INTERNATIONAL MIGRATION REVIEW

Ethnic Composition and School Performance in the Secondary Education of Turkish Migrant Students in Seven Countries and 19 European Educational Systems

Gert-Jan Martijn Veerman
University of Amsterdam

Jaap Dronkers
Maastricht University

This article examines the effect of the ethnic composition on school performances in secondary education for Turkish students, using both cross-national and Swiss national PISA 2009 data. At school level our results show no effect of the proportion of natives or the proportion of coethnics and a negative association between ethnic diversity (we employ a residualized score of diversity on the proportion of migrants) and math performances. Consequently, we find no evidence for social capital advantages and an indication of barriers. Finally, we find no association between social capital variables on national or educational system level and math performance.

INTRODUCTION

The relationship between ethnic school composition and school performance has been a topic of debate in the migration literature over the past decades (Karsten et al. 2006; Orfield and Lee 2007) and has also been recently investigated in both the American and European contexts (Van Ewijk and Sleegers 2010; Agirdag, Van Houtte, and Van Avermaet 2012). Beside *ethnic share,* recent studies also use *ethnic diversity* as an additional indicator of ethnic school composition (Van Houtte and Stevens 2009;

DOI: 10.1111/imre.12185

Maestri 2011b; Braster and Dronkers 2013; Dronkers and van der Velden 2013; Veerman, Van de Werfhorst, and Dronkers 2013; Veerman forthcoming). Other studies also use the share of co-ethnics (Halpern and Nazroo 2000; Fleischmann et al. 2012). A school's ethnic share refers to the proportion of migrant children in the school (independent of ethnic group), whereas the share of co-ethnics refers to the proportion of children from a particular ethnic group. Ethnic diversity refers to the school's composition in terms of the number and size of different ethnic groups.

Researchers propose both social capital advantages and negative barrier mechanisms to explain the relationship between ethnic school composition and school performance. Migrant students can share resources with their co-ethnic group (Crul and Doomernik 2003) due to stronger ties (Lin 2001) and acquire resources through contacts outside their ethnic group (Esser 2004; Cheng, Martin, and Werum 2007). However, an ethnic school composition with more co-ethnics and fewer contacts outside one's ethnic peer group can also lead to barriers due to less access to social structures where bridging social capital can be acquired (Crosnoe, Cavanagh, and Elder 2003; Esser 2004; Cheng, Martin, and Werum 2007).[1]

Although earlier studies reveal the effect of ethnic composition on both migrant and natives, they do not measure the relationships between the proportion of co-ethnics, the share of native students, and ethnic diversity in schools and school performance across multiple societies and various educational systems. This paper uses both the cross-national Programme for International Student Assessment (PISA) and the Swiss PISA (PISA, ch. 2009) to investigate whether the ethnic composition of schools is associated with the educational performance of Turkish migrants at secondary schools in different European educational systems. This study focuses on Turkish migrants, as the Turks are the largest immigrant group in Europe and have settled in a large number of European countries (Crul and Vermeulen 2003). As a result, we were able to measure the proportion of migrants at both the school and national or educational system levels, using cross-national data. Furthermore, Turkish migrant students are particularly interesting because earlier studies have shown strong ties to Turkish migrant networks at both the country and school levels (Fennema and

[1]For instance, students may acquire less information about the educational system due to fewer contacts outside their ethnic peer group. The availability of information is correlated with success expectations and less information leads to a lower desire to invest in capital in the destination country (Esser 2004).

Tillie 1999; Van der Veen and Meijnen 2001; van Heelsum 2005). Moreover, Crul and Vermeulen (2003) note that the Turkish community in the Netherlands has more social capital than the Moroccan community in the Netherlands. Consequently, the influence of ethnic composition may differ between origin groups.[2] Our main research question is how ethnic composition is associated with the school performance of Turkish students in different European countries or educational systems.

This study aims to contribute to the literature in three ways. First, this study distinguishes the native share, ethnic diversity, and share of co-ethnics using seven countries and 19 European educational destination systems.[3] Consequently, this study determines whether origin composition effects for specific groups in single countries are also present in cross-educational system data. Second, we argue whether social capital advantages or barriers can explain part of the relation between ethnic school composition and school performance. Although there has been considerable research using social capital focusing on the triangular ties between parents, teachers, and children in the U.S., our research is relevant because less is known about the influence of peer group and inter-ethnic ties as a resource for school performance in Europe (Cheng, Martin, and Werum 2007). We investigate the influence of possible inter-ethnic ties at the national level, as well as at the school level.

The Turks comprise the largest migrant group in Europe.[4] Therefore, it is interesting to determine whether differences in their relative

[2]In addition to these theoretical arguments, we also find empirical evidence that underpins the need to separately analyze Turkish migrant students. Analysis shows significant differences between Turkish students and other migrant students in both the proportion of natives and residualized ethnic diversity. Turkish students benefit significantly less from a higher proportion of native-born and are significantly more disadvantaged by higher levels of residualized ethnic diversity in their math performance. The results are available on request.

[3]Our analysis contains seven destination countries but 19 educational systems. Belgium, Germany, and Switzerland have more than one educational system at the subnational level. Unfortunately, Germany's PISA data for our types of analyses were available only at the national level (Prokic-Breuer and Dronkers 2012).

[4]Different migration flows of Turkish residents to Europe occurred in the last century (Içduygu 2009). During the 1960s, a big wave of migration from Turkey to Europe took place, mainly because of the need for cheap labor workers in different European countries. This migration then waned in 1974 due to economic stagnation in Europe. Nevertheless, the population of Turkish migrants grew after 1974 due to family reunions, irregular labor migration, and marriage migration (Içduygu 2009).

community size between countries also lead to greater social capital advances for this relatively large ethnic group. Finally, this research shows whether different characteristics of *destination countries* or *educational systems* and migration paths of Turkish origin into Europe – and consequently differences in opportunities to acquire social capital – influence the educational performance of students of Turkish origin. Therefore, we first employ 2009 cross-national PISA data for an analysis at the national level and thereafter a combination of both 2009 cross-national PISA and 2009 Swiss PISA data for an analysis at the educational system level. A recent study on federal states in Switzerland shows differences in integration policies between educational systems within a destination country (Manatschal and Stadelmann-Steffen 2013), which is why our study of migrant students distinguishes between the destination country and the educational system.

THEORY

Social Capital

Since the 1990s, an increasing number of researchers have explained differences in educational performance using the concept of social capital (Dika and Singh 2002), frequently referring to the work of Bourdieu (1984), Coleman (1988), or Putnam (2000). Although Bourdieu, Coleman, and Putnam all refer to the importance of different resources within social networks, Bourdieu focuses more on reproduction through social capital. Coleman, in particular, considers social capital access to institutional resources (Dika and Singh 2002). For instance, the author argues that social capital, especially in the adult community surrounding the school, influences the high school dropout rate. While Coleman primarily focuses on family structure and parent–child interaction as variables representing access to resources, others focus on the network of individual families within the ethic community (Zhou 1997a) and the students' networks as a means of accessing resources (Stanton-Salazar and Dornbusch 1995; Morgan and Sørensen 1999). Bankston and Zhou (2002) note that ethnicity may even be considered a basis for systems that produce social capital. Finally, Putnam (2000) refers particularly to civic associations, with social capital generated inside homogeneous groups (bonding) as well as outside them (bridging). The author's analytical distinction between bonding and bridging capital reveals the possible importance of student ties both outside and within peer groups.

Bonding Social Capital

We expect more bonding social capital in (relatively) larger groups of co-ethnics following the assumption of Blau's (1974) opportunity theory. Bonding capital may explain part of the advantages both inside and outside the school for migrants from a larger migrant group because, according to the idea of bonding, there is greater opportunity for sharing resources between students or parents from a peer group of the same origin due to the stronger ties between individuals within the group (Lin 2001). Furthermore, social closure increases learning among elementary and middle school students through the creation of a norm-enforcing environment that compels diligence (Morgan 2000, 294). Several studies find evidence supporting the bonding theory for Turkish students. For instance, Van der Veen and Meijnen (2001) find that successful secondary education Turkish students in the Netherlands have a better relationship with their peer group than less successful Turkish students. Furthermore, Peetsma et al. (2006) find that a higher proportion of migrants in a classroom is positively associated with math scores for Turkish and Moroccan pupils in the Netherlands. A higher proportion of migrants may also lead to better educational resources for migrant students. Teachers in schools with a high number of migrant students have more expertise to adapt their teaching to the specific needs of migrant students (Peetsma et al. 2006). Therefore, this specialization argument may, in terms of social capital, lead to better bridging links to the teachers.

However, a higher proportion of migrants in a school does not necessarily lead to an increase in the number of contacts within a student's ethnic peer group. For instance, schools with a high proportion of migrants may have high numbers of other ethnic groups and consequently small ethnic peer groups (Veerman, Van de Werfhorst, and Dronkers 2013). Consequently, only the proportion of co-ethnics gives a valid indication of the relative possible number of ties within an ethnic peer group.

Bonding social capital is also captured at higher levels. Countries differ in the size of their Turkish immigrant communities. According to Turkish statistics, the Turkish Employment Service sent nearly 800,000 workers to Europe between 1960 and 1974: 649,000 to West Germany, 56,000 to France, 37,000 to Austria, and 25,000 to the Netherlands

(Içduygu 2009).[5] Levels, Dronkers, and Kraaykamp (2008) analyze different origin countries and show that the proportion of immigrant communities within destination countries is positively associated with the math performance of migrant students. This association may also hold for our single Turkish migrant group. Consequently, Turkish migrants might have bonding advantages due to the higher probability of having contacts with ethnic peers in the destination country.

Bridging Social Capital

Migrant students can acquire bridging social capital throughout their contacts with natives. We expect migrants to have more opportunities to acquire bridging capital in schools with (relatively) larger groups of native students, again following Blau's (1974) opportunity theory. Bridging capital is a resource for "getting ahead" (Putnam 2000) or for expanding one's horizons (Morgan 2000). For instance, pupils' language development may be facilitated by a higher number of contacts with native peers due to greater contact with pupils speaking the host national language as their mother tongue (Driessen 2002). Consequently, a higher share of natives is associated with better school performance. In addition, migrants can acquire bridging social capital through contacts with other immigrant groups. Therefore, ethnic diversity can enrich students through communication, as when information about the culture of one ethnic group is relevant to the other group (Lazear 1998).

Bridging social capital can also be obtained at higher levels. For instance, migrant groups can acquire formal advantages through labor agreements that stimulate opportunities for bridging. These agreements

[5]Besides labor migrants, the statistics also include political refugees from Turkey to European countries, which include ethnic groups other than Turks. For example, some labor workers from Turkey are Kurds and Armenians. However, most available statistics refer only to a Turkish origin and not to Turkish ethnicity. For instance, we could only trace whether students of Turkish origin spoke Kurdish in three of the seven countries with the PISA data on students of Turkish origin. According to Hutchinson and Smith (1996), language is one of the six main features of ethnicity. Consequently, Kurdish-speaking Turkish students may define themselves as ethnic Kurds. However, we could not differentiate Kurdish ethnicity in our cross-national and educational system analyses because this information was not available for all destination countries. Furthermore, Veerman and Weitenberg (2008) find that Kurdish-speaking people do not necessarily define themselves as Kurds. For instance, some Kurdish-speaking migrants in the Netherlands define themselves as Armenian.

specify the general conditions of recruitment, employment, and wages. Turkey signed its first labor agreement with Germany in 1961. The United Kingdom also signed a labor agreement in 1961, but this agreement was less comprehensive. Later Austria, Belgium, France, the Netherlands, and Sweden followed with agreements in the mid-1960s. Switzerland and Denmark signed less comprehensive agreements during the 1970s. Finally, Norway signed an agreement in 1981 (Franz 1994). Esser (2004) especially mentions economic opportunities and the duration of stay as incentives to invest in destination country capital. An early comprehensive agreement implies more economic opportunities for Turkish migrants and a longer duration of stay for the Turkish community. Consequently, early comprehensive agreements facilitate the possibility of acquiring bridging social capital by reducing the risks of investing in destination country capital and lengthening the time to acquire this bridging social capital.

Barriers

While bridging and bonding capital may provide advantages, ethnic group contacts may also function as a barrier. For instance, ethnic contacts may also lead to more social control (Zhou 1997a). Strong social control could lead to Turkish migrant students having a more ambivalent view of schooling (Crul and Doomernik 2003). Furthermore, high proportions of migrants may negatively relate to educational outcomes due to reduced access to social structures through which social bridging capital can be acquired (Crosnoe, Cavanagh, and Elder 2003; Esser 2004; Cheng, Martin, and Werum 2007).

The number of other ethnic groups and their size (ethnic diversity) may also have a negative influence on school performance. First, from a teaching perspective, a higher number of ethnic groups lead to cultural teaching problems concerning instructional time for larger numbers of ethnic groups (Maestri 2011a; Dronkers and van der Velden 2013). Moreover, teachers need to adapt their teaching style to the cultural needs of diverse sets of pupils (Van Ewijk and Sleegers 2010). Second, from the *peer group perspective*, the existence of small ethnic groups may also lead to lower school achievement due to a mechanism that reduces ethnic identification (O'Reilly, Williams, and Barsade 1997). Larger numbers of inter-ethnic contacts may lead to greater inter-ethnic tensions (Esser 2004), which can negatively influence academic performance (Hoxby 2000). Whereas Dronkers and van der Velden (2013) and Veerman, Van

de Werfhorst, and Dronkers (2013) find that ethnic diversity leads to lower school performance for migrant students, Braster and Dronkers (2013) and Maestri (2011b) demonstrate a positive relationship between ethnic diversity and school performance in the Netherlands (for an explanation of the differences, see Maestri 2011b; Braster and Dronkers 2013; Veerman, Van de Werfhorst, and Dronkers 2013). Consequently, ethnic composition may lead not only to social capital advantages, but also to barriers that reduce the school performance of migrants.

HYPOTHESES

Students of Turkish origin may benefit from bonding social capital within their own ethnic group and from bridging social capital outside their ethnic group. According to social capital theory, stronger relationships with one's own ethnic group lead to the sharing and exchange of resources. We expect a higher chance of co-ethnic contacts and access to positive ethnic social capital in a school with a higher proportion of Turkish students. Furthermore, both parents and students have a greater chance of acquiring bonding capital outside the school in a country with a higher proportion of co-ethnics. This leads to the following *co-ethnic hypothesis:*

> There is a positive association between the proportion of co-ethnics both in the school and in the educational/national system and the math scores of Turkish migrant students.

Aside from the school level, ethnic groups may also acquire social capital at the national level through their migration history. For instance, bilateral labor agreements between destination countries and origin countries represent a portion of the social capital of the origin groups, because a relatively comprehensive agreement provides incentives to invest in the cost of educating children in the destination country due to relatively stronger job security. Furthermore, a relatively early bilateral agreement indicates a longer time for the ethnic group to acquire capital in the destination country. Consequently, we expect the following *labor agreement hypothesis:*

> There is a positive association between early comprehensive labor agreements and the math scores of Turkish migrant students.

We propose native students as one of the possible social bridging resources in the success network of migrant students. We expect a higher

chance of bridging contacts in a school with a higher proportion of native students. We expect that this bridging mechanism dominates the specialization mechanism. This leads to the following *bridging social capital hypothesis:*

> The proportion of native students in the school is positively associated with the math scores of Turkish migrant students.

Aside from the bridging capital between Turkish students and native students, the former might benefit from bridging contacts with other ethnic groups. A greater ethnic diversity index is related to relatively more inter-ethnic contacts (Veerman, Van de Werfhorst, and Dronkers 2013). Consequently, greater origin diversity is associated with more diverse bridging social capital. Greater ethnic diversity can enrich students through communication, for instance, if information about one ethnic group's culture is relevant to another group. The information that other origin groups may supply is probably irrelevant to the math performance of the Turkish migrant students in most cases. Moreover, if the information is relevant to another group, its use is only structurally implemented in some of the curricula (Svalberg 2007). Furthermore, increased inter-ethnic contacts may lead to a greater risk of inter-ethnic tensions due to the higher chance of cultural differences. These tensions (Esser 2004) negatively influence school performance (Hoxby 2000). Moreover, greater ethnic diversity may lead to teaching problems concerning instructional time for greater numbers of ethnic groups. Consequently, we expect the barrier mechanisms of ethnic diversity to have a dominant influence on school performance levels, as in the *ethnic diversity hypothesis*:

> Greater ethnic diversity is negatively associated with the school performance of Turkish migrant students.

DATA AND VARIABLES

Data

We carried out analyses of the 2009 cross-national PISA and 2009 Swiss PISA Plus survey datasets. The cross-national PISA data contain information on the socioeconomic backgrounds and school achievement test scores of 15-year-old students of Turkish origin for all European countries

with large Turkish communities, except for France, because the PISA in France contains no indicator for country of origin. Therefore, our analyses contain data for students of Turkish origin from Austria, Germany, and the Netherlands. Aside from these countries with large Turkish communities, information about students of Turkish origin is available for Belgium, Denmark, Liechtenstein, and Switzerland. Consequently, our dataset contains data for Turkish students in seven European countries. In addition to the national level, the cross-national PISA data allow for a split between the Flemish and Walloon regions for the Belgian dataset. This is because the Belgian educational system is largely organized at the regional level. Due to the language difference between the Walloon and Flemish regions, we split our analysis for Belgium in two. Additionally, Switzerland's educational system is largely organized at the canton level. We could only separate Swiss students at the canton level if we employed the Swiss PISA Plus data. Unlike the cross-national PISA, the Swiss PISA Plus selects ninth-grade students, which is the grade in which most 15-year-old students are expected. Consequently, only students who were 15 years old during the test period were selected from the Swiss PISA Plus data, as for the cross-national data, to ensure comparable datasets.

Our combination of PISA and Swiss PISA Plus data comprises 19 educational destination systems for Turkish students.[6] We are interested in the ethnic school composition of the Turkish students. Consequently, our dependent variable is the math performance of 733 Turkish students in 19 European educational destination systems. However, for the calculation of the independent variables, we also use information on non-Turkish students. If only the cross-national data are used, our analyses contain 1,461 Turkish students in seven destination countries. We first show the outcome of our analyses regarding this dataset, which includes only seven educational destination countries. Following this, we present the analyses of the 19 educational systems. Consequently, we can show whether the design with a combination of PISA and Swiss PISA Plus influences our results.

Our study compares two research designs at our third level: a design with *national-level variables* and a design with *educational system-level* variables. Our design with national-level variables only covers seven countries, and our model with educational system variables covers 19 educational

[6]Because we also want to show descriptive statistics, we only selected cantons that had at least six Turkish students in the database. Consequently, we dropped three cantons and 1 percent of our students.

systems. Maas and Hox (2005) mention that the regression coefficients remain unbiased even if the sample size is as small as 10 groups of five units. Nevertheless, the authors find the standard errors of the regression errors are smaller when the number of cases at a higher level is considerably lower than 100: For instance, the standard errors decrease by approximately 15 percent when 30 groups are used instead of 100. A design with 10 groups leads to unacceptably underestimated standard errors at the group level (Maas and Hox 2005). Furthermore, a low number of cases at a higher level also lead to overestimating the group-level variance. Therefore, we expect that associations have lower standard errors for a design in which the third level is a national level compared to a design with the educational system at the third level.

Variables

Dependent Variables. The dependent variable in this study is *math* performance. We focus on math performance because, generally, math scores are more strongly related to school class influences than language scores are (Creemers 2007), as math is more clearly learned at school than in other contexts, such as at home (Scheerens and Bosker 1997). To measure all academic skills accurately would make the PISA test too long to administer. Hence, PISA created a large number of shorter but very similar tests. Because such different tests can never be of exactly the same degree of difficulty, *item response modeling* (IRM) is used to obtain comparable results between students who took different tests. We average the five plausible values obtained from the IRM and compute the standard error of this average test score to take into account their variance. The skills scores were standardized for Organisation for Economic Co-operation and Development (OECD) countries using an average of 500 and a standard deviation of 100. The mean scores of students with a Turkish background are given in Table 1 by country, along with the differences between their mean test scores and those of native students.

Individual Level. *Origin.* Using the method applied by Levels and Dronkers (2008), we use the country of birth of the child, father, and mother as the indicator for origin. If two of these three indicators are the same country and not the country of the test, we consider that country the country of origin. However, when all three indicators are different, the country of birth of the mother is used to represent the origin country.

TABLE 1
MEANS AND STANDARD DEVIATIONS FOR TURKISH-ORIGIN STUDENTS

	Total		Austria		Belgium	
	Mean	SD	Mean	SD	Mean	SD
Indiv. level						
Math perf.	435.9	83.1	419.4	74.4	434.1	86.7
Read. perf.	417.8	85.7	383.3	79.8		
High. track	0.8	0.4	0.5	0.5	0.6	0.5
ESCS	−0.8	0.9	−0.9	0.8	−0.8	1.1
Female	0.5	0.5	0.5	0.5	0.5	0.5
First gene.	0.1	0.3	0.2	0.4	0.1	0.4
Grade	2.5	0.7	1.9	0.8	−0.8	0.7
Parents mixed mar.	0.1	0.4	0.1	0.3	0.3	0.4
Other lang. at home	0.5	0.5	0.6	0.5	0.6	0.5
Lang. at home mis.	0.2	0.4	0.2	0.4	0.2	0.4
School level						
% Natives*	45.7	25.4	50.2	25.6		
Resid. origin div.	0.0	0.1	0.0	0.1	0.1	0.1
Mean ESCS	−0.3	0.5	−0.3	0.5	−0.4	0.5
Prop. of Turk. ori.*	21.8	21.2	23.7	21.5	19.8	14.3
Country level						
% of Turk. origin*	1.3	0.6	1.3	0.0	0.4	0.0
Av. math score nat. stud.*	526.0	16.0	510.6	0.0	538.6	0.0
Early bil. labor agr.	0.6	0.5	1.0	0.0	1.0	0.0
Diff. Turk. Nat. mean Math	−90.1	10.2	−91.2	0.0	−104.4	0.0
Test level						
Error math	809.1	660.1	807.0	611.9	735.1	535.8
Error read	526.7	437.7	629.4	539.3	512.8	428.2
N students	1,461		297		167	
N schools	594		119		65	

	Denmark		Germany		Liechtenstein	
	Mean	SD	Mean	SD	Mean	SD
Indiv. level						
Math perf.	415.5	80.3	439.3	82.2	498.3	76.6
Read. perf.	411.2	75.4	426.7	87.7	438.2	80.3
High. track	1.0	0.0	1.0	0.0	1.0	0.0
ESCS	−0.9	0.9	−0.7	0.9	−0.8	0.8
Female	0.6	0.5	0.5	0.5	0.3	0.5
First gene.	0.0	0.2	0.1	0.3	0.6	0.5
Grade	2.8	0.4	2.9	0.7	2.8	0.4
Parents mixed mar.	0.1	0.3	0.2	0.4	0.1	0.2
Other lang. at home	0.4	0.5	0.5	0.5	0.9	0.3
Lang. at home mis.	0.2	0.4	0.2	0.4	0.1	0.2
School level						
% of Turk. origin*	36.3	25.0	53.5	22.5	28.0	5.2
Av. math score nat. stud.*	0.0	0.2	0.0	0.0	0.1	0.0
Early bil. labor agr.	−0.3	0.4	−0.2	0.5	−0.2	0.3
% of Turk. origin*	34.3	30.1	19.5	12.9	11.8	6.2
Country level						
% of Turk. origin*	1.0	0.0	2.0	0.0	2.3	0.0
Av. math score nat. stud.*	508.4	0.0	528.6	0.0	531.3	0.0

TABLE 1 (CONTINUED)
MEANS AND STANDARD DEVIATIONS FOR TURKISH-ORIGIN STUDENTS

	Denmark		Germany		Liechtenstein	
	Mean	SD	Mean	SD	Mean	SD
Early bil. labor agr.	0.0	0.0	1.0	0.0	0.0	0.0
Diff. Turk. Nat. mean Math	−92.9	0.0	−89.3	0.0	−33.0	0.0
Test level						
Error math	932.1	728.0	692.2	523.6	359.2	145.1
Error read	464.9	368.4	496.4	391.9	312.3	174.8
N students	349		248		17	
N schools	110		99		6	

	The Netherlands		Switzerland	
	Mean	SD	Mean	SD
Indiv. level				
Math perf.	470.6	73.4	457.3	89.0
Read. perf.	459.4	79.2	430.8	88.5
High. track	0.2	0.4	1.0	0.1
ESCS	−0.7	1.0	−0.8	0.9
Female	0.6	0.5	0.5	0.5
First gene.	0.1	0.3	0.2	0.4
Grade	2.3	0.5	2.7	0.6
Parents mixed mar.	0.1	0.3	0.2	0.4
Other lang. at home	0.5	0.5	0.5	0.5
Lang. at home mis.	0.2	0.4	0.2	0.4
School level				
% of Turk. origin*	51.5	31.6	45.5	17.7
Av. math score nat. stud.*	0.1	0.1	0.1	0.1
Early bil. labor agr.	−0.2	0.6	−0.1	0.3
% of Turk. origin*	16.1	10.7	8.2	4.9
Country level				
% of Turk. origin*	2.3	0.0	0.9	0.0
Av. math score nat. stud.*	542.1	0.0	550.0	0.0
Early bil. labor agr.	1.0	0.0	0.0	0.0
Diff. Turk. Nat. mean Math	−71.5	0.0	−92.7	0.0
Test level				
Error math perf.	583.0	408.1	1009.2	877.3
Error Read.perf.	489.2	328.1	575.7	496.3
N students	164		219	
N schools	72		123	

Note: ESCS, economic, cultural, and social status.
*Grand mean centred in analyses

Parental ESCS. The economic, cultural, and social status (ESCS) index of the parents is a composite index created within the PISA dataset of parents' occupational status, measured with the International Socio-Economic Index of occupational status (ISEI) scale (Ganzeboom, De Graaf, and Treiman 1992), the educational level of the parents measured according to the International Standard Classification of Education

(ISCED), and the presence of any material or cultural resources at the students' homes.

Higher Track. A higher track refers to track levels 2A and 3A of the ISCED, programs that ultimately lead to tertiary education (OECD).

Female. We employ a dichotomous variable to classify gender. Males comprise the reference group.

First Generation. Using information on the countries of birth of the students and their parents, we construct a dichotomous variable. We define first-generation migrants as students who were born in Turkey, just as at least one of their parents. We define second-generation migrants as students who were born in the destination country with at least one parent who was born in Turkey.

Grade. As not all students in our sample attend the same grade, we include a variable to account for this. Due to between-country variance in the way grades are constructed, we standardize grades around the modal grade in a country.

Parents' Mixed Marriage. Using information on parents' country of birth, we construct a dichotomous variable. We define mixed-marriage parents as those where one partner was born abroad and the other was native born.

Other Language at Home Than the Destination Language. Using information regarding students' home language, we construct a dichotomous variable. As we lack data on the language at home of 5 percent of the students, we include the dummy *language at home missing.*

School Level. *Proportion of Natives.* We compute the proportion of natives using the percentage of native students in the school.

Proportion of Turkish-Origin Students. The proportion of students of Turkish origin is computed using the percentage of students of Turkish origin in the school.

Origin Diversity Residual. We compute an inverted Herfindahl index using the number of students per origin in every school. We calculated the index as follows: $1 - ((\text{proportion ethnic group } 1)^2 + (\text{proportion ethnic group } 2)^2 + \ldots + (\text{proportion ethnic group } n)^2)$. Although earlier studies show that both the proportion of migrants in a school and origin diversity are concepts that should be distinguished both theoretically and empirically, Veerman, Van de Werfhorst, and Dronkers (2013) shows in an empirical model that the use of both variables may lead to problems of multicollinearity due to the strong Pearson correlation between the proportion of migrants and origin diversity. Using the method applied by

Veerman, Van de Werfhorst, and Dronkers (2013), we first estimate a quadratic regression model at the school level, predicting diversity to be a function of the proportion of migrants. Thereafter, we consider the residuals of this regression model, which are the differences between the diversity of origin observed in a school relative to the predicted diversity. Consequently, a positive ethnic diversity residual refers to a more ethnically diverse school than expected, given its proportion of migrant children (see Appendix A, Supporting Information). Furthermore, our residualized diversity indicator is independent of the proportion of migrant students, as independence from the residual with independent variables is an assumption of ordinary least squares regression (Veerman, Van de Werfhorst, and Dronkers 2013).

Mean ESCS. The *mean ESCS* is calculated using the ESCS scores of all students in the school.

Educational System Level. Average Math Score of the Native Pupils. The average math score of native pupils is computed using only the math scores of native pupils in the educational system.

Proportion of Migrants of Turkish Origin in the Educational System. We compute the proportion of Turks in the educational system using statistics from Eurostat and the Turkish Ministry of Labour and Social Security (2010). These statistics are confirmed by the German Federal Statistical Office (Krings 2010) and are comparable to the 2008 statistics of Statistics Netherlands (2012) and the Federal Statistical Office (2010) of Switzerland.

Early Bilateral Labor Recruitment Agreement. We distinguish five educational systems with an early comprehensive bilateral labor recruitment agreement and use 12 educational systems in the Swiss Confederation cantons, Denmark, and Liechtenstein as reference group.[7]

Selection Effect by Design (Due to the Use of Both the Swiss PISA Plus and the Cross-National PISA). We compute the selection effect using the

[7]Instead of our bilateral labor agreement variable, other studies use indicators such as the Migrant Integration Policy Index (MIPEX). Although the MIPEX measures the integration policy at the country level, Manatschal (2011) finds subnational variation in integration policies for Swiss cantons and differences in their effects on school performance (Manatschal and Stadelmann-Steffen 2013). Therefore, we prefer our bilateral labor agreement indicator, because all bilateral labor agreements were signed at the national level and not the subnational level. Furthermore, the bilateral labor indicator refers to our research sample and not to migrants in general.

proportion of Turkish students omitted due to our selection criteria that made the Swiss Pisa Plus and cross-national PISA data comparable.

Descriptive Statistics

Table 1 reports the means and standard deviations for Turkish students and the difference between their mean math scores and those of native pupils by destination country. As Table 1 shows, Turkish migrant students perform, on average, higher than 470 points in their math test in Liechtenstein and the Netherlands, while their math performance is lower than the average in Austria, Denmark, and Belgium. Furthermore, the largest Turkish–native differences are found for Belgium and the lowest difference for Liechtenstein.

Appendix B (see Supporting Information) shows that the total mean math score is 18.6 points higher when we only consider the selection of Turkish migrant students instead of the cross-national PISA data. Consequently, our selection of 15-year-old Turkish migrant students in the year in which most 15-year-old students occur leads to a selection of students with higher school performance. Students with lower test scores who were omitted due to the selection criteria probably repeated the school year. Appendix B (see Supporting Information) shows a selection effect of 60 percent or higher for Walloon and Flemish Belgium, the Netherlands, and the Swiss canton Aargau. The mean results of these educational systems may have a positive influence in the selection effect.[8] Furthermore, the relatively low number of cases and relatively high standard deviation of the Swiss canton Vaud show that we should be cautious about concluding that Turkish students in Vaud perform better than in other educational systems.

MODELS AND RESULTS

Analytical Design

Given the nested structure of the data, with individual pupils nested in schools that are nested in educational systems, we employ a multilevel

[8]Table 3 shows a significant positive selection effect in all models (except Model 7). These results confirm our expectation that the selection of 15-year-old Turkish students in the year in which most 15-year-old students are found leads to a selection of Turkish students with higher math scores.

analysis. At the lowest level, we include the standard error of the average of the five plausible math test values as an error term for the dependent variable.[9]

We employ restricted maximum likelihood instead of full maximum likelihood due to the small number of educational systems (Maas and Hox 2005). We check the robustness of our results in Section 'Results at the Educational System Level' and compare the results of only our cross-national data in Table 2 with selected data from the combination of Swiss PISA and cross-national data in Table 3. Because we employ a selection procedure for our combination of Swiss PISA and cross-national data, we add the variable selection design effect to all models in Table 3. Furthermore, in case of significant effects at the third level, we correct for underestimated expected standard errors (Maas and Hox 2005) due to the small number of cases at the national or educational system level.[10] Finally, we compare only our cross-national results in Table 2 with a selection of only cross-national results using the same selection as the educational system data. Although we employ several procedures to measure possible measurement errors, we emphasize that, due to the low number of countries, conclusions about variables at the national level should be made with caution.[11]

Our first model in Table 2 contains all the explaining variables at the individual level and the proportion of native-born and ethnic diversity at the school level.[12] In Model 2, we add the indicator for bonding capital, that is, the proportion of co-ethnics.[13] Finally, our third model also

[9]This procedure results in a measurement model at the next level of pupils (Hox 2002), which results in a more reliable estimation of the true score for the dependent variable.

[10]Due to the fact that the combination of Swiss PISA Plus and cross-national data covers only one grade, we remove from all models in Table 3 the grade variable that measures the influence of possible differences from expected grades.

[11]We also checked the robustness of our results at the school level for the first model of our cross-national analysis, using country fixed effects. Our check shows results that are comparable at the school level. The results are available on request.

[12]For our analysis of the educational system data, we added an indicator for the selection effect and dummies for Belgium and Switzerland to control for structural differences between the national and educational system levels.

[13]We checked Model 2 with only the proportion of Turkish students instead of both the proportion of native students and the proportion of Turkish students because these proportions are strongly correlated ($r = -0.64$). We found comparable results and a significant parameter estimate for the ethnic diversity residual. The results are available on request.

TABLE 2
REGRESSION OF THE SCHOOL ORIGIN COMPOSITIONS ON MATH SCORES OF TURKISH MIGRANT STUDENTS IN CROSS-NATIONAL PISA DATA

	Model 1	Model 2	Model 3
Constant	455.5**	456.6**	432.0**
	(17.6)	(17.6)	(28.7)
Individual level			
ESCS	3.5	3.4	3.4
	(1.9)	(1.9)	(1.9)
Higher track	65.9**	65.7**	66.6**
	(6.5)	(6.5)	(6.5)
Female	−26.0**	−26.0**	−26.0**
	(3.2)	(3.2)	(3.2)
First generation	1.0	1.2	0.9
	(5.0)	(5.0)	(5.0)
Grade	41.6**	42.0**	41.7**
	(2.8)	(2.9)	(2.8)
Parents mixed marriage	12.8**	12.8**	12.8**
	(4.8)	(4.8)	(4.8)
Other language at home	−6.1	−5.9	−6.1
	(3.9)	(3.9)	(3.9)
Language at home missing	−27.0**	−27.1**	−27.0**
	(4.7)	(4.7)	(4.7)
School level			
Proportion natives of school	−7.9	8.2	−8.1
	(12.1)	(16.8)	(12.1)
Residuals origin diversity school	−103.8**	−62.7	−104.6**
	(26.9)	(40.1)	(26.9)
Proportion Turkish origin school		38.6	
		(27.9)	
Mean ESCS of school	55.6**	58.5**	55.5**
	(6.2)	(6.6)	(6.2)
National level			
Proportion of Turkish origin			1.1
			(1.2)
Average math score native students			28.7
			(36.0)
Early bilateral labor agreement			16.2
			(25.6)
Variance			
National level	1768.0	1763.8	2089.6
	(978.5)	(976.8)	(1144.1)
School level	1122.8	1124.2**	1121.0**
	(158.6)	(158.7)	(158.5)
Individual level	2763.0	2762.3**	2764.4**
	(158.6)	(158.5)	(158.6)
Test level	0.0	0.0	0.0
	(0.0)	(0.0)	(0.0)
Log likelihood	16224.6	16222.7	16222.8
N countries	7		
N schools	594		
N students	1,461		

Notes: ESCS, economic, cultural, and social status.
Standard errors in brackets.
Significance: $^{**}p < 0.01$.
Source: PISA 2009, own computation.

TABLE 3
REGRESSION OF THE SCHOOL ORIGIN COMPOSITIONS ON MATH SCORES OF TURKISH MIGRANT STUDENTS IN CROSS-EDUCATIONAL SYSTEM PISA DATA

	Model 1	Model 2	Model 3
Constant	445.1**	445.2**	449.3**
	(16.6)	(16.6)	(15.9)
Individual level			
ESCS	5.2	5.4	5.1
	(2.9)	(2.9)	(2.9)
Higher track	60.1**	59.6**	57.4**
	(11.9)	(11.9)	(11.6)
Female	−24.1**	−23.9**	−24.1**
	(4.8)	(4.8)	(4.8)
First generation	−0.9	−1.1	2.2
	(8.9)	(8.9)	(8.8)
Parents mixed marriage	15.2*	14.9	14.0
	(7.8)	(7.8)	(7.8)
Other language at home	−1.8	−2.0	−2.1
	(5.7)	(5.7)	(5.7)
Language at home missing	−35.4**	−35.6**	−36.6**
	(6.9)	(6.9)	(6.8)
School level			
Proportion natives of school	−2.9	−8.2	−8.8
	(15.8)	(18.4)	(15.6)
Residuals origin diversity school	−99.2**	−122.4*	−92.1**
	(34.7)	(53.2	(34.9)
Proportion Turkish origin of school		−21.5	
		(37.4)	
Mean ESCS of school	54.7**	53.5**	56.7**
	(8.9)	(9.2)	(8.7)
Educational system level			
Selection effect	1.3**	1.3**	0.8
	(0.4)	(0.4)	(0.5)
Belgium	−6.3	−5.6	−31.6
	(25.2)	(25.3)	(34.0)
Switzerland	0.7	−1.2	−37.9
	(16.0)	(16.2)	(20.3)
Proportion of Turkish origin			636.0
			(1499.6)
Average math score native students			1.3**
			(0.4)
Early bilateral labor agreement			−2.3
			(23.4)
Variance			
Educational system level	627.6*	629.0*	78.8
	(303.7)	(303.7)	(81.1)
School level	1026.8**	1032.4**	1058.4**
	(243.7)	(244.6)	(244.3)
Individual level	2939.6**	2954.6**	2918.6**
	(262.6)	(263.4)	(261.4)
Test level	0.0	0.0	0.0
	(0.0)	(0.0)	(0.0)
Log likelihood	8201.1	8201.7	8182.7

TABLE 3 (CONTINUED)
REGRESSION OF THE SCHOOL ORIGIN COMPOSITIONS ON MATH SCORES OF TURKISH MIGRANT STUDENTS IN CROSS-EDUCATIONAL SYSTEM PISA DATA

	Model 1	Model 2	Model 3
N students	733		
N schools	386		
N educational systems	19		

Notes: ESCS, economic, cultural, and social status.
Standard errors in brackets.
Significance: $^{**}p < 0.01$; $^{*}p < 0.05$.
Source: PISA 2009 and Swiss PISA 2009, own computation.

contains our national or educational system variables, except for the proportion of co-ethnics.[14]

Results at the National Level

Bonding Social Capital. Model 2 in Table 2 shows non-significant parameter estimates of 38.6 for the proportion of Turkish migrants at the school level. In addition, we use the proportion of Turkish students at the national level for our co-ethnics hypothesis. For Model 3 of Table 2, we find a non-significant association between the proportion of Turkish students at the educational system level and math performance. Therefore, we reject the *co-ethnics hypothesis* as a whole due to the non-significant parameter estimates of the proportion of Turkish migrants at both the school and national levels.

Bridging Social Capital. Our study employs two indicators of bridging social capital: the proportion of native students in the school and the bilateral labor agreement. All models in Table 2 show non-significant parameter estimates between −7.9 and 8.2 for the proportion of native students in the school. We therefore reject the *bridging social capital*

[14]We added the mean ESCS of the Turkish students in each country and educational system to check for differences in the ESCS composition of different Turkish communities. The results are comparable to those of our other models. We prefer our models without this control variable due to our restricted degrees of freedom at the country and educational system levels. Furthermore, we checked our final model considering only early comprehensive labor agreements or the proportion of co-ethnics at the country or educational system level (controlling for the selection effect and country dummies in the case of the educational system model). Although the results show mainly comparable associations, we find the proportion of co-ethnics to have a significant effect at the educational system level due to the lack of the mean math scores of native students. The results are available on request.

hypothesis. Model 3 in Table 2 shows a non-significant parameter estimate of 16.2 for the bilateral labor agreement. Consequently, we also reject our *bilateral labor agreement hypothesis.*

Barriers. Model 1 in Table 2 shows a significant association of −103.8 between residualized origin diversity and math scores. All the other models, except for Model 2, are also significant and negative.[15] Given these significant results, we can confirm the *origin diversity hypothesis* with regard to the math test scores of the Turkish migrant students. Furthermore, Appendix C (see Supporting Information) shows that we can also confirm the origin diversity hypothesis for reading scores.

Results at the Educational System Level

Associations at the School Level. Most results at the school level in Table 3 are comparable to the results in Table 2. Consequently, we also reject both the co-ethnics and bridging social capital hypotheses at the school level and confirm the origin diversity hypothesis. Model 2 of Table 3 shows inverted results for the proportion of student of Turkish origin in the school. However, these results are non-significant.

Associations at the Educational System Level. Model 3 of Table 3 shows no significant association between the proportion of Turkish students at the educational system level and math performance. We therefore reject the bonding social capital hypothesis at the educational system level as well. Furthermore, our bilateral labor agreement variable is also non-significant in Table 3. Therefore, we also reject the *bilateral labor agreement hypothesis*, using the educational system design.

We expect comparable associations at the highest[16] level for Turkish students in Europe in a design that uses a national or educational system level, with higher standard errors for the educational system design at the highest level. Our results show different associations at the highest level.

[15]Ethnic diversity involves the proportions of the different ethnic groups. The reduction of the ethnic diversity parameter may be explained by this overlap and additional analyses show that the ethnic diversity residuals explain this model's non-significant parameter estimate of the proportion of Turkish students in the school. The results are available on request.

[16]We call the country or educational system level the highest level to make the text more readable.

For instance, Model 3 in Table 2 shows an association of 33.1 between an early bilateral labor agreement and math performance, while Model 3 in Table 3 shows an association of 7.8. Furthermore, Model 3 in Table 2 also shows a higher standard error for an early bilateral labor agreement than in Table 3. At the end of the next section, we evaluate whether these unexpected differences are due to selection in our design.

Robustness Check

We check the robustness of our results by re-estimating the coefficients of Model 3 of Table 2 by excluding one of the eight destination countries from every analysis. We then show the results of the single countries that lead to non-robust results. The robustness checks in Appendix E (see Supporting Information) show significant associations between ESCS and math scores at the individual level if we exclude Austria, Germany, or the Netherlands. The robustness check in Appendix E (see Supporting Information) shows that most results at the school level are comparable, except for the model that excludes Denmark. Table E1 shows that, if we exclude Denmark, the negative parameter of residualized ethnic diversity in math performance becomes non-significant. If we compare the results of Denmark in Table E2a in Appendix E (see Supporting Information) with the cross-national results in Table 2, the association between residualized ethnic diversity math scores in Denmark is higher. Furthermore, the robustness check for only our cross-national data shows that the significant association of −104.6 for math scores grows to −124.9 if we exclude the Netherlands. Comparison of the results of the Netherlands in Table E2a in Appendix E (see Supporting Information) with the cross-national results in Table 2 reveals an inverted significant positive association of 189.2 between residualized ethnic diversity and math test scores for the Netherlands. The association between reading test scores and residualized ethnic diversity is also positive and significant. Finally, Appendix E (see Supporting Information) shows that all variables at the national level become significant if we exclude Germany. We reject our hypotheses at the national level due to the higher standard errors that occur due to Germany. Nevertheless, a robustness check of our educational system data shows no significant association between any of the educational system-level variables if we exclude Germany.[17]

[17]The results are available on request.

Model 3 in Table 3 shows a significant association of 1.3 between the mean math test scores of native students and those of the Turkish migrant students at the highest level. Although Maas and Hox (2005) expect a decrease of approximately 15 percent when 30 groups are used instead of 100 groups, the association between the mean math test scores of native students and those of the Turkish students remains significant, even at $p < 0.01$, if we increase the standard error by 32 percent.

The results at the individual and school levels in Table 2 are comparable to the results for only cross-educational analyses in Table 3. Consequently, the selection of only 15-year-old students in the year in which we expect most such students hardly influences our results at the individual and school levels. Our control variables probably intercept the selection effect. Nevertheless, Table 2 shows no significant variables at the national level. This difference is contrary to the expectations of Maas and Hox (2005). Appendix F (see Supporting Information) shows a table with our selection of the cross-national data. Model 7 in Appendix F (see Supporting Information) reveals no significant association between the average math score of native students at the national level and the math scores of Turkish migrant students. This result suggests that the significant association in Table 3 regarding the educational system level is not due to the selection of Turkish migrant students who are in the grade in which we expect the greatest number of 15-year-old students to be.

CONCLUSION AND DISCUSSION

We investigate the association between various indicators of the ethnic composition of schools and Turkish migrant students' test scores at secondary schools, using both European cross-national and cross-educational system data. In this study, we further distinguish between the proportion of native students and the proportion of co-ethnics. We challenge the theoretical notion of social capital advantages from bonding inside the ethnic peer group or through bridges outside the ethnic peer group to barriers that lead to less social capital explaining part of the association between the ethnic composition of schools, countries, or educational systems and school performance. Our results show no bridging advantage in schools with more native students for our sample of Turkish students in Europe. Greater opportunities for bridging contacts with native students do not automatically lead to the exchange of resources (Putnam 2000) to aid students to perform well in school.

Our results demonstrate no significant relationship between the proportion of co-ethnics and math scores at the school level if we check for ethnic diversity residuals. This finding suggests that greater opportunity for bonding contacts at the school level for the Turkish migrant students does not necessarily lead to a positive influence on math performance. This result may be explained by the lower efficiency of the ethnic group's social capital (Esser 2004). However, a recent study shows active participation in religious organizations in the U.S. and Canadian contexts provides access to tangible resources but creates no advantages for the second generation in Western Europe (Connor and Koenig 2013). Consequently, the lack of effect of bonding social capital may also be explained by the European context of the study.

Children of Turkish descent do not display significantly higher school performance when in an educational system with a larger community of co-ethnics. Unfortunately, data distinguishing between the national and educational system levels for Germany were not accessible for our research (Prokic-Breuer and Dronkers 2012). Therefore, we could only use the educational system level when analyzing a selection of 15-year-old students in the year in which most 15-year-old students are expected to be in their country and consider Germany one educational system. Our robustness check shows significant associations between all our national-level variables if we exclude Germany. These significant results occur mainly due to the lower standard errors. Consequently, these results combined with the very large variations in average educational outcomes between German educational systems (Köller, Knigge, and Tesch 2010; Prokic-Breuer and Dronkers 2012) indicate possible differences in the relationships within Germany. These differences may be partly explained by differences between educational systems in Germany that cannot be modeled due to data restrictions of the German government. However, an extra robustness check shows no significant results when we exclude Germany from our educational system model. Consequently, these different findings combined with the different findings between our national and educational system models show the importance of the attribution of the educational level besides the national level and a supply of data without restrictions.

We demonstrate significant negative relationships between residualized origin diversity and math performance. Dronkers and Van der Velden find a negative association between non-residualized ethnic diversity and the school performance of migrant students, using 2006 PISA data.

These findings regarding a single migrant group are therefore comparable with the earlier cross-national findings of Dronkers and van der Velden (2013) for the whole migrant group. These analyses of our ethnic diversity indicator reveal evidence of ethnic barriers and no arguments for bridging social capital advantages at the school level.

Our robustness checks for Denmark and the Netherlands show clearly inverted results regarding the influence of ethnic diversity. The data from Denmark show strong negative associations of ethnic diversity and school performance, while data from the Netherlands reveal positive relations between ethnic diversity and test scores. The difference in results regarding ethnic diversity between Denmark and the Netherlands may partly be explained by the long history of both Islamic and non-Islamic Dutch relations from the colonies. The positive association may be influenced by a combination of different histories in policies and appreciations of ethnic diversity. For instance, students in secondary education in the Netherlands can choose immigrant languages as a subject in their formal teaching program, unlike the situation in Denmark (Nusche, Wurzburg, and Naughton 2010). Therefore, we underline that, despite similarities in the functioning of European educational systems, there are also national differences between European countries and their ethnic composition effects.

Our results reveal no significant influence of early comprehensive bilateral labor agreements on the math performance of Turkish migrant students. We therefore reject the notion of greater social capital generated by early labor agreements. A positive influence of an early comprehensive bilateral labor agreement follows the idea of national control of migration. The non-significant finding might be in line with the idea of Castles (2002, 1147), who states that "control strategies based on an older national logic are likely to fail" due to globalization. Furthermore, the expected positive time component in the early comprehensive bilateral labor agreements may be neutralized by the contextual influences of Turkish migrant students inside the educational systems (Zhou 1997b). For instance, labor market prospects and urban subcultures can also differ within educational systems. Finally, the lack of a time influence may partly confirm the idea that the integration of Turkish immigrants – in the sense of a decline and ultimately disappearance of inequality between natives and immigrants (Connor and Koenig 2013) – "no longer seems to be simply a matter of time" (Esser 2004, 1126).

Claims about the causal effects of school composition on the school performance of Turkish migrant students should be made with caution, as we (and others) used cross-sectional data. It is possible that Turkish families with higher-performing children are more concerned about the ethnic composition of schools than Turkish families with lower-performing children. If better-performing Turkish pupils are more likely to go to schools with large concentrations of native children or schools that are less ethnically diverse – possibly as a result of their better-educated parents being more informed or more concerned about this issue or living in neighborhoods with a greater numbers of native neighbors – it is possible that our observation of the relationship between ethnic composition and school performance is flawed as a result to this school selection process. We can, however, partly reject this selection process notion, as including positively selected Turkish migrant students yields findings at the school level comparable to those for the entirely Turkish migrant group.

The PISA data have their limitations for cross-national comparisons. For instance, it is impossible to differentiate between regions of origin in Turkey from the PISA data. Therefore, a difference in educational outcomes between different countries may be influenced by Turks from a certain region selecting a certain destination country.

Future research can enrich these findings by focusing on other migrant groups. Alternatively, data outside the European context as well as cohort study data could be used. Other viable options would be to analyze other non-cognitive school outcomes such as active citizenship.

REFERENCES

Agirdag, O., M. Van Houtte, and P. Van Avermaet
2012 "Why Does the Ethnic and Socio-Economic Composition of Schools Influence Math Achievement? The Role of Sense of Futility and Futility Culture." *European Sociological Review* 28 (3):366–78.

Bankston, C. L. III, and M. Zhou
2002 "Social Capital as Process: The Meanings and Problems of a Theoretical Metaphor." *Sociological Inquiry* 72 (2):285–317.

Blau, P. M.
1974 "Parameters of Social Structure." *American Sociological Review* 39 (5):615–35.

Bourdieu, P.
1984 *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge and Kegan Paul.

Braster, J. F. A., and J. Dronkers
2013 "De positieve effecten van etnische verscheidenheid in de klas op de schoolprestaties van leerlingen in een multi-etnische metropool [The Positive Effects of Ethnic Diversity of Classes on the Educational Performance of Pupils in a Multi-Ethnic Metropolitan City]." *Sociologie* 9 (1):3–20.
Castles, S.
2002 "Migration und Community Formation Under Conditions of Globalization." *International Migration Review* 36 (4):1143–68.
Cheng, S., L. Martin, and R. E. Werum
2007 "Adult Social Capital and Track Placement of Ethnic Groups in Germany." *American Journal of Education* 114 (1):41–74.
Coleman, J. S.
1988 "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94:S95–120.
Connor, P. H., and M. Koenig
2013 "Bridges and Barriers: Religion and Immigrant Occupational Attainment across Integration Contexts." *International Migration Review* 47 (1):3–38.
Creemers, B. P. M.
2007 "Educational Effectiveness and Improvement: The Development of the Field in Mainland Europe." In *International Handbook of School Effectiveness and Improvement*, edited by T. Townsend, 223–42. New York, NY: Springer.
Crosnoe, R., S. Cavanagh, and G. H. Elder Jr
2003 "Adolescent Friendships as Academic Resources: The Intersection of Friendship, Race, and School Disadvantage." *Sociological Perspectives* 46 (3):331–52.
Crul, M., and H. Vermeulen
2003 "The Second Generation in Europe: Introduction to the Special Issue." *International Migration Review* 37 (4):965–86.
Crul, M., and J. Doomernik
2003 "The Turkish and Moroccan Second Generation in the Netherlands: Divergent Trends Between and Polarization Within the Two Groups." *International Migration Review* 37 (4):1039–64.
Dika, S. L., and K. Singh
2002 "Applications of Social Capital in Educational Literature: A Critical Synthesis." *Review of Educational Research* 72 (4):31–60.
Driessen, G.
2002 "School Composition and Achievement in Primary Education: A Large-Scale Multilevel Approach." *Studies in Educational Evaluation* 28 (4):347–68.
Dronkers, J., and R. van der Velden
2013 "Positive but Also Negative Effects of Ethnic Diversity in Schools on Educational Performance? An Empirical Test Using Cross-National PISA Data." In *Integration and Inequality in Educational Institutions*, edited by M. Windzio, 71–98. Dordrecht/Heidelberg/London/New York: Springer.
Esser, H.
2004 "Does the "New" Immigration Require a 'New" Theory of Intergenerational Integration." *International Migration Review* 38 (3):1126–59.
Federal Statistical Office
2010 *Ständige und nichtständige Wohnbevölkerung nach Kanton, Staatsangehörigkeit, Geburtsstaat, Geschlecht und Alter*. Neuchâtel: Federal Statistical Office.

Fennema, M., and J. Tillie
1999 "Political Participation and Political Trust in Amsterdam: Civic Communities and Ethnic Networks." *Journal of Ethnic and Migration Studies* 25 (4):703–26.
Fleischmann, F., K. Phalet, P. Deboosere, and K. Neels
2012 "Comparing Concepts of Ethnicity in Ethnic Composition Measures: Local Community Contexts and the Educational Attainment of the Second Generation in Belgium." *Journal of Ethnic and Migration Studies* 38 (10):1513–31.
Franz, E.
1994 *Population Policy in Turkey*. Hamburg: Deutsches Orient-Institut.
Ganzeboom, H. B. G., P. De Graaf, and D. J. Treiman
1992 "A Standard International Socio-Economic Index of Occupational Status." *Social Science Research* 21 (1):1–56.
Halpern, D., and J. Nazroo
2000 "The Ethnic Density Effect: Results from a National Community Survey of England and Wales." *International Journal of Social Psychiatry* 46 (1):34–46.
van Heelsum, A.
2005 "Political Participation and Civic Community of Ethnic Minorities in Four Cities in the Netherlands." *Politics* 25 (1):19–30.
Hoxby, C.
2000 *Peer Effects in the Classroom: Learning from Gender and Race Variation*. NBER Working Paper 7867. Cambridge: National Bureau of Economic Research.
Hox, J.
2002 *Multilevel Analysis. Techniques and Applications*. Mahwah (NJ)/London: Lawrence Erlbaum.
Hutchinson, J., and A. D. Smith, eds
1996 *Ethnicity*. Oxford: Oxford University Press.
Içduygu, A.
2009 International Migration and Human Development in Turkey. United Nations Development Programme: Human Development Research Paper 2009/52.
Karsten, S., C. Felix, G. Ledoux, W. Meijnen, J. Roeleveld, and E. van Schooten
2006 "Choosing Segregation or Integration?: The Extent and Effects of Ethnic Segregation in Dutch Cities." *Education and Urban Society* 38 (2):228–47.
Köller, O., M. Knigge, and B. Tesch, eds
2010 *Sprachliche Kompetenzen im Ländervergleich [Language Competences Across German States]*. Münster: Waxmann.
Krings, S.
2010 *Statistical Yearbook 2010*. Wiesenbaden: German Federal Statistical Office.
Lazear, E. P.
1998 *Diversity and Immigration*. NBER Working Paper 6535. Cambridge: National Bureau of Economic Research.
Levels, M., and J. Dronkers
2008 "Educational Performance of Native and Immigrant Children from Various Countries of Origin." *Ethnic and Racial Studies* 31 (8):1404–25.
Levels, M., J. Dronkers, and G. Kraaykamp
2008 "Immigrant Children's Educational Achievement in Western Countries: Origin, Destination, and Community Effects on Mathematical Performance." *American Sociological Review* 73 (5):835–53.
Lin, N.
2001 *Social Capital: A Theory of Social Structures and Action*. Cambridge: Cambridge University Press.

Maas, C. J. M., and J. J. Hox
2005 "Sufficient Sample Sizes for Multilevel Modeling." *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences* 1 (3):85–91.
Maestri, V.
2011a *A Deeper Insight into the Ethnic Make-Up of School Cohorts: Diversity and School Achievement (AIAS Working Paper 11–108)*. Amsterdam, The Netherlands: University of Amsterdam.
———
2011b "Een nadere beschouwing van de samenstelling van etnische minderheden op Nederlandse basisscholen. Diversiteit en leerprestaties [A Further Examination of the Composition of Ethnic Minorities in Dutch Primary Schools. Diversity and Learning Performance]." In *Goede bedoelingen in het onderwijs: Kansen en missers [Good Intentions in Education: Opportunities and Misses]*, edited by J. Dronkers, 155–78. Amsterdam, The Netherlands: Amsterdam University Press.
Manatschal, A.
2011 "Taking Cantonal Variations of Integration Policy Seriously – or How to Validate International Concepts at the Subnational Comparative Level." *Swiss Political Science Review* 17 (3):336–57.
Manatschal, A., and I. Stadelmann-Steffen
2013 "Cantonal Variations of Integration Policy and Their Impact on Immigrant Educational Inequality." *Comparative European Politics* 11:671–95.
Morgan, S. L.
2000 "Social Capital, Capital Goods, and the Production of Learning." *The Journal of Socio-Economics* 29 (6):591–5.
Morgan, S. L., and A. B. Sørensen
1999 "Parental Networks, Social Closure, and Mathematics Learning: A Test of Coleman's Social Capital Explanation of School Effects." *American Sociological Review* 64 (5):661–81.
Nusche, D., G. Wurzburg, and B. Naughton
2010 *OECD Reviews of Migrant Education: Denmark*. Paris: OECD Publishing.
Orfield, G., and C. Lee
2007 *Historic Reversals, Accelerating Resegregation, and the Need for New Integration Strategies*. Los Angeles, CA: Civil Rights Project. http://files.eric.ed.gov/fulltext/ED500611.pdf.
O'Reilly, C. A., K. Y. Williams, and S. Barsade
1997 *Demography and group performance: Does diversity help?* Stanford University Research Paper 1426. Stanford: Stanford University.
OECD (Organisation for Economic Co-operation and Development)
1999 *Classifying Educational Programmes. Manuel for ISCED-97 Implementation in OECD Countries*. Paris: OECD Publishing Services.
Peetsma, T., I. Van der Veen, P. Koopman, and E. Van Schooten
2006 "Class Composition Influences on Pupils' Cognitive Development." *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice* 17 (3):275–302.
PISA.ch: Measurement of Skills and Survey of 9th Year Students in Switzerland
2009 [Dataset]. Service de la recherche en éducation – SRED. Genève; Institut de recherche et de documentation pédagogique – IRDP, Neuchâtel; Unité de recherche en système de pilotage – URSP, Lausanne; Institut für Bildungsevaluation – IBE, Zürich; Pädagogische Hochschule des Kantons St. Gallen, St. Gallen; Centro di in-

novazione e ricerca sui sistemi educativi – CIRSE, Locarno. Distributed by FORS, Lausanne, 2012.

Prokic-Breuer, T., and J. Dronkers

2012 "The High Performance of Dutch and Flemish 15-Year-Old Native Pupils: Explaining Country Differences in Math Scores Between Highly Stratified Educational Systems." *Educational Research and Evaluation* 18 (8):749–77.

Putnam, R. D.

2000 *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Scheerens, J., and R. Bosker

1997 *The Foundations of Educational Effectiveness*. Kidlington/New York/Tokyo: Pergamon.

Stanton-Salazar, R. D., and S. M. Dornbusch

1995 "Social Capital and the Reproduction of Inequality: Information Networks Among Mexican-Origin High School Students." *Sociology of Education* 68 (2):116–35.

Statistics Netherlands

2012 *Bevolking; geslacht, leeftijd en nationaliteit op 1 januari*. The Hague/Heerlen: Statistics Netherlands.

Svalberg, A. M.-L.

2007 "Language Awareness and Language Learning." *Language Teaching* 40 (4):287–308.

Turkish Ministry of Labour and Social Security

2010 yurtdisindaki vatandaslarimizla ilgili sayisal bilgiler.

Van der Veen, I., and G. W. Meijnen

2001 "The Individual Characteristics, Ethnic Identity, and Cultural Orientation of Successful Secondary School Students of Turkish and Moroccan Background in the Netherlands." *Journal of Youth and Adolescence* 30 (5):539–56.

Van Ewijk, R., and P. Sleegers

2010 "Peer Ethnicity and Achievement: A Meta-Analysis into the Compositional Effect." *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice* 21 (3):237–65.

Van Houtte, M., and P. A. J. Stevens

2009 "School Ethnic Composition and Students' Integration Outside and Inside Schools in Belgium." *Sociology of Education* 82 (3):217–39.

Veerman, G.-J. M.

Forthcoming "The Relationship Between Ethnic Diversity and Classroom Disruption in the Context of Migration Policies." *Educational Studies* 41 (1-2):209–225. doi: 10.1080/03055698.2015.955750.

Veerman, G.-J. M., and J. J. S. Weitenberg

2008 *Armeniërs in Nederland: Een verkennend onderzoek [Armenians in the Netherlands: An Exploratory Study]*. Den Haag: FAON

———, H. G. Van de Werfhorst, and J. Dronkers

2013 "Ethnic Composition of the Class and Educational Performance in Primary Education in the Netherlands." *Educational Research and Evaluation* 19 (5):370–401.

Zhou, M.

1997a "Growing Up American: The Challenge Confronting Immigrant Children and Children of Immigrants." *Annual Review of Sociology* 23 (1):63–95.

———

1997b "Segmented Assimilation: Issues, Controversies, and Recent Research on the New Second Generation." *International Migration Review* 31 (4):975–1008.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article at the publisher's web site:

Data S1. Supplementary materials.