmi Riport*, 458–89. Budapest: TÁRKI. <http://www.tarki.hu/adatbank-h/kutjel/pdf/a881.pdf>.
- Duijn, Marijtje AJ, Tom AB Snijders, & Bonne JH Zijlstra. 2004. „p2: a random effects model with covariates for directed graphs”. *Statistica Neerlandica* 58 (2): 234–54.
- Fisman, Raymond, Sheena S. Iyengar, Emir Kamenica, & Itamar Simonson. 2008. „Racial Preferences in Dating”. *The Review of Economic Studies* 75 (1): 117–32. doi:10.1111/j.1467-937X.2007.00465.x.

- FRA – European Union Agency For Fundamental Rights (2012): „The situation of Roma in 11 EU Member States - Survey results at a glance”.  
<http://fra.europa.eu/en/publication/2012/situation-roma-11-eu-member-states-survey-results-glance>.
- Fu, Vincent Kang. 2001. „Racial intermarriage pairings”. *Demography* 38 (2): 147–59.
- Giordano, Peggy C., Kenyatta D. Phelps, Wendy D. Manning, & Monica A. Longmore. 2008. „Adolescent academic achievement and romantic relationships”. *Social Science Research* 37 (1): 37–54. doi:10.1016/j.ssresearch.2007.06.004.
- Havas, Gábor. 2008. „Equality of opportunity, desegregation”. *Green Book for the Renewal of Public Education in Hungary*, 131–49.
- Haynie, Dana L., Peggy C. Giordano, Wendy D. Manning, & Monica A. Longmore. 2005. „ADOLESCENT ROMANTIC RELATIONSHIPS AND DELINQUENCY INVOLVEMENT”. *Criminology* 43 (1): 177–210. doi:10.1111/j.0011-1348.2005.00006.x.
- Hitsch, Günter J., Ali Hortaçsu, & Dan Ariely. 2010. „Matching and Sorting in Online Dating”. *The American Economic Review* 100 (1): 130–63. doi:10.1257/aer.100.1.130.
- István, Kemény, & Janky Béla. 2006. „»Roma Population of Hungary 1971–2003,«.” *Roma of Hungary East European Monographs*, CO–Atlantic Research and Publications, New York, NJ, 70–225.
- Kalmijn, M. 1998. „Intermarriage and Homogamy : Causes, Patterns, Trends”. *Annual Review of Sociology* 24: 395–421.
- Kalmijn, Matthijs. 1993. „Trends in black/white intermarriage”. *Social Forces* 72 (1): 119–46.
- Keels, Micere, & Keshia Harris. 2014. „Intercultural Dating at Predominantly White Universities in the United States: The Maintenance and Crossing of Group Borders”. *Societies* 4 (3): 363–79.
- Kertesi, Gábor, & Gábor Kézdi. 2011. „The Roma/Non-Roma Test Score Gap in Hungary”. *The American Economic Review* 101 (3): 519–25. doi:10.1257/aer.101.3.519.
- Kertesi, Gabor, & Gabor Kezdi. 2013. School segregation, school choice and educational policies in 100 Hungarian towns. Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences.  
<http://ideas.repec.org/p/has/bworkp/1312.html>.
- Kertesi, Gábor, & Gábor Kézdi. 2014. „On the test score gap between Roma and non-Roma students in Hungary and its potential causes”. *Budapest Working Papers on the Labour Market*. <http://www.econ.core.hu/file/download/bwp/bwp1401.pdf>.
- Kézdi, Gábor, & Éva Surányi. 2009. *A Successful School Integration Program: An Evaluation of the Hungarian National Government’s School Integration Program, 2005-2007*. Roma Education Fund.
- Kreager, Derek A., & Dana L. Haynie. 2011. „Dangerous Liaisons? Dating and Drinking Diffusion in Adolescent Peer Networks”. *American Sociological Review* 76 (5): 737–63. doi:10.1177/0003122411416934.
- Kreager, Derek A., Dana L. Haynie, & Suellen Hopfer. 2013. „Dating and Substance Use in Adolescent Peer Networks: A Replication and Extension”. *Addiction* 108 (3): 638–47. doi:10.1111/j.1360-0443.2012.04095.x.
- Kreager, Derek A., & Jeremy Staff. 2009. „The Sexual Double Standard and Adolescent Peer Acceptance”. *Social Psychology Quarterly* 72 (2): 143–64. doi:10.1177/019027250907200205.
- Ladányi, János, & Iván Szelényi. 2006. *Patterns of Exclusion: Constructing Gypsy Ethnicity and the Making of an Underclass in Transitional Societies of Europe*. Köt. 676. Columbia University Press.

- Lichter, Daniel T., Diane K. McLaughlin, George Kephart, & David J. Landry. 1992. „Race and the retreat from marriage: A shortage of marriageable men?”. *American Sociological Review* 57 (6): 781–99. doi:10.2307/2096123.
- Lubbers, Miranda J. 2003. „Group composition and network structure in school classes: a multilevel application of the p\* model”. *Social Networks* 25 (4): 309–32.
- McCarthy, Bill, & Teresa Casey. 2008. „Love, sex, and crime: Adolescent romantic relationships and offending”. *American Sociological Review* 73 (6): 944–69.
- McClintock, Elizabeth Aura. 2010. „When Does Race Matter? Race, Sex, and Dating at an Elite University”. *Journal of Marriage and Family* 72 (1): 45–72. doi:10.1111/j.1741-3737.2009.00683.x.
- McPherson, Miller, Lynn Smith-Lovin, & James M. Cook. 2001. „Birds of a feather: Homophily in social networks”. *Annual review of sociology*, 415–44.
- Mok, Teresa A. 1999. „Asian American dating: Important factors in partner choice.” *Cultural Diversity and Ethnic Minority Psychology* 5 (2): 103.
- Moody, James. 2001. „Race, School Integration, and Friendship Segregation in America”. *American Journal of Sociology* 107 (3): 679–716. doi:10.1086/338954.
- Pettigrew, Thomas F., & Linda R. Tropp. 2006. „A meta-analytic test of intergroup contact theory.” *Journal of personality and social psychology* 90 (5): 751.
- Powers, Daniel A., & Christopher G. Ellison. 1995. „Interracial Contact and Black Racial Attitudes: The Contact Hypothesis and Selectivity Bias”. *Social Forces* 74 (1): 205–26. doi:10.2307/2580629.
- Scheepers, Peer, Mérove Gijsberts, & Marcel Coenders. 2002. „Ethnic exclusionism in European countries. Public opposition to civil rights for legal migrants as a response to perceived ethnic threat”. *European sociological review* 18 (1): 17–34.
- Schoen, Robert, & John Wooldredge. 1989. „Marriage choices in North Carolina and Virginia, 1969-71 and 1979-81”. *Journal of Marriage and the Family*, 465–81.
- Semyonov, Moshe, Rebeca Raijman, & Anastasia Gorodzeisky. 2006. „The rise of anti-foreigner sentiment in European societies, 1988-2000”. *American Sociological Review* 71 (3): 426–49.
- Simon, Valerie A., Julie Wargo Aikins, & Mitchell J. Prinstein. 2008. „Romantic partner selection and socialization during early adolescence”. *Child Development* 79 (6): 1676–92.
- Snijders, Tom AB. 2011. „Statistical models for social networks”. *Annual Review of Sociology* 37: 131–53.
- Sprecher, Susan, Quintin Sullivan, & Elaine Hatfield. 1994. „Mate selection preferences: Gender differences examined in a national sample”. *Journal of Personality and Social Psychology* 66 (6): 1074–80. doi:10.1037/0022-3514.66.6.1074.
- Strully, Kate. 2013. „Schools as Network Foci: Intentional and Racial-ethnic Homophily in Adolescent Romantic Relationships.” előadás Sunbelt XXXIII Conference, Hamburg, Germany.
- Tóth, Á, & J. Vékás. 2008. „Család és identitás. A vegyes házasság szerepe a magyarországi kisebbségi közösségek reprodukciójában”. *Demográfia* 51 (4): 329–55.
- Vermeij, Lotte, Marijtje A. J. van Duijn, & Chris Baerveldt. 2009. „Ethnic segregation in context: Social discrimination among native Dutch pupils and their ethnic minority classmates”. *Social Networks* 31 (4): 230–39. doi:10.1016/j.socnet.2009.06.002.
- Wimmer, Andreas, & Kevin Lewis. 2010. „Beyond and Below Racial Homophily: ERG Models of a Friendship Network Documented on Facebook1”. *American Journal of Sociology* 116 (2): 583–642.

- Yancey, George. 2007. „Homogamy over the net: Using internet advertisements to discover who interracially dates”. *Journal of Social and Personal Relationships* 24 (6): 913–30.
- Zijlstra, Bonne JH, Marijtje AJ van Duijn, & Tom AB Snijders. 2006. „The Multilevel p2 Model”. *Methodology* 2 (1): 42–47.
- Zijlstra, Bonne JH, René Veenstra, & Marijtje AJ Van Duijn. 2008. „A multilevel p2 model with covariates for the analysis of binary bully-victim network data in multiple classrooms”. *Modeling dyadic and interdependent data in the developmental and behavioral sciences*, 369–86.