Article

The effect of integration and social democratic welfare states on immigrants' educational attainment: a multilevel estimate

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Summary Through the analysis of 22 European countries and Canada, this article seeks to investigate the assumption that political macro level variables such as welfare state systems and immigration regimes shape the conditions encountered by young immigrants and thus have an impact on their school performance. The results show that native students benefit from social-democratic welfare states and immigration-friendly integration regimes, whereas immigrant students underperform under these types of regimes. Thus, while the finding for native students supports the argument found in the body of literature, claiming that social-democratic welfare states lead to a reduction in inequality and to less stratification, the findings for immigrant students suggest that positive discrimination may under some circumstances lead to a counterproductive result. The argument is tested with a multilevel modelling procedure on three levels (student, school and country) based on different data sources.

Keywords education, immigration, immigration regime, integration, multilevel analysis, welfare state

The countries of the Organisation for Economic Co-operation and Development (OEDC) are characterized by conflicting patterns of inclusion and exclusion concerning citizenship and the provision of welfare state benefits to immigrants that heavily influence the life chances of immigrants. More precisely, two issues have to be addressed by the host state: one regards political and cultural integration (immigration regimes), the other the concession of social rights (welfare state system).

In western (philosophical) tradition, universalism and democratic equality should apply to all citizens, including immigrants. In reality, however, welfare state benefits focus primarily on the needs of the native population and therefore represent a closed system. Consequently, immigrants experience odd patterns of partial integration: often excluded from political participation, they benefit from (restricted) welfare state provision, pay taxes and work in the national economy.

The political and social integration of immigrants is of practical relevance, helping to maintain social peace and prevent the formation of an underclass. In fact, in different theoretical approaches immigrants are seen as a potential new outsider group due to, for example, their lower educational attainments and their professional placement in the lower service sector (Esping-Andersen, 1993).

Problems arising from increased immigration are handled differently in different countries. Sainsbury (2006) and Morissens and Sainsbury (2005) empirically identified differences in the level of generosity

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and the areas in which welfare state benefits are provided to immigrants. Areas in which discrimination to the disadvantage of immigrants arises are manifold: examples include precarious residence permit status, cultural and/or religious discrimination and limited economic or social assistance. Out of all the possible inequality dimensions, the following analysis will concentrate on inequality in the *educational* context. This specific choice has been made considering the importance education has in the modern *Wissensgesellschaft*. As Geissler (2005) argues, education is the central resource allowing participation in economic, political, cultural and social life. Therefore, it is an important investment in life chances and determines the achievable status and the possibility of social mobility especially for the young, not least because in the modern, service-oriented economic world, knowledge and skills are a potential dimension out of which inequality may arise (Esping-Andersen, 1998, 1993). Thus, education is a relevant chance-determining factor not only for natives but also for immigrants, because it provides immigrants with the possibility of mastering the host country's national language and introduces them to local culture, facilitating social integration and a reduction in poverty levels by allowing successful professional integration. Holger (2004) provides evidence that immigrants with good language skills are less discriminated against when entering the labour market than those with inadequate language proficiency. It follows that the provision of equal chances in education, as is possible in a social-democratic understanding à la Rawls, could help prevent overly dramatic inequalities between immigrants and native citizens, and the social unrest this may provoke.

Recognizing that such important consequences for life chances rest on the educational attainment of young immigrants, the aim of this article is to analyse the causes of the divergent educational outcomes of native and non-native students in different OECD democracies, focusing on the specific institutional settings. These political conditions, in fact, have an important impact on the integration and attainment of immigrants and their chances of success.

The research will rely on a multilevel approach, which enables the assessment of the influence of macro level variables, such as the egalitarian orientation of the welfare state and the integration effort of the immigration regime, or the characteristics of national school curricula, on pupils' test performance, while also controlling for individual and school variables.

To answer the question '*How can different educational attainments between foreign and national students in different countries be explained*?', this article will first provide some theoretical insight into the reasons proposed for explaining differences in educational outcomes at country level (macro). In a following step, a model including all relevant explanatory variables from different aggregation levels will be built. After specifying two different sets of hypotheses, various multilevel models will be estimated and empirical evidence will be generated to test the argument. To conclude, the principal findings will be summarized and the work will be critically reviewed, indicating relevant areas for further research.

Theory

The explanatory model

The argument proposed here is that country-specific institutional settings affect native and especially immigrant students' educational attainment. Alongside welfare state characteristics and national integration regimes, there is also the make-up of national school curricula that can be expected to influence the performance of both native and non-native students. This relationship manifests itself in two distinct ways: one by direct influence and the other by influence mediated through the national educational institutions.

The first, direct influence on the educational attainment of students manifests itself through a general national context characterized by differing levels of welfare state commitment to egalitarianism, that is, the commitment to reducing social stratification and the degree of integration-friendliness (integration regimes) in different countries. The second influence on students' educational attainment is mediated by the specific organization of the educational system in a particular country, which, shaped by both the national state and the integration regime, takes a more or less egalitarian orientation. This difference in orientation is described by Dupriez and Dumay (2006) as two ethoses: one of integration and one of differentiation. Thus national school systems

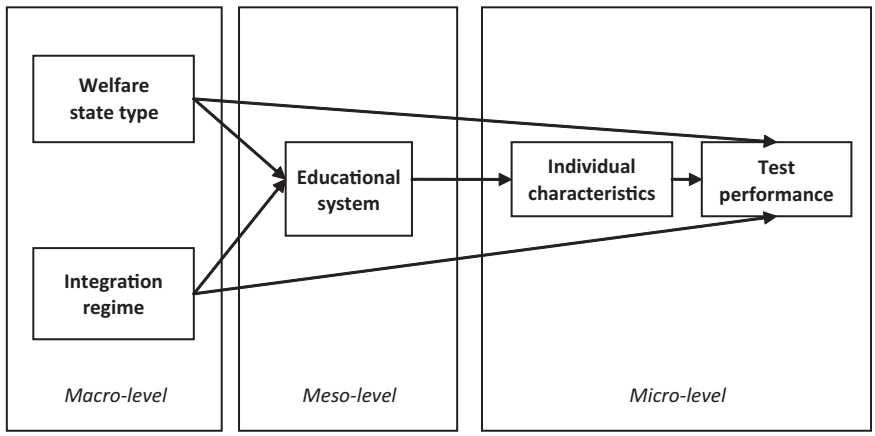

Figure 1 The model explaining test performance of students from a background of immigration (author's own illustration).

and accordingly their curricula can be placed on a continuum from integration-friendly to differentiation-adept, as a result of their national imprints.

Welfare state typologies

To explain social outcome for both natives and immigrant students, the first relevant macro-level variable, situated at the beginning of the chain of causation, as illustrated above, is welfare state orientation. Originally, cultural and economic conflicts or cleavages (Lipset and Rokkan, 1967) shape the national political party systems and specific national institutional settings through a process of power-allocation to different ideologies and actors (Esping-Andersen, 1998). In a second step, the interaction between institutions and actors gives birth to specific path-dependent institutional patterns, which are stabilized in coherent welfare state regimes. Thereafter, welfare state regimes are not only actor-driven institutions, but are also long-term institutional arrangements, which interact with the dominant government ideologies. The resulting institutional patterns differ with regard to the degree of generosity of benefit-providing practices, in respect to equality conceptions and notably also in social stratification (Esping-Andersen, 1998; Huber and Stephens, 2001).

The manifestation of the equality- or inequality-adeptness of a specific welfare state regime can consequently be analysed according to the generosity of social benefit provisions (as, for instance, decommodification), general stratification outcomes and upward social mobility opportunities for both natives and immigrants.

Theories specifically explaining the situation of immigrants in different welfare states are thus often based on Esping-Andersen's typology of welfare states. Morissens and Sainsbury (2005: 637–41) illustrate that social-democratic welfare regimes, which are known to be more egalitarian and universalist, lead to less stratified societies and foster openness towards diversity (Esping-Andersen, 1998: 69ff.; Huber and Stephens, 2001: 43, 79). These variables, which could be defined as integration-enhancing, are claimed to positively affect not only natives, but also immigrants' situations.

It is consequently assumed that pronounced generosity and redistribution, as well as government focus on integration, will positively affect social outcomes in general, and in particular will lessen discrimination against foreign-born people (Levels et al., 2008: 848; Sainsbury, 2006), since the disadvantaged profit from universalistic and generous welfare state benefit provision.

Thus it could be expected that in egalitarian-oriented welfare states, natives and especially immigrants have improved (life) chances, and as a consequence perform better at school compared with students in corporatist, liberal or eastern European welfare state regimes.

Moreover, disentangling further the different welfare state effects, it can be expected that corporatist states, which are less prone to foster equality, but are in favour of retaining the original social stratification (Esping-Andersen, 1998: 58–59; Huber and Stephens, 2001: 43, 46, 78), will de facto impede immigrants' successful integration into society due to a corporatist and familiarist structure.

As far as liberal welfare states are concerned, they can be expected to have twofold effects. In general their welfare state has a strong market orientation and is based upon self-reliance (Esping-Andersen, 1998); furthermore these countries are described in literature to limit the access of immigrants to welfare state benefits (Banting, 2000). Thus, for what concerns the social welfare system, the liberal model will tend to hamper high social outcomes for immigrants because these are supposed to achieve the whole integration effort themselves (Morrissens and Sainsbury, 2005: 641).

On the other hand, when the immigration-integration regime is considered, liberal countries can also be supposed to have a positive effect on immigrants' integration (Morrissens and Sainsbury, 2005: 641; see also Sainsbury (2006) for the US case). In fact, they are often more used to dealing with immigration and have developed strategies accordingly. These countries often have a more positive view of immigrants because they base their national identity on the fact that they are 'traditional immigration countries' or as a result of their success in their integration endeavours and expertise in dealing with integration problems in the past (Levels et al., 2008; Schnepf, 2007). In fact, in such a liberal immigration context, the orientation towards freedom of thought and emancipation (Esping-Andersen, 1998: 61ff.) should lead to enhanced life chances for immigrants.

Finally, eastern European countries' welfare states are traditionally less developed and less oriented towards egalitarianism, and thus they cannot be expected to positively influence either immigrants' integration, or natives' educational attainment (Noelke, 2008: 63).

Citizenship and integration regime models

The second theoretical approach, seeking to explain the differences in social outcome and in integration chances, especially for immigrant students, across different countries consists of either citizenship or integration regime models. *Citizenship models*, as described by Brubaker (2000), concentrate primarily on inclusion and exclusion mechanisms with regard to political participation (voting right) and the formal requirements for obtaining host state citizenship. State practices are distinguished by the author as either being based on *ius soli* or on *ius sanguinis* criteria. Countries conferring citizenship on the basis of *ius soli* mainly consider residence criteria and therefore are considered as being less strict in conceding state nationality or political rights to the guest, than countries relying on *ius sanguinis*. More restrictive institutional patterns can be expected to lead to a more stratified society, in which the immigrant population has fewer chances of reaching the same levels of attainment and integrates less well as in countries where their status is quickly modified, allowing them to become a potentially politically active citizen.

Integration regime models, on the other hand, not only focus on legal access requirements (citizenship), but consider a holistic integration perspective, underlining the multidimensionality of the integration concept. Çinar et al. (1999) and Waldrauch (2002) analysed different legal domains and classified six European countries on a continuum according to the integration-friendliness measure they developed for the regimentation in different policy areas. They considered security of residence status, naturalization regimentation, access to the labour market, family reunification ruling, social security rights, and civil and political rights, with the aim of covering all relevant aspects of integration regimes according to, for instance, Castles and Miller (2003) or Freeman (1986, 2004, 2006). Hence, according to the authors, not only must the political dimension be considered, but for a holistic approach, cultural (Koopmans et al., 2005) and social rights dimensions, along with institutional settings, must also be included in the evaluation of the immigration-friendliness of integration regimes.

Influence of educational systems on integration

Turning now to the mediated impact of both welfare state and integration regime, the education system

can be considered as playing a central role in shaping the chances for high educational attainment for both native and especially for immigrant students (de Heus et al., 2009: 3–7; Dronkers and de Heus, 2010; Dronkers and Levels, 2007; Levels and Dronkers, 2008). In a more theoretical approach provided by Dupriez and Dumay (2006), the cultural and political context of a nation-state is identified as a determining factor of a specific school structure and the organization of the national educational curricula. The authors concretely differentiate between an 'ethos of differentiation', associated with for instance early streaming or allocation in special curricula that is characteristic of countries such as Luxemburg, Switzerland or the Netherlands, and an 'ethos of integration' represented by Scandinavian states. The latter are characterized by a comparatively long compulsory schooling with late curricular differentiation and comprehensive schools (see Diefenbach, 2004; Dronkers and de Heus, 2010). These different cultural norms affect educational attainments not just among native students, and are expected to influence particularly the integration mechanisms affecting students from immigrant backgrounds. Institutional discrimination and the social composition of schools either encourage the classification of non-nationals or weaker students as 'normal' and part of the system, or lead to their exclusion (special or low attainment classes) in terms corresponding to an ethos of differentiation, inflicting their educational career with important restrictions and closures.

Hansen and Wenning (2003) further concretize the link between educational system and nation-state. The authors claim that the development of an education system has to be related to nation-state formation and to the positions countries have adopted towards immigrants during the course of history. In this process, the role assumed by the school system in nation-state development was one of homogenization of the national language and culture. Consequently, it was placed at the front line in dealing with integration issues. Therefore, the role assumed by the educational system is to implement national political decisions concerning immigrants in scholarly integration or exclusion measures. Thus, the conclusion can be drawn that nation-state formation influences not only the welfare state system organization, but also the integration or differentiation ethos characterizing the different integration regimes, and above all that a specific *integration logic* characterizing a country, plays a central role in the national education system and determines the life chances of native students and students with an immigration background.

In an educational context, a generous, egalitarian welfare state, providing schools with the resources to offer additional schooling, for example, language courses or accessory coaching, could significantly enhance the performance of immigrants. This theoretical framework can therefore help to identify and account for the general 'equality or inequality ethos' in different OECD democracies.

In summary, according to the theoretical argument developed above, the successful performance of immigrant students in particular, depends heavily on country-level characteristics and policies. In fact, students' educational attainment depends above all on the integration regimes and their distinct integration logic. In addition, the welfare states' egalitarian orientation influences the general social context with which students and their families are confronted and shapes the specific school curricula structure. As a consequence, the macro-level variables (welfare state regime and integration regime) have not only a direct effect on the performance of the students, but also a mediated influence through the national educational pathway. Therefore, it can be argued that schools, even though structurally belonging to the meso level, are an important indicator of the 'integration ethos' of a country.

The last variables in the causal chain that influence the educational performance are micro-level characteristics. According to sociological literature the most important effects are located in family background, immigration status and language spoken at home (Diefenbach, 2004: 225; Dronkers and Levels, 2007; Levels and Dronkers, 2008).

Institutional discrimination

The argument presented above assumes that additional investments in social equality and more respect for cultural otherness automatically lead to enhanced integration results. Considering a different approach to the theory elucidated above, the discourse on equal opportunities for immigrant students can be embedded in a *general theory of*

discrimination. In this context a body of sociological and political science literature questions the efficacy of integration initiatives that seek to enhance the outcomes of immigrants. More precisely, the institutional discrimination literature concludes that under some circumstances, normatively positively intended integration measures may actually cause an increase in the discrimination they originally intended to reduce. It is thus a well-known phenomenon that positive discrimination can generate disadvantages (Gomolla and Radtke, 2002: 264). The logic behind this argument is that through the provision of specific tuition in special classes, already underperforming students are segregated from their native and better performing colleagues, and thus 'banished' into outsider groups, where, deprived of a stimulating environment, they fail to progress. Furthermore, in other studies it has been shown that immigrant students which are allocated to classes with an on average lower socio-economic background or with a higher proportion of immigrants, underperform markedly (de Heus et al., 2009; Diefenbach, 2004; Solga and Wagner, 2004). Thus, on the whole, policies intended to enhance students' performance with the help of special training, actually had counterproductive effects.

Koopmans and his collaborators (2005) present an analogous argument and point to the same (negative) consequences with respect to the multicultural policies adopted in the Netherlands. In that country, special attention was devoted to the concession of cultural and religious group rights to immigrant populations. However, the stressing of diversity, even though performed under a well-intentioned frame of respecting other cultures, actually increased the disadvantages to which immigrant people were exposed. In fact, the choice of ethnic criteria as a base for furthering special policies made immigrants more 'identifiable' and thus led to a racialization of social relations. The ultimate consequence was a 'ghettoization' of immigrants into something resembling diaspora communities, with segregation from the native population (Koopmans et al., 2005: 14–15). Thus multicultural policies resulted in enhanced segregationist tendencies instead of facilitating integration.

The institutional discrimination literature therefore challenges the idea that the more generous the measures taken to further integration, the better the results. In the light of this, the present empirical research will first and foremost seek to investigate the direction of the influence of country level institutions and characteristics on the performance of native and, especially, non-native students.

Hypotheses

Based on the theoretical arguments previously presented, it is possible to define two sets of *contrasting* hypotheses to explain the differences in the educational performance of immigrant students in diverse national contexts. On one hand lies the theoretical framework, which argues that governments fostering egalitarianism, universalism and more integration-friendly environments lead to enhanced performances of immigrant students. On the other hand, a body of literature can be found arguing that positive discrimination may lead to counterproductive results.

The first set of hypotheses that can be deduced from the theoretical arguments postulates a *positive* relationship between egalitarian-oriented, that is, social-democratic welfare state regimes, school organization that tends towards an 'ethos of integration', or integration-friendly immigration regimes and the educational attainment of students from an immigration background. First, it can be expected that welfare states defined as egalitarian and favouring cultural acceptance, generally result in improved student performance at school. Thus, it can be hypothesized that in these countries also, students from an immigration background perform better than their colleagues in liberal, corporatist or eastern democracies (Esping-Andersen, 1998: 52; Morissens and Sainsbury, 2005; Sainsbury, 2006).

Second, it can be expected that all students profit from a national educational system fostering equality and preventing the segregation of specific groups, and especially immigrants. Indeed, it has been shown that students in comprehensive schools perform better than students in countries where an early streaming into different school curricula occurs (Diefenbach, 2004; Solga und Wagner, 2004).

Third, it can be expected that in countries where the immigration regime is more integration-friendly, and where immigrants can be expected to be well and swiftly integrated politically, they are equally

facilitated in their social integration. Consequently, their children will also perform better at school than their colleagues in countries where the immigration regime is closed or restrictive.

This relationship can then be transposed to the principal sub-dimensions characterizing immigration regimes; those of political participation, naturalization policies, anti-discrimination measures, access to national labour markets, family reunion policies, and the obtainment of long-term residence permits, generating a set of six sub-hypotheses. Thus it can be hypothesized that in countries where these immigration regime dimensions allow a facilitated integration, outcomes concerning people from immigrant backgrounds should be substantially and significantly better, with the consequence that young immigrants' educational performance is improved.

In contrast, the institutional discrimination literature hypothesizes a *negative* effect of egalitarian-oriented welfare state and school curricula, and integration-friendly immigration regimes on test performance. Hence, although the institutional measures connected to generous welfare states, integrative national curricula and integration-friendly immigration regimes aim to enhance the performance of native and immigrant students, by striving for egalitarianism on a normative dimension, the measures taken will actually generate counterproductive results. In this framework the integration-enhancing measures and the additional resources dedicated to lessen social stratification and inequality will ultimately result in a lowering of the educational attainment of immigrant students in particular. The reasons for the expected underperformance of non-native students in such settings can be attributed foremost to the increase in social segregation in both society and in schools, and the easier identifiability of immigrant students as different, leading to stigmatization (see Gomolla and Radtke, 2002).

Data, operationalization and method

The empirical analysis of the influence of an egalitarian social conception, of welfare state regimes, national school curricula and integration-friendly immigration regimes on the performance of native and immigrant[1] students is based on the PISA survey 2006, with the aim of measuring individual educational performance and school-level characteristics (Organisation for Economic Co-operation and Development, 2006a). With regard to country-level data, multiple sources have been incorporated. Data from the Migrant Integration Policy Index (MIPEX), World Development Indicators, Comparative Political Dataset, Social Expenditure Database, World Data on Education, Eurostat, and the European and World Value Survey were considered (Armingeon et al., 2009; European Commission, 2006; European Values Study Group and World Values Survey Association, 1981–2004; Migrant Integration Policy Index, 2007; Organisation for Economic Co-operation and Development, 2004, 2006a; United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007; World Bank, 2009).

The PISA survey measures the educational attainment in different disciplines of students at age 15 years in the OECD countries. Moreover, information concerning students' background and school, or teacher information, is also collected. PISA is a comprehensive dataset including variables describing social outcomes, which also allows a precise identification of the language spoken at home, helping to differentiate between native and immigrant students. This characteristic is often absent in other datasets that capture indicators relevant for social research questions connected to immigration issues.

The dependent variable measures the *general test performance* of a student. It consists of the mean of the score that students reach in mathematics, reading and science, whereby each of the discipline scores itself results of an averaging of five plausible values.[2] Table 4 shows the mean student performance per country and immigration status as an overview, whereby the conspicuous performance differences between immigrant and native students depending on the country considered become evident. Consequently, the present analyses can rely on a relatively high amount of variance to be explained.

The choice of the individual level variables measuring gender, immigration background[3] and language spoken at home,[4] was straightforward, since for all indicators a variable is provided in the PISA 2006 data file. Thus, foreign or immigrant students can be identified mainly by the immigration background (native, first or second generation), but also by their cultural closeness to the country of

assessment, operationalized by means of the language spoken at home. This variable is hence very meaningful, especially when interpreting the models for the subsets with only immigrant students (see Entorf and Minoiu, 2004). In fact, in these analyses the difference between students who have neither a 'political closeness' (parent immigrant background) nor a 'cultural closeness' to the host community (foreign language) can be distinguished from those immigrants who instead are advantaged 'only' with respect to their formal political status (see Diefenbach, 2004: 231–33).

The variable 'socio-economic status' is a composite measure available as an index in the PISA 2006 dataset, which includes the highest educational level of the parents, their highest occupational status (father or mother) and the index of home possession (Organisation for Economic Co-operation and Development, 2007: 333). This variable is accordingly a precise operationalization of Bourdieu's concept of socio-cultural capital, and includes all the major inequality dimensions, that is, cultural capital, status and wealth (Bourdieu, 1966, 1983).

At school level, in line with the main findings in literature, the average socio-economic status of the students (for each distinct school) was included (Andersen, 1982; Solga and Wagner, 2004; Zimmer and Toma, 2000). This variable also captures the effect of positive peer-group influence, and is able to describe the nature of the 'integration ethos' dominating in a specific school.

The third aggregation level considers country variables. According to Huber and Stephens (2001) there is one central actor that plays a substantial role in promoting the development of an egalitarian and social-democratic welfare state: the left (Levels et al., 2008). In addition, both the share of women in parliament (Lovenduski, 2001: 734) and in the labour force (Huber and Stephens, 2001) are known to be positively correlated to more a social-democratic welfare state policy orientation, and/or with an awareness for social issues. Issues weighted higher by women in parliament are, alongside childcare and (female) employment, education and health (Lovenduski, 2001:743). Thus, an indicator operationalising these two fundamental political players was included in the model to capture the egalitarian orientation of the welfare states studied: the mean left government incumbency, and the mean share of women in parliament from 1990 to 2007, which are drawn from the Comparative Political Dataset (Armingeon et al., 2009). To operationalize the egalitarian orientation of the welfare states, spending on education at secondary level (Organisation for Economic Co-operation and Development, 2004), as well as the Gini Index (as a measure for social stratification and inequality), were included in the analyses (European Commission, 2006 and World Bank, 2009[5]).

Furthermore, since it has been shown by Inglehart that (post-)materialism and welfare state institutions are tightly connected, I also included post-materialism as an expression of societies that can be expected to be committed to fostering tolerance and openness towards minorities and freedom. By consequence, post-materialist societies stress post-materialist values and, for example, provide resources to foster openness towards immigrant minorities and their social advancement (Inglehart, 2008: 132–3, 139, 143–4; European Values Study Group and World Values Survey Association, 1981–2004).

In addition to the operationalization of the egalitarian orientation of welfare state regimes, this contribution also captures differences in the welfare state regime effects on the performance of 15-year-old students by means of a set of dummy variables,[6] distinguishing social-democratic, liberal, corporatist and eastern European countries.

To measure the degree of immigration regime integration-friendliness, this analysis relies on the MIPEX Index, which is based on an expert survey (Niessen et al., 2007). MIPEX compares immigration practices in the 25 European Union (EU) countries and in Canada, Switzerland and Norway. For each country included, two national experts were asked to evaluate the integration-friendliness of specific legal regulations. The indexes are composed using a total of 140 indicators concerning six different policy areas (labour market access, family reunion, long-term residence, political participation, access to nationality and anti-discrimination).[7] Each of the 140 questions is answered with the allocation of a value from 1 (not integration-friendly) to 3 (integration-friendly). Then a standardized mean value for each policy domain in each country is calculated. Thus, to operationalize the effect of favourable immigration policies, the general MIPEX score and the six scores for the sub-dimensions were included in the model.

To capture the egalitarian orientation of a school system, the duration of compulsory education and the selectivity of the tracking, that is, whether the children are re-grouped in different learning environments based on their previous performance during the period of compulsory schooling, were included in the model (de Heus et al., 2009: 4; Dronkers and de Heus, 2010; Duru-Bellat et al., 2004: 69). The curricular streaming was coded with a dummy (no selection), basing on data by the OECD (Organisation for Economic Co-operation and Development, 2005b: 53) and by Kogan (2008: 14) for eastern Europe[8] (see also Dupriez and Dumay, 2006). The duration of compulsory schooling was coded according to the country profiles of the World Data on Education provided by UNESCO and IBE (United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007). The length of compulsory education varies between 9 and 13 years.[9]

Furthermore, to control for a possible source of endogeneity, the share of immigrants in the different countries and the gross domestic product (GDP) per capita in thousands and constant US$ for the year 2000, based on the World Development Indicators, were added (World Bank, 2009).[10]

Combining these multiple data sources, a dataset allowing multilevel modelling at three levels was computed. The first level consists of students (N = 129,076), the second level refers to schools (N = 5160) and the last level refers to countries (N = 23). Unfortunately, some constraints regarding the analysable cases were present due to data restriction. MIPEX 2007 consists of data for the 25 EU countries, and Canada, Norway and Switzerland. Regrettably Cyprus, Malta and France[11] had to be excluded because they were missing, and Poland and Slovakia had to be excluded because of an immigrant student sample that was too small.

The choice of the method to apply emerges from the specific data structure. In fact, the chosen multilevel-model estimation technique permits controlling for the amount of variance explained by the variables at each level (micro, meso and macro). Unlike in simple ordinary least squares (OLS) estimations, robust estimates of standard errors can be achieved, which consequently do not lead to overestimated test statistics (Rabe-Hesketh and Skrondal, 2008). The current analysis will be based on estimates of random intercept models with constant variance function at all levels.

The formula for the multilevel models estimated consists of variables on three different levels (*i* indicating student level, *j* school level and *k* country level) and an intercept term, which is allowed to vary randomly, generating residuals at three levels (v, u, e). These random terms allow for the evaluation of the model fit and the explained variance at each distinct level.

$$y = \beta_{0ijv}\,\text{constant} + \beta_1 x_{1i} + \beta_2 x_{2ij} + + \beta_3 x_{3ijk}$$
$$\text{constant} = \beta_0 + v_{0k} + u_{0jk} + e_{0ijk}$$

The decision to estimate random-intercept models was based on both methodological and theoretical considerations. First, a Hausman test was performed to assess if a random effects estimation can be methodically justified, or if the analysis should be performed with fixed effects. The result of the Hausman test is significant, accordingly it would be advisable to estimate fixed effects models. But considering the present hypotheses, this is not a logical way to proceed. As Snijders and Berkhof (2008) note, the decision to use random or fixed effects should not only rely on the group mean test, which simply compares the variance between and within countries, but should also be based on theoretical considerations. In the present analysis this problem has been accounted for by estimating fixed and random effects and by comparing the individual-level coefficients. As they do not differ in amount or in significance, the decision was made to estimate a random-intercept model. As for the specification problems indicated by the Hausman test, they were accounted for, including the school means, and modelling the individual-level variables as deviance from the respective school means. Thus the coefficients representing the means of the variables act as fixed effects and by including the mean of each variable, the remaining 'deviance' term is uncorrelated with the grouping effects (Rabe-Hesketh and Skrondal, 2008).

The major drawback of this method is that the intercept term becomes very difficult to interpret because it now represents the mean average deviance for each student from the respective school mean. However, the interpretation of the coefficients for the single regression parameters remains the same.

Table 1 Micro-, meso- and macro-level effects on the general education attainment of different student subsets

	(1) All students		*(2) Native students*		*(3) Immigrant students*	
	Coefficient	*SE*	*Coefficient*	*SE*	*Coefficient*	*SE*
Fixed						
Intercept	505.21***	(9.12)	505.43***	(9.37)	499.36***	(7.42)
Individual level						
Female	3.52***	(0.34)	3.67***	(0.39)	4.46**	(1.44)
Socio-economic status	19.88***	(0.23)	19.86***	(0.24)	23.62***	(0.80)
Immigration (second generation)	–12.66***	(1.08)				
Immigration (first generation)	–23.08***	(1.19)			–10.59***	(1.62)
Foreign language	–19.72***	(1.17)	–29.34***	(2.29)	–14.35***	(1.68)
Other national language	–3.57***	(0.94)	–2.74**	(1.02)	–17.55***	(3.63)
School level						
School socio-economic status	47.54***	(2.98)	45.41***	(2.97)	52.61***	(5.65)
Country level						
Left incumbency	–0.28	(0.22)	–0.26	(0.23)	–0.38*	(0.17)
Random						
Var. student	4163.57		4120.60		4465.19	
Var. school	2105.77		2072.70		2245.35	
Var. country	305.74		323.55		146.24	
Intra-school correlation (%)	36.68		36.77		34.88	
Intra-country correlation (%)	4.65		5.00		2.13	
Log-likelihood	–775968.08		–715345.18		–61324.84	
N Students	129076		118403		10673	
N Schools	5160		5147		2836	
N Countries	23		23		23	

Sources: Armingeon et al., 2009; European Commission 2006; European Values Study Group and World Values Survey Association, 2001–2004; Migrant Integration Policy Index, 2007; Organisation for Economic Co-operation and Development 2004, 2006a; United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007; World Bank, 2009; author's own calculations.

The influence of welfare states on the educational attainment of students in 23 OECD countries

The general model shown in Table 1 (Model 1) includes gender, socio-economic status, immigration status (first or second generation student) and language (foreign or a national language other than the test language) at student level, and mean socio-economic background at school level. The estimation of country-level parameters was restricted to including only one variable at the time in this general model, due to the relatively small sample size at country level.[12] Table 1 shows the effect of the first country-level parameter, the incumbency of left partisanship, whereas the values estimated for the other 21 macro-level effects are displayed in Tables 2 and 3.

To test the different hypotheses, three different sets of multilevel regression models were estimated. First, 21 different models were estimated for the whole sample of students including native students and students from an immigrant background (Table 1, Model 1; Tables 2 and 3, Model a). In addition, for both groups (natives and immigrants) the models were re-run separately in order to better identify differences in variable effects, without needing interaction models.

In Table 1 first the parameters for the variables included are shown (fixed part), followed by a section dedicated to the random terms, that is, the unexplained variances at the different levels.

The present research emphasizes the importance of the *country level variables*, which are postulated as determining whether, depending on the characteristics

Table 2 Macro-level variables effects for different student subsets

	(a) All students		*(b) Native students*		*(c) Migrant students*	
Different macro-level variables	*Coefficient*	*SE*	*Coefficient*	*SE*	*Coefficient*	*SE*
Egalitarian-oriented countries						
Left incumbency	–0.28	(0.22)	–0.26	(0.23)	–0.38*	(0.17)
Women parliament	0.89*	(0.35)	0.95*	(0.36)	–0.23	(0.35)
Post-materialism	41.26†	(20.20)	43.56*	(20.50)	10.43	(20.88)
Gini Index	–0.23	(0.52)	–0.17	(0.53)	0.05	(0.43)
Education spending	0.91	(0.59)	0.94	(0.60)	0.50	(0.49)
Regime variables						
Social-democratic	17.24†	(9.48)	17.78†	(9.73)	–1.23	(8.90)
Liberal	8.43	(11.16)	7.31	(11.51)	26.17***	(7.20)
Traditional immigration	7.39	(13.34)	6.27	(13.73)	25.29**	(9.13)
Corporatist	–6.21	(7.65)	–5.18	(7.89)	–14.96**	(5.82)
Eastern European	–9.98	(8.48)	–11.02	(8.66)	4.05	(7.74)
National curricula						
Duration of compulsory school	5.53*	(2.58)	5.65*	(2.65)	2.33	(2.30)
Curricula no selection	2.60	(7.72)	2.49	(7.93)	–2.26	(6.61)
N Students	129076		118403		10673	129076
N Schools	5160		5147		2836	5160
N Countries	23		23		23	23

Sources: Armingeon et al., 2009; European Commission 2006; European Values Study Group and World Values Survey Association, 2001–2004; Migrant Integration Policy Index, 2007; Organisation for Economic Co-operation and Development 2004, 2006a; United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007; World Bank, 2009; author's own calculations.
Adaptation of Models 1, 2 and 3 in Table 1; the respective macro-level parameters only are shown.
†p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.

of the welfare state, the immigration regimes and differences in national educational curricula, students in different national contexts benefit or suffer disadvantage independently of their individual ability and family background. From the results displayed in Table 1, it can be observed that the country-level observations have a small random variance, and accordingly can add little explanatory power to the overall model, compared with the variance explainable at student- or at school-level. In fact, analysing the nesting structure, only 2–5 percent of the overall variance is due to grouping effects derived from the differences between countries (Models 2 and 3). This suggests that differences between countries in students' academic performance are systematically small. The grouping effect exerted by the school-level variable instead turns out to be more powerful, and hence variables at meso level bear a big explanatory potential for the general test performance of a student. In fact, the influence or rather the 'homogenizing' effect schools exert is conspicuously higher (34–36 percent) than the effect at country level (2–5 percent). This finding is especially interesting in the light of the fact that schools, as argued before, are institutions created by the different nation states, and that schools' influence on performance is thus highly likely to be influenced by the regimentation of the countries. Therefore, the hypothesis that the influence of the welfare state and integration regimes on school performance is mediated by educational institutions can be upheld.

Interpreting the results from the effect of the egalitarian orientation of welfare state regimes in Tables 1 and 2, it is interesting to note that the coefficient measuring the mean left incumbency over the last 20 years actually shows a decrease in the overall performance of students. This negative relationship is

significant neither for all students (Model 1), nor for the subset containing only the native students (Model 2). Instead, it is significant for students from an immigrant background (Model 3), effectively decreasing the performance of non-native students by 0.37 PISA-points for each additional percent of mean left incumbency in parliament. For instance, when this effect is compared between the countries with the lowest (Canada) and the one with the highest (Sweden) share of left representatives, the difference amounts to 28 points.

As shown in Table 2, for the sample with all students, (Model a) the other variables measuring a more egalitarian orientation of a country, except for left incumbency, result in a positive effect on the test performance. In fact, the higher the share of women in parliament, the higher the share of post-materialist-oriented people in a country, and the higher the spending on education (non-significant) the better the achieved educational performance is. Furthermore, the Gini Index measuring overall social inequality has a negative impact (not significant), meaning that the more unequal the distribution of income is in a country, the worse the educational attainment of the students tends to be. Therefore, in general it can be stated that the more a country devotes attention to integration issues and is prone to seek a less stratified and thus more egalitarian society, the better *all* students tend to perform.

The picture for native students is also very consistent and very close to the results presented in Model a. In fact, they seem to perform better in countries where the share of women in parliament and of post-materialist-oriented people is higher; and where the government spends more on secondary education and the stratification in society is lower (Gini Index). For instance, when Greece, with a 8.2 percent share of women in parliament, and Sweden (42 percent) are compared, an attainment difference of 30.5 points results. Native students in Sweden accordingly perform 30.5 PISA-points better than native students in Greece. Only the influence of the left, which is non-significant, seems to contradict the direction of the effect of the other variables measuring the egalitarian orientation of a country.

However, analysing in depth the results for immigrant students (Table 2, Model c) it can be shown that the results are more ambivalent. On the one hand, left incumbency, the share of women in parliament and the Gini Index seem to have a negative impact on immigrant students' attainment (even though significant only in the case of left incumbency). In fact, it appears that the more unequal a society is (higher Gini values) the better immigrant students tend to perform.

The results for post-materialism and education spending, which are responsible for a strong positive effect for all students and for the sample of native ones, decrease in magnitude and become insignificant. The body of literature, which criticizes positive institutional discrimination, is accordingly shown to merit careful consideration because, when analysing the direction of the relationship of the variables capturing the effect of more egalitarian welfare states, they can be shown to have either negative effects or negligible non-significant positive effects on the performance of immigrant students.

Thus, these indicators for more egalitarian orientation at country level suggest that the argument made by Koopmans et al. (2005), who identified that the Dutch multiculturalist approach was normatively well-intentioned, but in practice (policy dimension) leads to a more segregated and thus less egalitarian society, might be at least a qualified critique of a too simplistic understanding of egalitarianist policy approaches and should thus stimulate further research.

In a second step of the analysis (Table 2), the influence of the different regime types has been tested by means of the inclusion of dummy variables. The first result shows that social-democratic countries (Sweden, Norway, Finland and Denmark[13]) have a significant positive effect on native student's performance while the opposite effect can be detected for their immigrant colleagues. Whilst native students benefit 17 PISA-points from the welfare arrangement in these countries, the immigrant students under-perform (although not significantly) by about 1.2 PISA-points.

Hence, it seems that in countries with a social-democratic welfare state, the effort to increase equality of opportunities with the goal of a less-stratified society positively affects the performance of native students, but not that of immigrant students. These, at first sight counter-intuitive findings, may by consequence be linked to the arguments of positive discrimination literature, stating that

well-intentioned policy measures may have counterproductive results (Gomolla and Radtke, 2002).

The second dummy variable captures the effect of countries belonging to the liberal model (Canada, Great Britain and Ireland) (Esping-Andersen, 1998). It is worth noting that, in line with the literature, this variable influences positively the results of all students, including native ones, but especially and significantly, those of immigrants. Since, according to the literature, it is possible to expect traditional immigration countries to be more efficient in their integration endeavours, and consequently have less social stratification problems and inequality, I also controlled for this by means of a dummy, which includes only Canada and Great Britain (Levels et al., 2008: 842). As Table 2 shows, the positive effect of liberal welfare state regimes is mainly due to the influence of Britain and Canada, which are traditional immigration countries, and it thus can be concluded that their effect should, as hypothesized, be explained by the positive influence of their immigration regime rather than on their welfare state system.

The corporatist regime type has, as expected, a negative influence on both native and immigrant students. Whilst this effect is not significant for native students, it is significant for their foreign colleagues: their performance in corporatist countries is on average 15 PISA-points lower than the result achieved by immigrant students in other European countries and in Canada.

Finally, the influence of eastern European countries is negative for native pupils and positive for immigrant students, but none of these effects is significant. Unfortunately, this last result has to be interpreted with caution because in contrast to those of other countries, the sample of immigrant students in eastern Europe is small.

The influence of national school curricula on the educational attainment of students in 23 OECD countries

As reported in Table 2, a less selective orientation of the school system has a consistently positive effect for all students and the subset for native students. In fact, for each additional year of compulsory schooling, native students achieve a higher test result by 5 PISA-points. Hence, in a country offering 9 years of compulsory schooling (Switzerland) native students underperform by 20 PISA-points, compared with a country with a 13-year curricula (Netherlands). The positive relationship of longer compulsory schooling on educational attainment can also be observed for immigrant students; however, it is reduced in magnitude and is non-significant. Accordingly, the literature arguing that longer school curricula are favourable for immigrants because they have time to catch up, seems to be corroborated (Solga and Wagner, 2004).

Countries with an 'ethos of integration' (streaming at a late time point in the curricula) can be found, although not significantly, to enhance educational performance of *native* students. Instead, students who have to choose between different school systems at early age seem to underperform.

For immigrant students the picture is more equivocal. In fact, a comprehensive school system has a non-significant and negative impact on their performance, along with the findings with the literature on social segregation, where immigrants underperform when allocated in different curricula (Diefenbach, 2004; Gomolla and Radtke, 2002).

Conversely, longer compulsory schooling, and by consequence more time to catch up with their national colleagues, has a positive (non-significant) effect. Hence, in general a longer schooling appears to have a positive effect on immigrant students, whereas less selection does not.

The influence of immigration regime integration-friendliness on the educational attainment of students in 23 OECD countries

Turning to the second set of specified hypotheses, the effect of integration regimes is tested. In general, when considering the results for all students, the totality of the seven MIPEX variables has a positive influence on test performance, although not always a significant one. The only exception is the indicator 'anti-discrimination', which shows a negligible negative and non-significant effect. In general, the argument stating that countries acting according to the 'ethos of integration' display an increased test performance seems to be applicable. In this sense, the most interesting finding is the coefficient concerning the accordance of the political participation rights, which has a positive and significant effect on the test

Table 3 Macro-level variables effects for different student subsets

	(a) All students		*(b) Native students*		*(c) Migrant students*	
Different macro-level variables	*Coefficient*	*SE*	*Coefficient*	*SE*	*Coefficient*	*SE*
Immigration integration regime						
General – index	0.37	(0.27)	0.39	(0.28)	0.02	(0.25)
Participation	0.32*	(0.14)	0.34**	(0.14)	–0.07	(0.13)
Nationality	0.41†	(0.23)	0.42†	(0.24)	0.28	(0.20)
Anti-discrimination	–0.10	(0.19)	–0.10	(0.19)	0.02	(0.16)
Labour	0.24	(0.19)	0.26	(0.19)	–0.03	(0.16)
Long-term	0.15	(0.40)	0.19	(0.42)	–0.62†	(0.32)
Family	0.04	(0.26)	0.13	(0.25)	–0.05	(0.22)
Control variables						
Immigrant share	0.42	(0.57)	0.41	(0.58)	0.53	(0.47)
GDP (in thousands)	0.0004	(0.0003)	0.0004	(0.0003)	–0.00003	(0.0002)
N Students	129076		118403		10673	
N Schools	5160		5147		2836	
N Countries	23		23		23	

Sources: Armingeon et al., 2009; European Commission 2006; European Values Study Group and World Values Survey Association, 2001–2004; Migrant Integration Policy Index, 2007; Organisation for Economic Co-operation and Development 2004, 2006a; United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007; World Bank, 2009; author's own calculations.
Adaptation of Models 1, 2 and 3 in Table 1; the respective macro-level parameters only are shown.
†p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.

performance of students across the 23 OECD countries. For each additional point that a country achieves on the MIPEX Index for 'political participation', the student's performance increases by 0.32 points. In fact, the variance between for example, Sweden (93 MIPEX-points) and Latvia (11 MIPEX-points) adds up to a difference of 26 points. The same observation can be made for the granting of host-state nationality. Also in this context, an integration-friendly regime has a positive effect on students' performance; however, the overall effect of this variable is less pronounced because of its smaller variation between countries. As a consequence, it contributes to a difference of only 20 points between students in Sweden (71) and students in Austria (22).

The analyses, which considered all 129,076 students, seem to confirm the logic of the hypotheses stating a positive relationship between a more integration-friendly regime and better school outcomes, even though the significance criteria are not always fully met.

Turning to the models considering only native students, the general trends can be confirmed. In fact all coefficients, except those for anti-discrimination, have a positive effect on native students' school-performance. The most interesting findings are on the measures apt to facilitate the political participation of immigrant populations and the granting of citizenship to immigrants. Both these explanatory variables significantly enhance native students' attainments.

In contrast, considering the results for the non-native students, the picture is quite different. In general, the more an immigration regime endeavours to facilitate integration, the worse non-native students seem to perform. The only exceptions to this general negative relationship are initiatives that facilitate the obtainment of the host state nationality, the measures against discrimination and the general MIPEX Index. The most interesting finding here is that norms facilitating the long-term stay of immigrants significantly and negatively influence the educational attainment of these students.

Hence, the finding that native students in particular benefit from both egalitarian welfare states and an integration-friendlier immigration regime, and

that instead immigrants' results are lowered by these two variables, can be observed.

Last, a control variable for the number of immigrants in a country and the economic wealth (GDP per capita) were introduced to control for possible sources of endogeneity. In fact, it could be expected that especially in countries with a high share of immigrants, governments might experience difficulties with their political integration. This does not seem to occur because neither the subsets for native nor immigrant students show significant results, and interpreting the sign of the relationship, it can be noted that, on the contrary, a higher total number of immigrants in a population seems to increase the overall performance of immigrant students. With reference to the GDP, it could be expected that richer countries experience fewer problems in integrating immigrants because of the larger resources available. Instead, it can be observed that the effects, although not significant, seem to reproduce those of the egalitarian orientation of a country. While for native students a higher GDP increases performance, for immigrant students the exactly opposite effect applies.

In addition, some general remarks about the models can be made. Analysing the nesting structure of the data, 34 to 36 percent of the variance at individual level can be explained by the allocation of the students in different schools (intra school correlation). In contrast, the 'homogenizing' effect of the countries is shown to be much lower; only 2 percent of the variance for the immigrant students, and 5 percent of the variance for the native students can be ascribed to systematic differences between the countries.

The models were tested for significance in a step-by-step procedure, first including only the individual level variables and then school and country level variables. All these different steps are significant according to the deviance statistic, and thus the specified models are more powerful compared with the intercept-only model. Generally, the different models explain about 16 percent of the variance when including individual and school level variables, the different country level variables are generally able to add more or less 1 percent to the overall explanatory power of the model so as to reach about 17 percent.

Summing up the results, it can be concluded that the positive influence that egalitarian, that is, social-democratic welfare states and integration-friendly immigration regimes were expected to exert on students' educational attainment is found to hold true, for both the general analysis and the subset of native students. In fact, except for left incumbency (not significant) and anti-discrimination measures (negligible), all other variables show a positive relationship at least by trend. Furthermore, both corporatist and eastern European welfare states have a negative impact on native students' attainment.

Conversely, when the subset for the students from an immigrant background is considered, the empirical findings actually seem to be linked to the second set of hypotheses, which predicted a negative influence from both egalitarian and social-democratic welfare states and integration-friendly immigration regimes. Indeed, in this subset, the most interesting and significant findings are the negative influence of left incumbency, long-term stay-permit facilitation and corporatist regimes. Moreover, it could also be shown that countries with a liberal orientation and a long history of immigration are more successful in integrating immigrant students.

The influence of individual- and school-level variables on the educational attainment of students in 23 OECD countries

Briefly assessing the impact of the individual level variables, the findings are revealed to be consistent with those of former research. Speaking a foreign or another national language, and especially belonging to the first immigration generation leads to underperformance. Instead, being a female and belonging to a higher socio-economic class has a positive effect on the average attainment (Dronkers and Levels, 2007; Levels and Dronkers, 2008; Organisation for Economic Co-operation and Development, 2006b, 2007).

Interestingly, the most important variable able to explain test performance is situated at meso-level (school's social background). This variable appears to capture the positive effect of a competent learning climate and peer-groups with generally higher performing students (Andersen, 1982; Zimmer and Toma, 2000). The positive and significant effect of this variable adds impressive support to the sociological argument that in countries where there is a highly selective school system, only the elite will benefit from a more stimulating environment, and this will lead to segregation and inequality. In fact, in

schools where the majority of students emanate from lower socio-economic backgrounds, the outcome will be drastically lower, allowing these students no chance to catch up. Consequently, for lower performing students it would be more advantageous if the influence of the mean socio-economic status could be reduced. This is especially true for students who are already disadvantaged because of their immigrant status and who also probably speak a foreign language. In fact, their additional exposure to a less stimulating peer-group structure adds one more variable to the accumulation of disadvantages they face.

The most important influencing factor is thus environmental. It follows that the indirect influence countries have on academic performance through the educational structure is higher than the one they in other, more direct, modes of influence (e.g., welfare state or immigration regime).

Conclusion

Students from an immigrant background are known to perform worse than native students (Appendix), and the sociological sources causing these inequalities have been systematically studied (Organisation for Economic Co-operation and Development, 2006b). Considering inequality from a political scientist's perspective, the most important question arising out of this empirical puzzle is: How can the institutional settings explain the differing degrees of underperformance among immigrant students between the OECD countries? This question can be analysed with two different theoretical approaches. On the one hand there is evidence showing that more egalitarian and social-democratic welfare states, and school curricula with late streaming and integration-friendly immigration regimes, could reduce social stratification, leading to a more egalitarian society and consequently to better outcomes for weaker students. On the other hand, institutional discrimination literature argues that under some circumstances positive discrimination may lead to counterproductive results (Gomolla and Radtke, 2002). The empirical evidence shows that the influence of the macro-level settings has to be differentiated according to the student subset considered, and as a consequence may not be interpreted in a straightforward way. For the whole sample including *all students* and the subset including only the *native* students, the first set of hypotheses, postulating that more egalitarian social-democratic welfare states, less selective school systems and immigration-friendly integration regimes positively affect the school career of the students, can be supported. For the students from an *immigrant background*, however, a more complex relationship appears. The analysis for this group seems instead to be linked to arguments made by the second set of hypotheses, which postulated a negative influence of, first, an integration-friendlier immigration regime, second, a welfare state structure prone to encourage egalitarianism and third, a less selective national educational system. In fact, the empirical findings show that immigrant students underperform significantly in countries dominated by a high share of left incumbency and women in parliament, but also in the case of social-democratic and corporatist welfare state regimes and in countries with a non-selective school curricula. Instead, these students profit significantly from living in a liberal/traditional immigration country. Thus, the theoretical arguments of Morrissens and Sainsbury (2005) or Dupriez and Dumays (2006) could not be corroborated for the case of non-native students. In this case, the body of sociological literature including Gomolla and Radtke (2002) and Koopmans et al. (2005) seem to make some interesting points, which should lay the foundations for further in-depth research. In fact, I was able to show that the performance of immigrant students was either negatively or positively but non-significantly influenced by these macro-level variables. All the variables that have by tendency a positive effect, are however far from significant, and decrease dramatically in magnitude, when compared with the effect they exert upon native students.

Therefore, it seems that the different integration measures performed by the 23 OECD countries analysed tend to primarily increase the performance of students belonging to the national majority. Even though the underlying mechanisms leading to immigrant students' underperformance have been far from entirely investigated, this analysis could potentially provide reasonable support for the argument that positive discrimination may, under some circumstances, lead to counterproductive results.

Considering the effect of the control variables, it can be concluded that belonging to a family with high socio-economic status, having a higher cultural capital and speaking the official test language provides an advantage to native children compared with students from an immigrant background and

enhances their general educational attainment. For non-natives students, it is shown that first generation students perform worse than second generation students, but that the latter still do not reach the performance level of their native peers. Furthermore, the school-level variable confirms the theoretical assumptions that a stimulating environment leads to higher attainments. For both foreign and native students it is beneficial to attend a school with a high average socioeconomic-status level. Unfortunately, this implies that in countries where there are schools with a much higher average socio-economic background, there probably will also be some with much lower average backgrounds, leading to a strong stratification, which is not advantageous for poorly performing students because it carries the risk of segregation.

In conclusion there is still need for further research. The results found in this analysis require deeper investigation. In fact with regard to the MIPEX Index it is not possible to differentiate precisely enough between the inclusion arrangements so that the evaluation of integration regimes in all their complexity remains only tentative. Another point that is worth considering is the relevance of the different cultural contexts. For instance, post-materialist attitudes and public opinions in interaction with the political framing of the 'immigration issue' could be used to explain levels of openness and enhanced integration efforts towards immigrants.

It would also be interesting to take a closer look at school structures and by consequence at national school curricula, which have been shown in this article as having an important impact on academic performance. A possible approach would be to analyse in detail a sample of countries belonging to different integration-differentiation ethoses, by means of case studies, in order to identify national differences in school organization, thus confining the analyses to two levels (student/school). This same analysis could also include indicators for the specific nationality of immigrants in order to analyse in more detail the integration of different national minority groups and the interaction of low socio-economic status with other discriminatory patterns.

Appendix

Appendix Table 1 Mean educational achievement (PISA-points) by student subset

Country	*All students*	*Native students*	*Immigrant students*	*Difference between native and immigrant students*
Austria	520.40	528.39	459.85	68.54
Belgium	527.09	535.29	456.77	50.77
Canada	522.49	521.88	526.95	–5.07
Czech Republic	529.14	529.97	479.20	50.77
Denmark	503.09	506.66	445.46	61.2
Estonia	522.91	526.74	490.46	36.28
Finland	554.83	556.05	468.42	87.63
Germany	524.69	532.32	465.81	66.51
Greece	473.21	475.16	444.13	31.03
Hungary	504.87	504.49	502.63	1.86
Ireland	511.87	512.42	501.78	10.64
Italy	490.97	493.25	433.96	59.29
Latvia	492.02	493.42	476.85	16.57
Lithuania	484.93	484.93	484.96	–0.03
Luxembourg	494.60	515.04	455.41	59.63
Netherlands	532.53	537.88	481.49	56.39
Norway	491.09	494.39	440.27	54.12
Portugal	480.69	482.23	449.46	32.77
Slovenia	484.49	487.12	459.02	28.1
Spain	497.11	499.59	442.98	56.61
Sweden	508.14	512.76	467.61	45.15
Switzerland	519.03	532.75	462.73	70.02
Great Britain	509.87	510.33	499.34	10.99

Source: Organisation for Economic Co-operation and Development, 2006a; author's own calculations.

Appendix Table 2 Country distribution of native and immigrant student

Country	*All students*	*Native students*	*Immigrant students*	*Immigrant students as % of the overall sample*	*First generation students*	*Second generation students*
Austria	3953	3492	461	11.66	274	187
Belgium	6674	5977	697	10.44	388	309
Canada	14286	12607	1679	11.75	770	909
Czech Republic	5046	4961	85	1.68	52	33
Denmark	2765	2604	161	5.82	79	82
Estonia	3665	3278	387	10.60	34	353
Finland	4015	3959	56	1.4	48	8
Germany	3423	3030	393	11.48	178	215
Greece	3029	2839	190	6.2	153	37
Hungary	3659	3599	60	1.6	47	13
Ireland	3395	3221	174	5.12	139	35
Italy	12611	12104	507	4.02	436	71
Latvia	3428	3137	291	8.49	25	266
Lithuania	3421	3339	82	2.40	15	67
Luxembourg	3428	2253	1175	34.28	549	626
Netherlands	3744	3389	355	9.48	115	240
Norway	3539	3323	216	6.10	105	111
Portugal	3922	3738	184	4.69	107	77
Slovenia	5169	4685	484	9.36	100	384
Spain	14413	13783	630	4.37	578	52
Sweden	3226	2896	330	10.23	141	189
Switzerland	8548	6873	1675	19.59	787	888
Great Britain	9717	9316	401	4.13	176	225
Total (N)	**129076**	**118403**	**10673**		**5296**	**5377**

Source: Organisation for Economic Co-operation and Development (2006a); author's own calculations.

Appendix Table 3 Sub-areas of the MIPEX Index

Labour market access	1. Eligibility
	2. Labour market integration measures
	3. Security of employment
	4. Rights associated with status
Family reunion	1. Eligibility for the sponsor
	2. Eligibility for the whole family members, conditions for the acquisition of the status
	3. Security of the status
	4. Rights associated with this status
Long-term residence	1. Eligibility
	2. Conditions for acquisition of status
	3. Security of this status
	4. Rights associated with this status
Political participation rights	1. Formal political rights
	2. Informal political rights
	3. Presence of consultative and advice bodies
	4. Implementation policies
Nationality obtainment	1. Eligibility
	2. Conditions for acquisition of the guest state nationality

Appendix Table 3 (Continued)

	3. Security of status 4. Regulation of dual nationality
Anti-discrimination measures	1. Definitions and concepts 2. Application fields 3. Enforcement 4. Equality policies

Source: Table according to Niessen et al. 2007.

Appendix Table 4 Descriptive statistics

Variable	*Mean*	*SD*	*Min*	*Max*
General test performance	507.61	86.04	114.23	849.12
Individual level variables				
Female	0.50	0.50	0	1
Socio-economic status	0	0. 90	–5.67	3.31
Immigration (second)	0	0.19	–0.61	1
Immigration (first)	0	0.18	–0.96	0.99
Foreign language	0	0.20	–0.84	0.99
Other national language	0	0.24	–0.86	1
School level variable				
School socio-economic status	0.09	0.22	–2.21	1.37
Egalitarian orientation				
Left incumbency	37.07	18.44	0	76.41
Woman share parliament	19.81	7.98	8.25	41.47
Post-materialism	0.93	0.15	0.51	1.16
Gini Index	32.61	7.72	23.70	58.05
Education spending	27.85	7.93	14.76	47.90
National curricula variables				
Duration compulsory schooling	10.29	1.31	9	13
Curricula without selection	0.47	0.50	0	1
Regime variables				
Social democracy dummy	0.10	0.31	0	1
Liberal regime	0.20	0.40	0	1
Traditional immigrant country	0.17	0.38	0	1
East-European regime	0.24	0.43	0	1
Corporatist regime	0.45	0.50	0	1
Integration regime variables				
General MIPEX	57.66	11.74	30	88
Labour	66.64	19.59	20	100
Participation	46.85	22.00	11	93
Nationality	46.57	14.71	22	71
Anti-discrimination	58.27	18.53	22	94
Family	62.24	13.97	34	92
Long-term residence	61.94	8.54	39	76
Control variables				
Immigrant share	9.94	7.09	1.60	33.10
GDP	21549.27	11142.29	5287.14	54009.34

Sources: Armingeon et al., 2009; European Commission 2006; European Values Study Group and World Values Survey Association, 2001–2004; Migrant Integration Policy Index, 2007; Organisation for Economic Co-operation and Development 2004, 2006a; United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007; World Bank, 2009; author's own calculations.

Notes

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1. Appendix Table 1 describes the samples of native and immigrant students. Countries with at least 50 immigrant (first or second generation) students were considered eligible for inclusion in the analysis. The first reason for this decision is that with the multilevel estimation technique it is possible to draw inferences about higher level units even in cases where the sample is small, thanks to the procedure known as 'borrowing strength' (for details see Steenbergen and Jones (2002: 226) and Bryk and Raudenbush (1992)). Furthermore, as it becomes evident, important previous studies worked with similar sample sizes, which were judged adequate (de Heus and Dronkers, 2010; Levels et al., 2008; Organisation for Economic Co-operation and Development, 2006b).
2. For a detailed description of the plausible value computation, see Organisation for Economic Co-operation and Development (2005a: 72–80).
3. The immigration background was operationalized by means of the variable IMMIG, which is an index available in the PISA dataset. This variable considers the responses to the questions of whether the student himself and his parents were born in the country of assessment and finally groups the students in three categories. While *native* students are born in the country of assessment and have at least one native parent, *first generation* students are born outside the assessment country and also their parents have a foreign origin, while *second generation* students are born in the country of assessment but have foreign-born parents (Organisation for Economic Co-operation and Development, 2007).
4. Similarly to the operationalization of 'immigration background', the language spoken at home was recoded from the original PISA Index (LANGN), differentiating between students speaking the test language, another national language or a foreign one.
5. The values for the 20 EU countries, Switzerland and Norway were taken from Eurostat (2006) database, while the value for Canada was taken from the World Development Indicators (World Bank, 2009).
6. As *social-democratic* countries are defined Finland, Norway, Sweden and Denmark (Huber and Stephens, 2001). *Liberal* countries are Canada, Great Britain and Ireland, while *corporatist* countries are considered to be Austria, Belgium, Germany, Greece, Italy, Luxembourg, Portugal, Spain and Switzerland (Huber and Stephens, 2001). Finally, *east European* countries were coded as being the Czech Republic, Estonia, Hungary, Latvia, Lithuania and Slovenia. As an additional control also a dummy for traditional immigration countries was added, which considers Great Britain and Canada separately in line with de Heus and Dronkers' argument that these countries may be especially used to dealing with immigration and by consequence experience fewer problems in integrating and advancing non-native students (de Heus and Dronkers, 2009: 5). (see also Levels et al., 2008: 847).
7. See Appendix Table 2.
8. The curricular streaming was operationalized by means of a dummy variable, differentiating between countries with no selection in the compulsory schooling system (Canada, Great Britain, Denmark, Estonia, Finland, Norway, Slovenia, Spain, Sweden and Portugal) and countries with at least one selection in their curricula (all other countries) (Kogan, 2008: 14; Organisation for Economic Co-operation and Development, 2005b: 53).
9. The duration of compulsory schooling was coded as a numeric indicator, where Austria, Estonia, Greece, Italy, Latvia, Lithuania, Portugal, Slovenia and Switzerland were coded as having 9 years compulsory schooling. The Czech Republic, Denmark, Finland, Hungary, Ireland, Luxembourg and Sweden have 10; Canada, Norway and Spain have 11; while Great Britain has 12 and Belgium, Germany and the Netherlands have 13 years compulsory schooling (United Nations Educational, Scientific and Cultural Organization and International Bureau of Education, 2006–2007).
10. Detailed descriptive statistics of all the variables can be found in Appendix Table 3.
11. More precisely, Cyprus and Malta are not included in the PISA surveys and France showed systematic missing values at school level and therefore had to be excluded.
12. In the literature, the problem of small samples at the macro-level is frequently discussed. Langer (2007: 15) defines a criterion of at least 10 cases per macro-level parameter as being necessary for adequate estimation results. Another issue regarding countries as higher level groups is that they often do not represent a random sample of cases and thereafter should not be included in multilevel models. The methodical assumption behind this statement is that without a random selection procedure the residuals might not be normally distributed. The analysis shows that in the present case the residuals at their highest level are almost normally distributed and therefore should not cause difficulties. Normal distribution has also been controlled for at individual and school level; moreover in the asymptotes these assumptions have less far-reaching consequences due to the high number of cases included, which in the present analysis are 5160 schools and 129,076 students.
13. In the classification of the social-democratic countries were included those countries which score the highest on Esping-Andersen's 'socialism' attribute (Esping-Andersen, 1998: 74). The only exception was made for the Netherlands, which instead is considered to be a corporatist country (Huber and Stephens, 2001).

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