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Disentangling the relation between young immigrants' host country identification and their friendships with natives

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ABSTRACT

Immigrants who strongly identify with the host country have more native friends than immigrants with weaker host country identification. However, the mechanisms underlying this correlation are not well understood. Immigrants with strong host country identification might have stronger preferences for native friends, or they might be more often chosen as friends by natives. In turn, having native friends or friends with strong host country identification might increase immigrants' host country identification. Using longitudinal network data of 18 Dutch school classes, we test these hypotheses with stochastic actor-oriented models. We find that immigrants' host country identification affects friendship selections of natives but not of immigrants. We find no evidence of social influence processes.

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1. Introduction

Ethnic and cultural diversity caused by immigration ranks among the main social issues in many Western societies. Especially in formerly ethnically homogenous Western European countries, the coexistence of a native majority group and various emerging immigrant minority groups poses challenges for both the native population and citizens with an immigration background (Azzi et al., 2011). The social distance between members of the native majority group and ethnic minorities is large in many Western European countries (e.g., McLaren, 2003; Semyonov et al., 2006). And while research has long demonstrated the potential benefits of interethnic contact for improving interethnic attitudes (Pettigrew and Tropp, 2006), even among students in ethnically mixed schools, interethnic friendships still are comparatively scarce (e.g., Baerveldt et al., 2004; Moody, 2001; Quillian and Campbell, 2003; van Houtte and Stevens, 2009; Vermeij et al., 2009).

Against the background of these persisting ethnic boundaries, descendants of immigrants face the additional struggle of combining theirparents' ethnic identifications and the host country's national identification (Phinney et al., 2006; Verkuyten and Martinović, 2012).[1] In this struggle, friends with the same ethnic background and friends who are natives of the host country seem to play a defining role in immigrants' ethnic identification. Immigrants' friendships with natives and the strength of their identification with the host country have been found to be related empirically; adolescent immigrants who strongly identify with the host country tend to have more native friends than do immigrants with weak national identification (e.g., Agirdag et al., 2011; Leszczensky, 2013; Phinney et al., 2006; Sabatier, 2008).

Previous research has put forward different theoretical mechanisms that may account for the association between immigrants' friendships with natives and their identification with the host country (see Leszczensky, 2013). *Selection* mechanisms suggest that immigrants' national identification may affect their friendship choices because similarity on salient attitudes is an important predictor of friendship choices (McPherson et al., 2001; Stark and Flache, 2012) and identity captures salient attitudes (Deaux and Martin, 2003; Syed and Juan, 2012). *Influence* mechanisms, by contrast, suggest that having many native friends may

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[1] In this article, we use the terms "national identification" and "host country identification" interchangeably. We further use the term "immigrant" in a wider sense, including children of immigrants who have been born and raised in the host country.

increase immigrants' national identification (e.g., Agirdag et al., 2011; Phinney et al., 2006; Sabatier, 2008). Longitudinal data are needed to assess whether having native friends affects immigrants' national identification, or whether immigrants' national identification affects their friendships with natives. The very few existing longitudinal studies, however, have yielded mixed findings. Whereas Leszczensky (2013) finds no evidence of either selection or influence processes, the results of Munniksma et al. (2015) suggest a bidirectional causal relation. The findings of Rutland et al. (2012), by contrast, indicate that the causal arrow might run from identification to friends, but not the other way around.

Besides using different methodological approaches and samples, a major reason for the inconsistent findings of prior longitudinal studies might be that none of these studies uses a *longitudinal social network approach*. Such an approach might advance the understanding of potential selection and influence mechanisms underlying the association between immigrants' host country identification and their friendships in three ways. First, prior studies focus on friendship choices made by immigrants but neglect the *friendship choices of natives*. We argue, however, that natives' preferences for whether or not to engage in interethnic contact are crucial for the formation of friendships between immigrants and natives since they shape immigrants' opportunities to befriend natives. Immigrants' national identification might then not only affect immigrants own preferences for interethnic friendships but also how similar natives perceive them to be and, therefore, how likely they are to befriend them (e.g., Verkuyten and Thijs, 2010; Verkuyten et al., 2013). Second, whereas most studies assume that native friends influence immigrants' national identification, existing studies contain no information about self-reported *identification levels of friends*, or of other people like classmates or colleagues (for an exception see Syed and Juan, 2012). It is therefore still an unanswered question whether native friends increase immigrants' identification *per se*, or whether immigrants generally adjust their own identification towards that of their friends, *irrespective* of their friends ethnic backgrounds. Third, it is questionable whether earlier longitudinal studies that rely on ego-centered network data adequately met the methodological challenges of *separating selection from influence mechanisms*. Using longitudinal data on complete social networks, by contrast, allows us to estimate stochastic actor-oriented models (SAOM) that are able to statistically assess the effects both of selection and of influence mechanisms (Snijders et al., 2010; Steglich et al., 2010). SAOM are uniquely suited for testing our hypotheses because they provide not only the statistical means to separate selection from influence mechanisms but also those to control for competing friendship mechanisms such as relational or proximity mechanisms. Whereas SAOM have been applied to explain why friends are similar to another regarding a variety of behaviors and opinions (e.g., Veenstra et al., 2013), they have not been used to analyze the interplay of immigrants' national identification and native friends.

Our study thus extends past research by analyzing the relation between interethnic friendships and national identification of adolescent immigrants, using longitudinal social network data. Adolescence is especially suited to analyze the interplay between friends and identification because identity formation and peer relations are crucial, yet fluctuating, elements of adolescence (Brechwald and Prinstein, 2011; Crosnoe and Johnson, 2011; Giordano, 2003; Meeus, 2011; Steinberg and Morris, 2001). Specifically, we investigate whether immigrants' identification with the host country determines friendship choices of both immigrants and natives while simultaneously examining if, and how, friendships in turn affect immigrants' national identification.

2. Potential mechanisms underlying the association between immigrants' host country identification and native friends

To explain the association between immigrants' host country identification and their friendships with natives, previous research has put forward different theoretical arguments in favor of both directions of causality that can be assigned to either selection or influence mechanisms (see Brechwald and Prinstein, 2011; Leszczensky, 2013; Kandel, 1978). Most studies on friendships and identification either acknowledge the possibility of a bidirectional causal relation or assume that selection and influence operate simultaneously in the first place (see Leszczensky, 2013). In what follows, we present different selection (2.1) and influence mechanisms (2.2), derive from them four related hypotheses, and discuss existing evidence.

2.1. Why immigrants' host country identification may matter for friendship choices of both immigrants and natives

From a dynamic intergroup perspective (Brown and Zagefka, 2011), it is essential to account for both groups involved in the potential formation of cross-group friendships. We therefore discuss the role of immigrants' national identification in the *friendship choices of immigrants* as well as in the *friendship choices of natives*.[2]

2.1.1. Immigrants' host country identification and friendship choices of immigrants

Similarity on salient dimensions like ethnicity, sex, or values is a key predictor of friendship choices (McPherson et al., 2001; Stark and Flache, 2012; Smith et al., 2014). This is because interactions with similar others can generally be expected to provide a better basis for mutual understanding, to have lower transaction costs, and to be more rewarding (see Leszczensky and Pink, 2015; Völker et al., 2008, 327). Thus, it is not surprising that adolescent immigrants tend to show stronger preferences for coethnic than for interethnic friends (e.g., Brüß, 2005; Leman et al., 2013; Phinney et al., 1997; Verkuyten and Kinket, 2000). This ingroup bias, however, might be less pronounced if immigrants strongly identify with the host country. Collective identities, such as national identification, are meaningful systems of beliefs related to the fundamental norms and values that are shared by a group of people (see Deaux and Martin, 2003; McFarland and Pals, 2005, 105; Verkuyten and Martinović, 2012). Immigrants with strong host country identification may be more interested in having native friends since they feel more similar to them than do immigrants who do not identify with the host country. This view is in line with the common ingroup identity model (Gaertner and Dovidio, 2000), which states that a superordinate group identity, like a shared national identity, reduces biases at the subgroup level. Accordingly, our first selection hypothesis is:

Selection-Hypothesis 1. Immigrants who strongly identify with the host country show a stronger tendency to befriend natives than immigrants with weak host country identification.

While ethnic ingroup bias is well established, few studies have investigated, let alone demonstrated, effects of group identifications on immigrants' friendships. In a study by Syed and Juan (2012)

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[2] Our theoretical discussion focuses on assortative mechanisms, i.e., mechanisms referring to friendship choices based on individual attributes like identity. Of course, we acknowledge the importance of alternative tie-generating processes such as proximity or relational mechanisms (see Rivera et al., 2010; Wimmer and Lewis, 2010), and we control for such mechanisms in our empirical analysis.

friendship pairs report similar levels of ethnic identity, which led the authors to suggest that ethnic identity homophily, i.e., a preference for friends with a similar ethnic identity, plays a role in friendship choices. But it might also be the case that similarity in ethnic identity is a result of friends becoming more similar in their identities over time. Because the study was cross-sectional, no definitive answers can be given about the direction of causality. Other cross-sectional studies show that immigrants who feel more attached to the host country show less ingroup bias (Nier et al., 2001; Pfeifer et al., 2007). Schaafsma et al. (2010) further argue that immigrants with strong host country identification may feel less threatened by the majority group and therefore find friendships with majority group members to be less difficult than do immigrants who weakly identify with the host country. Empirically, however, they do not find any relation between immigrants' attachment to the host country and the amount of interethnic contact. The longitudinal studies by Rutland et al. (2012) and Munniksma et al. (2015), by contrast, provide some evidence that national identification might indeed affect friendship choices of older immigrant children. In particular, Rutland et al. (2012) show that children who adopted a national as well as an ethnic identity have a higher percentage of interethnic friends. However, using a more rigorous statistical method, but also a different sample in a different country, the longitudinal study by Leszczensky (2013) finds that changes in immigrants' national identification do *not* lead to changes in the ethnic composition of immigrants' friendship networks.

2.1.2. Immigrants' host country identification and friendship choices of natives

Ingroup bias has repeatedly been found to be even stronger for native majority group children than for minority group children and adolescents (e.g., Brüß, 2005; Kinket and Verkuyten, 1999; Leman et al., 2013; Tropp and Pettigrew, 2005; Verkuyten, 2007). Sarafidou et al. (2013) further report that a substantial number of native preadolescents express prejudices towards ethnic minority children, which goes hand in hand with a low interest in interethnic relations.

One group's members' preferences determine the other group's members' opportunity to engage in intergroup contact (see Leszczensky, 2013). Thus, how much natives are willing to engage in interethnic contact is just as important for explaining ethnic homogeneity in friendship networks as are the preferences of immigrants.

How similar natives perceive immigrants to be may depend in part on immigrants' national identification. Identification is related to fundamental norms and values that become evident in repeated encounters. Natives might therefore perceive immigrants who strongly identify with the host country as being more similar since these immigrants are likely to be more acculturated. Thus, our second selection hypothesis is:

Selection-Hypothesis 2. Natives show a stronger tendency to befriend immigrants with strong rather than weak host country identification.

There is experimental evidence that natives' evaluation of immigrants partly depends on identity-related characteristics of these immigrants. For instance, both Verkuyten et al. (2013) and Zagefka et al. (2012) find that native children hold more positive views of immigrant peers when they perceive these peers to value the host country's culture to the extent that they want to adopt it (also see van Oudenhoven et al., 1998). Following the common ingroup identity model (Gaertner and Dovidio, 2000), native children might perceive immigrant peers who value the host country's culture as being more similar to themselves and therefore more easily include these immigrants in the national category and evaluate

them more positively (see Verkuyten et al., 2013). Results from Verkuyten and Thijs (2010) support this view, showing that native majority group members evaluate immigrants who identify with both their country of origin and the host country more positively than they evaluate those who only identify with their country of origin. But so far no research outside of the laboratory has tested natives' preferences for friends who identify with the host country.

2.2. How and why friends may influence the development of immigrants' national identifications

Most studies examine the influence of interethnic friendships on immigrants' national identification in terms of the *proportion of native friends* among immigrants' friends (e.g., Agirdag et al., 2011; Leszczensky, 2013; Sabatier, 2008; Schulz and Leszczensky, 2015). But as we now discuss, while there is reason to expect native friends to foster immigrants national identification irrespective of their own identification levels (2.2.1), there is also reason to expect that immigrants generally *adjust* their national identification towards their friends' identifications, *regardless of whether these friends are natives* (2.2.2).

2.2.1. Why having native friends might foster immigrants' host country identification

Studies focusing on how native friends influence immigrants' national identification typically assume that native friends *generally* support and therefore enhance immigrants' host country identification (see Noels et al., 2010; Sabatier, 2008; Schulz and Leszczensky, 2015; Syed and Juan, 2012; Yip, 2005). In contrast, friends of the same ethnic background are assumed to support ethnic rather than national identification. These assumptions follow from identity theory, which states that identities are reinforced if one's personal network is composed of numerous strong ties to others with whom the identity is enacted (Deaux and Martin, 2003; Stryker, 1980; Walker and Lynn, 2013). Agirdag et al. (2011) further suggest that friendships between immigrants and natives increase the likelihood of re-categorizing group boundaries in terms of a shared superordinate national identity that includes not only natives but also immigrants. Our first influence hypothesis therefore reads:

Influence-Hypothesis 1. Having more native friends increases immigrants' identification with the host country.

Although many studies assume that native friends enhance immigrants' national identification, there is no strong empirical evidence in favor of this hypothesis. For example, interethnic friendships are positively related to ethnic minority students' host country identification in the cross-sectional study by Agirdag et al. (2011). But as discussed above, it cannot be ruled out that this association between friends and identity is caused by selection rather than by influence mechanisms. Longitudinal studies that explicitly address the issue of reverse causality have produced mixed findings. Using different statistical approaches, neither Leszczensky (2013) nor Rutland et al. (2012) find evidence that native friends increase immigrants' national identification, whereas the results of Munniksma et al. (2015) indicate that this is the case.

2.2.2. Why immigrants might adjust towards the identification of their friends

Rather than simply developing a stronger identification with the host country through native friends, immigrants' host country identification may be influenced by their *friends' actual levels of host country identification*. This may happen because identities can only be sustained if they are valued and accepted by significant others (see Deaux and Martin, 2003; Klein et al., 2007; McFarland and Pals,

2005; Noels et al., 2010). Friendship networks provide a means to express identity, and they affect how much social approval an individual gains for a particular identification. The more members of a network share and endorse a certain identity, the more approval can someone expect for sharing that identity as well. Immigrants' national identification might thus increase if, and only if, their friends share and support national identification. In contrast, having many native friends who themselves do not identify with the host country is unlikely to increase an immigrant's host country identification. Quite the opposite: since such a friendship network would not approve of strong host country identification, it may provide weaker motivation to identity with the host country. Thus, our second influence hypothesis is:

Influence-Hypothesis 2. Immigrants adjust their own host country identification towards the host country identification of their friends, irrespective of whether these friends are natives.

There are hardly any studies that empirically investigate identity levels of friendship pairs or networks. A notable exception is the study by Syed and Juan (2012) that separately assesses ethnic identities of both partners in friendships pairs. Their key finding is that friends indeed report similar levels of ethnic identity. But unfortunately, as discussed above, the cross-sectional design of the study does not allow to conclude whether friends' similarity in ethnic identity is due to ongoing shared interactions about ethnicity (i.e., influence) or due to a preference for like-minded friends (i.e., selection).

3. Data, variables, analytical strategy, and model specification

3.1. Data

To empirically test our hypotheses we use longitudinal network data from the secondary school module of *The Arnhem School Study* (TASS, see Stark and Flache, 2012; Stark et al., 2013). The secondary school module of TASS is a network panel study among 1350 students of 61 classrooms in 12 secondary schools in Arnhem, a mid-sized city in the Netherlands. Since all schools were located within the same city, TASS is not a random sample; but almost all schools in Arnhem participated, so schools did not self-select into the sample. Overall, almost 90% of all first-year secondary school classes participated in the first wave, and about 90% of the 1350 students in these classrooms participated in each wave. These high response rates enabled us to use social network analysis, which requires near-complete data for accurate representation of networks (Huisman and Steglich, 2008).

The secondary school module started at the beginning of the first year of secondary education. After the transition from primary school, class composition changed completely for all students, so many new social relations had to be formed. Since students in the Netherlands spend the entire school day with their classmates, school class networks arguably constitute a crucial part of their social lives.

The secondary school module consists of four waves, of which we use the final two waves in which national identification was measured. Our wave 1 was collected at the end of the first school year in June 2009, wave 2 one year later in May 2010. The students were between 13 and 14 years old at the beginning of our first wave. In both waves all students from a classroom simultaneously completed an online questionnaire on separate computers in school. A teacher read instructions to the students and supervised completion of the questionnaire. Before the very first wave parents received a letter informing them about the study and offering them the opportunity to refuse their children's participation.

The students were informed that their answers would be treated confidentially and that they were free to end their participation.

Overall, 1070 students participated in the data collection. 45 of these students had to be excluded from the analysis since they did not indicate their ethnic background. For a variety of reasons, we could not make use of all 61 school classes of the secondary school module. First, after the first year at middle school in the Netherlands, based on their performance students can still change tracks when they transition to the second year. As a consequence, the composition of 26 classes after wave 1 changed so dramatically that social network analysis cannot be applied. Second, some classes did not participate in both waves and thus had to be excluded as well. Finally, we dropped two classes in which there were no children with at least one parent born abroad.

Our final sample consists of 381 students who are nested in 18 school classes. On average, there are 27.2 students per class. 26.3% of the students used in the analysis have a migration background in the sense that at least one parent was born abroad.[3] Boys make up 52% of the final sample.

3.2. Variables

Immigrants and natives. To distinguish immigrants from natives, we used information on the countries of birth of the students as well as on those of their mothers and fathers. According to the official definition of Statistics Netherlands students were considered as *native* Dutch if both parents were born in the Netherlands.[4] Conversely, students were coded as *immigrants* if they themselves or at least one of their parents were born abroad. Since immigrants make up only about a quarter of our sample we did not distinguish between different ethnic groups or countries of origin.[5]

Friendship networks and friendships between immigrants and natives. In both waves students were asked "Who of your classmates are your best friends?" The students received a list with the names of all their classmates from which they could nominate their best friends. Students' nominations were not restricted, so in principle they could have nominated all classmates. This is an advantage given that unlimited friendship nomination tends to be more valid than restricted choices, especially with respect to positive relation such as friendship (Cillessen, 2009; Gommans and Cillessen, 2015; Terry, 2000). On average, students nominated 4.2 friends in wave 1 and 3.8 friends in wave 2.

National identification. National identification was measured by the question "Do you feel Dutch?" Answers rank on a five-point scale from 1 "absolutely not" to 5 "very strongly". Since Dutch natives form the majority group in the Netherlands, we assume that if immigrants indicated that they felt Dutch they express identification with the host country. This measurement has been used in previous research (Munniksma et al., 2015, also see Leszczensky, 2013). In addition, there is evidence that even single-item measures may adequately capture social identification (Postmes et al., 2012).

Sex. Sex was coded 1 for boys and 0 for girls.

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[3] The share of immigrant students per class is significantly lower in the 18 classes used in our analyses than in the 61 classes of the total sample (39.4%; $t(61) = 2.2$, $p < 0.05$).

[4] See http://www.cbs.nl/en-GB/menu/methoden/begrippen/default.htm?Languageswitch=on&ConceptID=88 and Vermeij et al. (2009). We also ran our model with a less restrictive definition in which we coded students as natives if at least *one* parent was born in the Netherlands. The results are the same.

[5] In addition, the sample is ethnically diverse with more than 50 ethnic groups and no single ethnic group dominates. Of our sample used in the analysis, a quarter of the immigrant students is of Turkish origin, followed by Morocco (8%), Surinam (6%), and Afghanistan (5%). The majority of immigrant students therefore are of non-Western origin.

3.3. Analytical strategy

We use stochastic actor-oriented models (SAOM) that have been developed by Snijders and colleagues (Snijders, 2001, 2005; Snijders et al., 2007, 2010). SAOM are uniquely suited to address our four hypotheses because they allow to control for structural effects of the network itself while separating selection from influence by modeling the co-evolution of networks and individual characteristics (also see Steglich et al., 2010; Veenstra and Steglich, 2012; Veenstra et al., 2013). Controlling for these different mechanisms is important because friendship choices are affected not only by individual preferences (i.e., selection processes) but also by proximity and relational mechanisms (Rivera et al., 2010). For instance, friendships tend to be reciprocated, and they tend to be transitive (Snijders, 2013; Wimmer and Lewis, 2010). Ignoring such relational mechanisms can lead to overestimation of selection processes (see Goodreau et al., 2009; Mouw and Entwisle, 2006). Similarly, selection processes can only be inferred if proximity and influence mechanisms are controlled for. The core of the model is the so-called objective function, which can be viewed as a representation of actors' preferences (Snijders et al., 2010, 47). Mathematical specifications of SAOM can be found in Steglich et al. (2010) and Snijders et al. (2010) provide a more intuitive introduction.

We estimated our models using Siena 4.0 in R (Ripley et al., 2015). Missing values for individual attributes and friendship ties were treated as non-informative in the estimation process (Huisman and Steglich, 2008). To ease calculations of predicted values, we did not center covariates. To gain enough statistical power for the estimation of three-way interactions we analyzed the 18 classroom networks jointly using Siena's multi-group option instead of performing a meta-analysis of the results of separate models for each of the 18 school classes (Ripley et al., 2015, also see Cheadle and Schwadel, 2012).[6]

3.4. Model specification

Since our two selection and two influence hypotheses are related to each other we test them jointly in one model. Doing so allows separating the different selection and influence mechanisms while controlling for competing structural and proximity mechanisms.

Selection part. In the selection part of our model we control for three *structural effects* that capture well-known strong empirical regularities of social networks. Controlling for these structural effects is recommended to avoid a bias in the estimation of other effects (Snijders, 2001, 2013; Snijders et al., 2010; Steglich et al., 2010). First, we included an *outdegree* effect that reflects how many friends the students nominate on average. Second, we included a *reciprocity* effect that indicates to what degree students reciprocate

friendship choices. Third, we included a *transitive triplets* effect that controls for the tendency of students to become friends with the friends of their friends. We also included ego, alter, and same-*sex* effects to account for a preference for same-sex friends that has consistently been found in research on school friendship networks (e.g., Cheadle and Schwadel, 2012; Leszczensky and Pink, 2015; Stark and Flache, 2012; Vermeij et al., 2009; Smith et al., 2014).

We express our two selection hypotheses via three-way interaction effects. With respect to *friendship choices of immigrants*, we test whether immigrants with stronger national identification have stronger preferences for native friends than do immigrants with weaker national identification. In other words, if in a pair of network members the potential initiator of a friendship choice is an immigrant and the potential friend to be chosen is a native, then the likelihood that such a tie will be initiated or retained should increase if immigrants identify more strongly with the host country. This is expressed by the following three-way interaction representing the tendency of immigrants to choose natives as friends depending on their own national identification:

$$Immigrant_{Ego} * Native_{Alter} * National\ Identification_{Ego}$$

We further included all constitutive terms of this three-way interaction since omitting constitutive terms would result in biased estimates (Brambor et al., 2006). That is, we added the main effects of ego being an immigrant, alter being a native, and ego's national identification on the one hand and the three two-way-interactions between these three effects on the other.

With respect to *friendship choices of natives*, we could test whether natives' preference for befriending immigrants depends on immigrants' national identification in a similar manner, i.e., by adding the respective three-way interaction. However, this would require including main effects for ego being a native and alter being an immigrant—and these effects would be perfectly collinear with the $Immigrant_{ego}$ and the $Native_{alter}$ main effects of our first selection hypothesis.[7] We therefore test our second selection hypotheses by adding the following three-way interaction to the model:

$$Immigrant_{Ego} * Native_{Alter} * National\ Identification_{Alter}$$

This three-way interaction requires including the main effects of ego being an immigrant and alter being a native, which are already in the model. In addition, we included the main effect of alters' national identification as well as the two-way interactions between alters' identification with ego being an immigrant and alter being a native, respectively. In such a model, the main effect of *alter's national identification* constitutes a direct test of our second selection hypothesis. This is because due to the addition of the interaction effects, this effect is conditional on ego *not* being an immigrant and alter *not* being a native. In other words, the $NationalIdentification_{alter}$ effect expresses the tendency of natives to befriend immigrants dependent on how strongly these immigrants identify with the host country.

Influence part. In the *influence part*, we first included a *linear tendency* effect, which expresses the general tendency to have high values on the national identification scale. The same effect squared controls for underdispersion (regression to the mean) or overdispersion (polarization) of the identification, which might bias the estimation of influence effects (Snijders et al., 2010).

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[6] The multi-group analysis uses the same model specification for all school classes, making the crucial assumption that all parameters are the same for all classes (see Ripley et al., 2015). This assumption can be formally tested with the score-type test for time-heterogeneity, which has been developed and implemented in RSiena by Lospinoso and colleagues (see Lospinoso et al., 2011; Lospinoso, 2013; also see Schweinberger, 2007; Ripley et al., 2015). The joint score-type test indicated heterogeneity for 12 of our 18 classes. The usual strategy to account for heterogeneity would have been to add dummy variables for each class and interactions with these dummies for heterogeneous effects. Unfortunately, this strategy was not feasible in the present study because the models already contained various interaction effects so that adding even more interaction effects would not only have complicated interpretation but lead to convergence problems. To inspect whether heterogeneity affects our conclusions, we conducted separate multi-group analyses for the 12 classes that showed heterogeneity and for the 6 homogeneous classes. The substantive conclusions did not differ between both subsamples, which lead us to tentatively conclude that heterogeneity, though present, does not pose a major threat to our analyses.

[7] The respective three-way interaction directly referring to the perspective of natives would be:

$$NativeEgo * ImmigrantAlter * National\ Identification_{Alter}$$

As written above, adding this interaction would require us to also control for, among others, the main effects $Native_{Ego}$ and $Immigrant_{Alter}$, which would simply mirror the effects $Immigrant_{Ego}$ and $Native_{Alter}$, respectively.

Table 1
Description of the classes, network characteristics, and national identification ($n = 381$).

Class	Students	Missing		Average outdegree		Jaccard	Immigrants	National identification	
		Wave 1	Wave 2	Wave 1	Wave 2	Index		Wave 1	Wave 2
1	30	16.7%	0.0%	4.1	3.9	0.35	6.7%	3.00	4.00
2	28	0.4%	0.4%	5.4	4.9	0.44	18.5%	2.80	3.20
3	29	0.0%	0.0%	4.8	4.7	0.36	20.7%	2.00	2.17
4	30	0.3%	0.3%	5.8	4.6	0.40	10.0%	4.33	3.67
5	26	0.0%	0.0%	4.2	5.2	0.29	23.1%	5.00	3.00
6	28	0.7%	0.4%	3.3	2.4	0.22	23.1%	2.66	3.33
7	28	0.4%	17.9%	4.6	3.0	0.25	55.6%	3.50	2.00
8	28	0.0%	17.9%	5.1	3.5	0.35	55.6%	2.64	2.42
9	28	10.7%	14.3%	5.4	5.4	0.31	42.3%	1.57	2.30
10	26	0.8%	0.8%	4.8	3.3	0.39	32.0%	4.00	3.29
11	35	11.4%	22.0%	3.6	4.0	0.44	12.9%	3.25	2.71
12	31	0.7%	0.3%	4.3	4.8	0.33	12.9%	4.25	4.67
13	31	12.9%	21.6%	5.2	3.5	0.37	12.9%	4.67	4.50
14	31	0.7%	0.0%	3.9	4.3	0.34	12.9%	3.67	3.33
15	31	0.0%	0.0%	3.1	2.9	0.38	32.3%	3.00	3.50
16	19	15.8%	21.1%	3.8	2.9	0.32	38.9%	2.29	2.20
17	31	0.7%	22.6%	3.8	3.9	0.23	46.4%	2.69	2.55
18	27	0.4%	0.7%	5.0	4.9	0.38	14.8%	3.00	2.55
All	27.2	3.8%	7.4%	4.2	3.8	0.32	26.3%	3.07	2.91

Our first influence hypothesis is that having (more) *native friends* increases immigrants' national identification. We test this hypothesis by interacting the effect of the proportion of native friends with the main effect of ego being an immigrant (Ripley et al., 2015)[8]:

$$Immigrant_{Ego} * AvAltNative$$

Again, we include all constitutive terms, i.e., the main effect of ego being an immigrant and the *AvAltNative* effect.

Our second influence hypotheses is that immigrants generally adjust their own national identification towards the *national identification of their friends*. This is tested by the *TotaliSimilarity* effect, which represents a preference for adopting identifications similar to those of one's friends (Ripley et al., 2015). Since we are interested in this effect for immigrants only, we included an interaction term between the central actor being an immigrant and the total national identification similarity effect:

$$Immigrant_{Ego} * totSim_{National\ Identification}$$

We also added the main effect of friends' total similarity to the model.[9]

4. Results

4.1. Descriptive statistics

Table 1 provides information on the 18 classes as well as on network characteristics. The ethnic composition varied between school classes; the percentage of immigrants ranged from 6.7% to 60% per school class. As can be seen, there are some network related differences between classes, expressed by, for instance, a varying

amount of missing observations and differences in density. The mean Jaccard index of all classroom friendship networks is 0.32, indicating that the degree of change in friendships is sufficient for the parameters to be estimated (Snijders et al., 2010). The Jaccard index differs between classes but is in a reasonable range for all classes.

Table 2 shows mean values of national identification and the proportion of native friends for both immigrants and natives over time. In both waves, immigrants on average scored slightly below the mid-point of the national identification scale, indicating that they somewhat identified with the host country. Unsurprisingly, natives on average scored much higher on the national identification scale; the vast majority of them identified as Dutch. The group difference between immigrants and natives is significant for both points in time ($t(381) = 11.4$, $p < 0.001$ and $t(381) = 11.8$, $p < 0.001$, respectively). For immigrants, there is no significant difference in national identification between waves ($t(93) = 0.77$, $p = 0.21$), whereas natives identified slightly less with the host country in wave 2 ($t(288) = 1.8$, $p < 0.05$). Thus, on the *aggregate* level national identification for both groups remained rather stable during the period of study. More important for analyzing network and national identification dynamics, though, is *individual*-level variation in our key variables across waves. National identification from wave 1 to wave 2 changed for 58% of the immigrant and for 51% of the native students; so change was somewhat more frequent than stability for both groups. For those who changed, the proportion of increases and decreases for national identification was approximately equal, which lead to the stability on the aggregate level. In both extent and direction, these fluctuations are remarkably similar to those found in previous research (Leszczensky, 2013). Moreover, they indicate that national identification did change in a substantial

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[8] An alternative specification would have been to use the total number rather than the proportion of native friends. We prefer the relative measurement because the total number of nominated friends differed between students, so that using an absolute measure of native friends might be misleading. For example, we would expect three native friends to be more important for an immigrant's national identification if no other (non-native) friends were nominated as compared to a situation in which three non-native friends were also nominated.

[9] We did not include the national identification similarity effect in the *selection* part because we did not have hypotheses referring to identity similarity. Still, we also estimated our model with a national identification similarity effect in the selection part. Including the effect did not change the results or conclusions, and the effect itself was virtually zero.

Table 2
Mean values of immigrants' and natives' national identification and percentage of native friends of immigrants and natives over time ($n = 381$).

	Wave 1	Wave 2
National identification		
Immigrants	2.95 (1.41)	2.84 (1.35)
Natives	4.33 (0.86)	4.23 (0.84)
Native friends		
Immigrants	0.54 (0.36)	0.49 (0.39)
Natives	0.78 (0.29)	0.78 (0.28)

Standard deviation in parentheses.

Table 3
The relationship between immigrants' national identification and the percentage of native friends over time ($n = 381$).

	Percentage of native friends	
	Wave 1	Wave 2
(1) Weak national identification	35%	24%
(2)	42%	51%
(3)	53%	50%
(4)	70%	69%
(5) Strong national identification	69%	69%

number of the students, justifying the analysis of identification dynamics.

Among immigrants, national identification correlates positively with the share of native friends in both waves ($r = .39$, $p < .001$ and $r = .38$, $p < .001$, respectively).[10] The relation between the percentage of native friends and immigrants' national identification is presented in Table 3. The pattern was basically the same for both waves. On average, only roughly a quarter of the friends of immigrant students with very weak national identification were natives, but the proportion of native friends steadily increased with each step on the identification scale. For example, about half of the friends of immigrants at the mid-point of the national identification scale were natives, and this proportion was about two thirds among those who scored highest on the national identification scale. This pattern suggests that having native friends is positively related to immigrants' national identification, as found in earlier studies (e.g., Agirdag et al., 2011; Leszczensky, 2013; Phinney et al., 2006).

4.2. Analyzing the relation between immigrants' national identification and their friends

Table 4 displays the results of the stochastic actor-oriented model. The convergence of the estimation algorithm was excellent, indicated by the fact that all t-ratios for convergence are smaller than 0.1 in absolute value (Ripley et al., 2015; Snijders et al., 2010).

Results for the structural effects are in line with findings of earlier studies on adolescent friendship networks (e.g., Cheadle and Schwadel, 2012; Snijders et al., 2010; Snijders, 2013). The negative outdegree effect reflects a low density of the friendship network, indicating that friends were chosen rather selectively. The positive reciprocity effect reflects that a friendship nomination was more likely to be initiated or retained when it was reciprocated. The positive transitive triplets effect indicates a tendency for friends of friends to became friends as well. As expected, we also found evidence of sex homophily.

The results did not support our first selection hypothesis that immigrants' own national identification increases their preference for befriending natives. To test this hypothesis, we have to consider the three-way interaction $Immigrant_{Ego} * Native_{Alter} * NationalIdentification_{Ego}$ along with the main effects of ego being an immigrant, alter being a native, and ego's national identification. We also have to consider the three constituting two-way interactions (see Snijders et al., 2010, 52). Fig. 1 depicts the resulting joint contribution of these effects to immigrants' objective function for different values of national identification. To assess uncertainty, following King et al. (2000), we simulated estimators by 1000 draws from the multivariate normal distribution, which enabled us to calculate 95 percent confidence intervals. The upwards sloped line suggests that immigrants with higher levels of national identification had a slightly

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[10] For natives, by contrast, there is no correlation between national identification and native friends ($r = .02$, $p = .67$ and $r = -.04$, $p = .44$, respectively).

Table 4
Model of friendship selection from the perspective of natives while controlling for influence mechanisms: estimates and standard errors of a final multi-group analysis (18 classes, 381 students).

Effect	par.	(s.e.)
Network dynamics		
Structural effects		
Outdegree	−2.12***	(0.18)
Reciprocity	1.39***	(0.08)
Transitive triplets	0.16***	(0.01)
Control variables		
Sex ego	0.15†	(0.08)
Sex alter	−0.36***	(0.08)
Same sex	0.76***	(0.07)
The role of national identification		
Immigrant ego	−0.09	(0.19)
Native alter	0.00	(0.09)
National identification ego	−0.05	(0.22)
National identification alter	0.49**	(0.16)
Immigrant ego × native alter	−0.03	(0.13)
Immigrant ego × national identification ego	−0.06	(0.21)
Native alter × national identification ego	0.12	(0.14)
Immigrant ego × national identification alter	−0.39*	(0.18)
Native alter × national identification alter	−0.38***	(0.11)
Immigrant ego × native alter × national identification ego	0.05	(0.15)
Immigrant ego × native alter × national identification alter	0.36*	(0.16)
National identification dynamics		
Tendency effects		
National identification linear shape	0.59†	(0.35)
National identification quadratic shape	0.06	(0.05)
The role of native friends		
Immigrant	−0.66†	(0.40)
Native friends	−0.21	(0.23)
Immigrant × native friends	0.52	(0.33)
The role of similarity in national identification		
National identification total similarity	0.67*	(0.27)
Immigrant × national identification total similarity	−1.04*	(0.43)

Convergence t ratios all <0.1. Covariates are not centered.

† $p < 0.1$.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

higher preference to befriend natives. However, confidence intervals indicate that this increase was not significant. Although the mean of the slope was positive (.195), the lower bound of the 95 percent confidence interval was below zero (−.248). This leads to a rejection of the first selection hypothesis; immigrants' national identification did *not* seem to play a substantive role for immigrants' friendship selections.
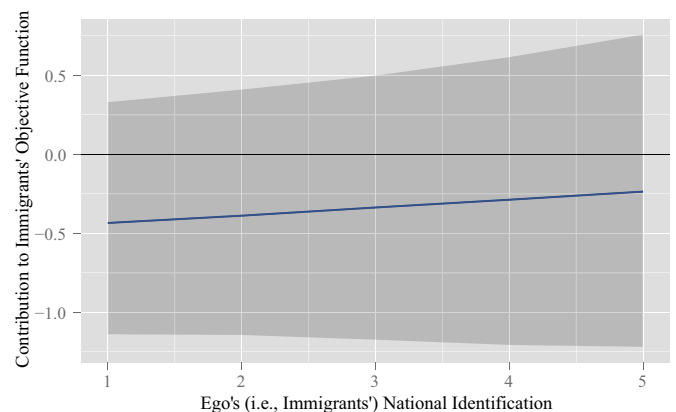

Fig. 1. Selection from the perspective of immigrants. The dark gray area shows a 95 percent confidence interval.
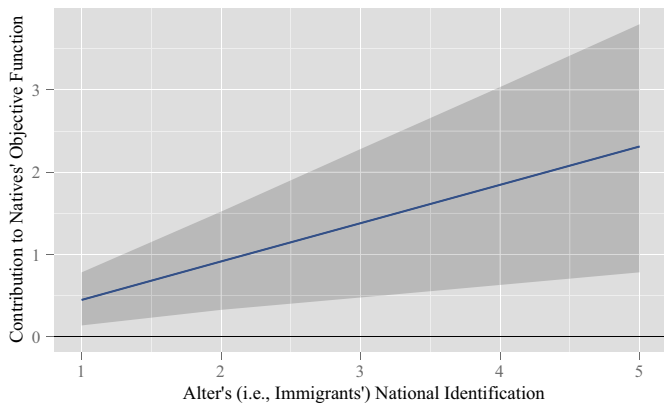
Fig. 2. Selection from the perspective of natives. The dark gray area shows a 95 percent confidence interval.

In contrast, our results are in line with the second selection hypotheses, which stated that natives prefer to befriend immigrants' with strong national identification. This hypothesis is directly tested via the *NationalIdentification*$_{alter}$ effect in Table 4. This is because this effect is not the unconditional main effect but, because of the included interaction effects, reflects the effect of alter's national identification if, and only if, ego is native and alter is an immigrant. The effect is negative and significant. We also plotted the joint contribution of this effect and the native alter main effect. Fig. 2 confirms that natives indeed preferred befriending immigrants with higher rather than lower levels of national identification. The confidence intervals were above zero for all values of the identification scale. The mean of the slope was positive (1.87), as was the lower bound of the 95 percent confidence interval (.060).

To the best of our knowledge, it is currently not possible to calculate average marginal effects for SAOM, which makes it difficult to quantify the effect we found. This can be done, however, for so-called microsteps, which represent the multiple decisions each actor takes within the simulation process underlying SAOM. For instance, immigrants with very low and very strong national identification contributed, respectively 0.5 and 2.2 to the objective function of natives (see Fig. 2). This means that, all else being equal, a native within the simulations was about 5.5 times more likely to select an immigrant with very strong rather than an immigrant with very low national identification. This is because an increase in the objective function of 1.7 (from 0.5 to 2.2) can be translated into an increase of the odds within the microstep to choose an alter with strong rather than weak national identification by $exp(1.7) = 5.47$. Although one has to keep in mind that this quantification refers to the microsteps within the simulation and not to actors' real-world decisions, immigrants' national identification therefore seemed to have a non-negligible impact on natives' friendship choices. This is in line with the second selection hypothesis, i.e., natives preferred befriending immigrants with stronger national identification.

There is no evidence for the first influence hypothesis, which argued that native friends increase immigrants' national identification. The interaction between ego being an immigrant and the proportion of native friends is positive but not significant. If we add to this positive effect the negative main effect of having native friends, the effect remains positive but marginal in size. Our first influence hypothesis is therefore rejected, i.e., having more native friends did *not* seem to strengthen immigrants' host country identification.

Results do not support our second influence hypothesis that immigrants adjust their national identification to those of their friends either. The main *TotalSimilarity* effect is positive and significant, indicating that *natives'* national identification actually

preferred to have identification levels similar to those of their friends. The negative and significant effect of the interaction between total similarity and ego being an immigrant in combination with the negative main effect of being an immigrant, however, shows that immigrants did not prefer to be similar to their friends identification. In contrast, the negative interaction effect means that in terms of host country identification, immigrants' actually were rather dissimilar to their friends.

5. Discussion

This study on the interplay between immigrants' host country identification and their friendships extends previous research in three ways. First, whereas the majority of past studies are static in nature, our study followed a dynamic approach, analyzing the co-evolution of friendship networks and immigrants' national identification over time. Second, whereas most existing studies solely focus on immigrants, our study took an intergroup perspective by focusing on friendship preferences of both immigrants and natives. Third, our study went beyond previous research by not only addressing two different selection mechanisms but by also proposing and testing two competing influence hypotheses. For this purpose, we followed a social network approach. In particular, we applied a relatively new statistical model that is uniquely suited to assess the relation between immigrants' host country identification and their friendships by separating selection from influence mechanisms.

With respect to *selection* mechanisms, we found no support that immigrants who strongly identified with the host country had stronger preferences for native friends than did immigrants with weaker national identification. This contradicts theoretical expectations as well as causal interpretations of earlier cross-sectional studies. One explanation for this finding may be that our study focused on school classes with a considerable native majority (74%) and relatively few immigrants (26%). As a result, irrespective of their own national identification, the (relatively) few immigrants in these schools simply had to befriend natives, because there were not enough immigrants, let alone co-ethnics, around to sustain non-native friendship networks. As already pointed out by Blau (1974, 621), people may generally prefer ingroup friends to outgroup friends, but they may also "prefer associating with outgroup members to not associating with anybody and remaining isolated." Immigrants' national identification in our sample may thus not have affected their tendency to befriend native because they had to do so anyways.

Our results suggest, however, that immigrants' national identification mattered in friendship choices of natives, who preferred to befriend immigrants with strong rather than weak national identification. This finding confirms experimental research (Verkuyten and Thijs, 2010; Verkuyten et al., 2013), indicating that results from laboratory experiments are meaningful in real-world interactions as well. This finding is particularly important given that most prior studies have neglected the perspective of natives. In line with the reasoning above, native students had a large number of classmates from their ingroup to choose from. They therefore could have been pickier in selecting outgroup friends.

Why exactly natives preferred to befriend immigrants with strong rather than weak national identification cannot be answered in this study. Presumably, identification with the host country serves as a signal for similarity in attitudes, norms, or cultural values and native might prefer friends who are similar (McPherson et al., 2001). However, other aspects related to identity might at least partly confound this effect. For instance, it may be the case that immigrants with strong national identification are also more proficient in the host language, which could make them more attractive

as friends for natives. We are looking forward to studies shedding light on the underlying mechanisms.

With respect to *influence* mechanisms, our study suggests that friends did *not* affect the development of immigrants' national identification in the expected way. Neither did immigrants prefer to be similar to the national identification of their friends, nor did having many native friends increase their national identification. These findings contradict causal interpretations of previous cross-sectional studies (e.g., Agirdag et al., 2011; Sabatier, 2008).

One reason for not finding support of our influence hypotheses might be that the observed period of time was relatively short, making it difficult to identify long-time developments. Perhaps more importantly, Schulz and Leszczensky (2015) recently argued that native friends may only influence national identification of immigrants belonging to groups for which ethnic boundaries are blurred rather than bright. We thus may not have found evidence of influence because the majority of immigrants in our sample is of non-Western origin and the ethnic boundaries between these groups and Dutch natives may be too clear cut to allow influence processes (also see Alba, 2005). To illustrate this idea, one would not expect males with many female friends to start identifying as females as well. As suggested by Schulz and Leszczensky (2015), a similar argument may apply, admittedly to a somewhat lesser degree, to ethnic groups. If immigrants look physically different than natives, have to cope with discrimination, and feel alienated from the host country, they may view themselves as non-natives, irrespective of how many native friends they have. Another possibility could be that Dutch natives who do not have immigrant friends may care more about ethnicity than do Dutch natives who do have immigrant friends. Such Dutch native friends may not foster the development of their immigrant friends' national identification since they do not find this aspect particularly important.

We found, though, that immigrant students tended to be *dis*similar to their friends' mean level of national identification. In our view, however, this does not necessarily imply that immigrants preferred to befriend peers with dissimilar identity levels. Recall that immigrants in our study attended classrooms with large majorities of native classmates. As a consequence, many friends of immigrant students actually were natives. Since natives national identification was, on average, higher than that of immigrants, the negative similarity effect arguably reflects the fact that immigrants' did not adjust their own national identification towards those of their (native) friends.

Taken together, our results are in line with findings of Leszczensky (2013), who, while neglecting the perspective of natives, also finds no evidence of either selection from the perspective of immigrants or influence with respect to the proportion of native friends. Our results improve upon the study of Munniksma et al. (2015), which suggested a bidirectional causal relation between national identification and native friends but did not account for selection and influence mechanisms. Applying a statistical method that allowed examination of selection and influence processes, we found that immigrants' host country identification does not seem to matter for immigrants' friendship choices. Our results differ from those of Rutland et al. (2012), who find evidence of influence but not of selection processes. However, their study focuses on children between the ages of 5 and 11, who might be more prone to influence mechanisms, while at the same time being less conscious about choosing their friends. Also, compared to Rutland et al. (2012), we focused on a relatively new contact situation, since many new friendships are formed at the beginning of middle school.

While our study extends prior research in important ways, some limitations have to be mentioned. On a general note, our sample does not allow to make generalizations. For one thing, we rely on two waves spanning the age of 13–14, so different effects earlier or later in life cannot be ruled out. Moreover, as is true for most other network studies, our data are not based on a random sample, given that all participants are from one particular city. It would have also been desirable to control for students' socioeconomic status, which the data did not allow. Yet, the comprehensive study by Smith et al. (2014) shows that adding socioeconomic status does not change conclusions about the importance of other tie-generating mechanisms.

As mentioned before, our measurement of national identification could be improved. Although some earlier studies used similar items (Leszczensky, 2013; Munniksma et al., 2015), capturing a complex construct like identification with one item is not desirable (but see Postmes et al., 2012; Reysen et al., 2013). Still, even using this imperfect measure of host country identification, we found clear evidence of the well-established association between the strength of immigrants' national identification and the share of their native friends. What is more, while our measurement of national identification is improvable, it also bears mentioning that our measurement of friendship networks is arguably more adequate than those of studies asking immigrants to report how many of their friends are natives. Whereas the accuracy of these indications is questionable, in our study all friends self-reported ethnicity, thus ruling out biased information. A final potential methodological limitation are the assumptions underlying our statistical approach. Most notably, using the multi-group option of RSiena assumes that parameters are the same across all classrooms. Future studies may deal with heterogeneity between classes by estimating random coefficient multilevel Siena models, which have been developed recently but, to the best of our knowledge, not yet applied in published research (see Ripley et al., 2015).

We offer the following suggestions for future research. First and foremost, while cross-sectional and experimental research might be helpful in some cases, future research should primarily be longitudinal to further examine the mechanisms underlying the relation between friendships and identification. In particular, researchers may test the post-hoc explanations we offered for the hypotheses that we had to reject, even if these hypotheses are quite prominent in the literature and theoretically founded. Especially for analyzing identity development, both more points of observation and a longer time frame would also be desirable. Second, while we believe that we have demonstrated the benefits of adopting a social networks approach, our study only marks a first step in this direction. Picking up the work of Walker and Lynn (2013), further studies might focus on structural features of friendship networks, such as the embeddedness of friends sharing a particular identification. For example, the pressure to conform towards the identification of friends might be stronger for immigrants who are part of a clique in which most members share a particular identity than for immigrants whose friends are not, or are only loosely connected to each other. Third, future studies should use more fine-grained measures of national identification that may also allow to distinguish between various dimensions of national identity (Ashmore et al., 2004; Leszczensky and Gräbs Santiago, 2015). Fourth, recent research has suggested that native friends might only influence immigrants' national identification if ethnic boundaries are blurred rather than bright (Schulz and Leszczensky, 2015). Therefore, future studies may test immigrant group-specific hypotheses. Finally, complementing our study of classes with moderate shares of immigrants, future research may investigate the relation between identification and friendships in classes with higher shares of immigrants in which immigrants' face a more complex opportunity structure.

To conclude, our study goes beyond earlier research by investigating the process of the co-evolution of young immigrants friendship networks and their friendships. We found that while immigrants' identification with the host country did not affect immigrants' own friendship choices, it made immigrants' more

attractive from the perspective of natives. However, at least over the period of study, native friends did not in turn influence immigrants' national identification, and immigrants' did not adjust towards the identification of their friends.

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