WORKING PAPER
#638 | 2021

WP

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Academic performance and territorial patterns of students with an immigrant background in the Lisbon Metropolitan Area

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ABSTRACT

This paper focuses on the territorial distribution of students with an immigrant background enrolled in the 3rd cycle of basic education in Portugal and on the differences in the academic performance of students enrolled in the last year of this cycle based on their birthplace and immigrant background when compared to their native peers in the Lisbon Metropolitan Area. These differences are examined by estimating several linear regression models using as dependent variable three performance indicators – student's results in the 9th grade national exams in the Maths and Portuguese Language subjects, as well as a binary indicator of a successful academic record during the 3rd cycle.

The observed results confirm the hypothesis that there are significant differences in the students' academic performance depending on their immigrant background and birthplace: (i) 2nd-generation and 1st-generation students perform worse than Native students; (ii) students from Brazil and PALOP countries have the most significant differences compared to students from Portugal. We also identify that a substantial part of these differences is already present in the end of the 2nd cycle of basic education.

Furthermore, our results indicate that a considerable part of the differences is explained by factors inherent to the school and the class of the student, and not so much to the municipality, which might indicate the existence of some type of segregation experienced by these students, either at intra-municipality level (by the different schools) or intra-school level (by the different classes).

Keywords: Students with an immigrant background; Academic results; Lisbon Metropolitan Area;

I. INTRODUCTION

Since the 1990s, migrations to Portugal have intensified: the immigrants that arrive in the country now come from many different origins, and the newcomers undertake a broader range of integration processes in the national territory (Esteves, Hortas & Fonseca, 2017; Fonseca, 2008; Malheiros & Esteves, 2013; Malheiros & Fonseca, 2011). Given the considerable number of children and adolescents included in these processes, education is considered one of the most important dimensions of integration because (i) children and adolescents have a universal right to education, and (ii) an educational response is necessary to improve performance in light of the challenges faced in a society where migrants are disadvantaged (Koehler & Schneider, 2019). According to Koehler

& Schneider, 'Good quality education fosters social inclusion, economic growth and innovation.' (2019:1).

The admission of foreign students into the Portuguese education system is a reality that is now challenging schools, teachers and families alike in the search for new ways of promoting the integration of these students. National and international studies have confirmed that foreign students tend to have an unsuccessful academic record when compared to their native peers (Ferreira, Flores & Casas-Novas, 2017; Hortas, 2018; 2013; Justino & Santos, 2017; Seabra, Carvalho & Ávila, 2019; Seabra et al., 2016). Multiple causes have been identified to justify this disadvantage – the students' language skills, their family's educational background, socioeconomic conditions, the territorial contexts where they live, and schools' responses. In 2016, PISA results ranked Portugal among the OECD countries that had most improved the school performance of immigrant students between 2006 and 2015. Therefore, it is important to understand to what extent national administrative data demonstrate this positive evolution towards the reduction of the disadvantages of immigrant students compared to their native peers.

Considering this challenging situation, the objectives of this study are to characterise the territorial distribution of students with an immigrant background in Portugal and quantify and explain the differences in the academic performance of students from different origins and immigrant backgrounds in the Lisbon Metropolitan Area (LMA). We have considered students enrolled in the 9th grade[1] in public schools in the 2016/2017 school year for the analysis of performance differences.

This paper is organised into six sections. After the introduction, we provide a brief review of the literature on the dynamics of migration and the challenges faced by students with an immigrant background in the host country. This section ends with the presentation of a brief overview of immigration in Portugal, contextualising the diversity of students with an immigrant background. National and international studies on the school performance of immigrant students in Portugal are also taken into consideration. In the third section, the model of analysis and the variables used to assess the differences in performance between native students and students with an immigrant background in Portugal are presented, as well as their patterns of distribution across the territory and in the LMA, which are outlined in the fourth section. This is followed by an analysis of the differences in outcomes among native and non-native students based on linear regressions. Finally, the conclusion summarises the differences and explanatory factors of the school performance of students with different immigrant background and birthplaces.

[1] The 9th grade corresponds to *Level 2 - Lower secondary education* according to the International Standard Classification of Education (ISCED).

II. MIGRATORY DYNAMICS AND STUDENTS WITH AN IMMIGRANT BACKGROUND

In a text published in 2008, Stephen Castles referred to the growth of human mobility across borders as one of the key dynamics of the ongoing global changes, viewing migration both as a result and an integral part of this process, a 'force' that challenges communities and societies. In this framework of global changes in which a 'new age of diversified mobilities' (King, 2020:8) is imperative, migrations within and into the European space have become more dynamic and complex, creating new socioeconomic and political frameworks and posing new challenges to integration (Trenz & Triandafyllidou, 2017). In a Europe of free movement, there are several groups of 'mobile citizens': (temporary) East-West migrations; the revival of old South-North movements; retired people migrating from the North to the South; young Europeans taking advantage of educational opportunities; and many migrant workers of various origins, with low-skilled or high-skilled occupations, who are moving through the European labour market (Trenz & Triandafyllidou, 2017). In this complex network of increasing and diversified mobilities, the authors define the old continent as a 'natural laboratory' (p. 546) for the complexity of integration patterns of European and non-European citizens.

Although the relative weight of the foreign population in the Portuguese territory is small (4.7% of the total resident population in 2018[2]), when compared to other European countries (Portugal ranked twenty-first in relative importance among 28 European countries in 2018[3]), the Portuguese society today, particularly in large urban centres, has a 'complex diversity' (Kraus, 2012).

This 'complex diversity' is characterised, among other aspects, by a diversity of expectations that goes hand in hand with the decision to migrate. Migrants carry, for themselves and for their offspring, ambitions that intersect the economic and social sphere, where access to work, housing, health and education are the main arenas and challenges on which integration processes are based. While for the first generation of migrants, access to work is the priority, the ambitions they have for the social mobility trajectories of their offspring challenge other sectors of society, often ranking education at the top (Hortas, 2018; 2013).

In a complex framework of integration processes, the country has defined measures that seek to go beyond the traditional policies to obtain national citizenship and civic integration in a top-down model with an approach to the social process that essentially implies the existence of interactions. However, without undervaluing the efforts made so far and recognised in international evaluations[4], the constant challenges of rethinking integration persist. New conceptualisations are required that extend beyond legal issues and related services in the host country, seeking to

[2] Oliveira (coord.) & Gomes (2019). Observatório das Migrações. Imigração em Números. Indicadores de Integração de Imigrantes, Relatório Estatístico Anual.

[3] Idem.

[4] 'Portugal's comprehensive integration policies rank high in the MIPEX 'Top Ten', scoring 81 on the MIPEX 100-point scale'. 'Portuguese integration policies slightly improved on all dimensions of equal rights, opportunities and security for immigrants.' https://www.mipex.eu/portugal

understand the dimensions of the social life of individuals with different backgrounds, the interaction and relationship networks they maintain in the host and home territories, and the transnational spaces they inhabit (Darieva, Schiller & Gruner-Domic, 2014). From this perspective, integration is more than a political project; it should be understood as an individual (family) project (McGarrigle & Ascension, 2017). In this project, education is a key variable that influences the present and future life scenarios of the offspring of immigrants (Crul & Mollenkopf, 2012; Portes, 2006; Portes & Rumbaut, 2001; Suárez-Orozco, Suarez-Orozco & Todorova, 2010).

Since the 1980s, a large body of international literature on the academic achievements of immigrant students has been growing. Confirming the importance of education in the life trajectories of immigrant students and also of the descendants of immigrants over the past twenty years, the scope of research has been extended to second generations: children of immigrants born in immigration territories. Regarding these students, the fact that they are admitted to the education system together with native students is under discussion, but the differences in academic results and trajectories are clear, raising questions about the ability of education systems to meet the challenges posed by newcomers, as well as by their descendants born in the national territory (Koehler & Schneider, 2019). According to the authors, some findings of these studies draw attention to: (i) the importance of immigrant children integrating the education system from an early age, preferably since kindergarten, coming into contact with the language and interacting with their peers; (ii) the negative effects of school segregation, in particular on social interactions and adult life; (iii) the importance of a more flexible/permeable education system that can accommodate the diversity of rhythms and paths and mitigate risks and early school leaving; (iv) the advantages of multiple opportunities for those who 'blossom' later on, thus allowing them to return to school and to resume and have a less fragmented academic record; (v) the opportunities arising from longer educational trajectories, in terms of the labour market and income, but also in social terms, attitudes towards diversity and resilience; (vi) the potential to follow vocational paths, which allow them their first access to the labour market, permanent training in connection with practice, without neglecting the possibilities of access to higher education; (vii) the potential of communication and involvement of families in school, influencing academic results; (viii) the negative effects of 'perceived' discrimination both for oneself and for others.

2.1. Immigrant students and academic performance

Studies on the academic performance of students from immigrant backgrounds, where this article is included, have confirmed that there is a negative association between the variables – immigrant background and academic performance (Seabra & Cândido, 2020; Seabra, Carvalho & Ávila, 2019; Seabra, Roldão, Mateus & Albuquerque,2016; Seabra, Vieira, Castro & Baptista, 2016; Seabra, 2010; 2008; Hortas, 2013). This group of students tends to have a higher proportion of members enrolled in a cycle of studies for which they have already exceeded the expected age limit.

It is also among them that the failure rate or the dropout rate are more than twice as high as among their native peers (Hortas, 2013).

In 2016, PISA results reported that students from immigrant backgrounds were 70% more likely to have repeated a year than their non-immigrant peers of similar socioeconomic background (PISA, 2016: 259), further stressing that 'being male and from a 1st-generation immigrant background is a combination that negatively interferes with literacy performance in any of the PISA domains considered.' (Carvalho, Ávila, Nico & Pacheco, 2011: 81). However, the same authors state that, in relation to the European Union countries as a whole, this trend is less pronounced in Portugal. The results of PISA 2016 rank Portugal among the OECD countries that have most improved the academic performance of immigrant students in the last decade (2006-2015). The authors explain this convergence based on the improvements in performance in science, mathematics and reading, the three areas assessed by PISA.

An analysis of national administrative data conducted by some recent studies on the admission of foreign students in the education system and on academic performance indicates the persistence of the behaviour already identified in the previous decade (Hortas, 2013), with continued lower levels of academic success compared to Portuguese students (Oliveira & Gomes, 2019, 2018).

> In the 2016/2017 school year, the success/achievement rate of foreign students (78.8%) was 12.5 percentage points below the rate of Portuguese students (91.3%). The success rate of foreign students slightly worsened from the 2015/2016 school year to the 2016/2017 school year (from 79.2% to 78.8%) (Oliveira & Gomes, 2018).

This trend is further confirmed by the analysis of the results obtained in the national exams, considering students of foreign nationality. In the study conducted by Justino and Santos (2017), the analysis of the results of the national exams (2013/14), based on the construction of a multiple linear regression model, considering two indicators of the presence of students with an immigrant background (% of students with foreign nationality and % of students with dual nationality), it was found that there are 'considerable effects in all cycles of basic education' associated with the immigrant background. 'Both indicators denote negative effects on exam classifications in the three cycles of basic education, but no longer in those of secondary education.' (Justino & Santos, 2017: 80). In addition, the 'percentage of students with foreign nationality is more penalising for results in the 1st and 2nd cycles than that of students with dual nationality, while the effects of both indicators on results in the 3rd cycle are virtually identical' (Justino & Santos, 2017: 80). Among the explanatory effects for the behaviours identified in students of foreign nationality, particularly in the two initial cycles, the authors suggest language barriers, 'the most differentiating element and the most difficult to overcome in the early stages of schooling' (2017:81).

Although PISA studies point to a significant reduction of the gap in academic achievement between immigrant and non-immigrant students, studies based on the analysis of national

administrative data indicate the persistence of these disparities. According to Ferreira, Flores and Casas-Novas (2017), these differences depend fundamentally on household characteristics: education, employment status, material goods and some cultural indicators. The latter is visible in the cultural capital (Bourdieu, 2010) that children and young people bring to school and in the skills to communicate in the language of the host country, which is reflected on academic performance through the effects of ethnicity, as mentioned by Portes and MacLeod (1996, 1999). In addition to these family and individual aspects, there are the characteristics of schools (Portes, 2006; Kasinitz, Mollenkopf, Waters & Holdaway, 2008; Carvalho, Ávila, Nico & Pacheco, 2011; Crul & Mollenkopf, 2012; Crul & Schneider, 2012; Hortas, 2013, 2018; Koehler & Schneider, 2019) and the ability to open up to diversity, enhancing interethnic relationships and coexistence (Wessendorf, 2011). The influence of the school and the life frameworks in the territories where it is located on the students' academic record and on the behaviours they display is a variable to be considered (Hortas, 2013; 2018; Carvalho, 2010).

2.2. Immigration and immigrant students in Portugal

From the mid-1970s, Portugal has become a host country for thousands of citizens coming from Portuguese-speaking African countries, and, later on, already in the late 1990s, the country became an important destination for labour migrants that arrive integrated into formal and informal networks. The traditional immigrants from the former colonies were followed by Brazilian and Eastern European citizens, namely Ukrainians, Moldavians and Romanians (Esteves, Hortas & Fonseca, 2017; Fonseca, 2008; Fonseca, 2001; Malheiros & Esteves, 2013), and some groups from South Asia, China, India, Pakistan and Bangladesh (McGarrigle & Ascensão, 2017).

The shift in the position of Portugal in the context of international migration resulted from a number of factors, especially the effects of a favourable economic context, after joining the EEC in 1986. The increase in foreign direct investment and the injection of structural and cohesion funds allowed the Portuguese GDP to grow above the European average until 1999, with the exception of the years 1992 and 1993 (Esteves, Hortas & Fonseca, 2017). The increase in the qualifications of Portuguese workers, combined with the maintenance of labour-intensive sectors with low wages, a highly segmented labour market, seasonal work associated with specific sectors of activity, a high informal economy[5] and the perception of Portugal as a country where it is easy to enter and stay in the EU context (Esteves, Hortas & Fonseca, 2017; Fonseca & McGarrigle, 2014).

The entry of immigrants into Portugal grew until 2004 but changed in the following ten years, with a decrease of almost 2% in 2010. This decline in the number of foreigners living in Portugal was due to the economic crisis, but also to the acquisition of Portuguese nationality by a significant number of immigrants already residing in Portugal (Fonseca & McGarrigle, 2014; Malheiros &

[5] The estimated value for Portugal in 2002/2003 was 22.3% of GDP while for all OECD countries, in the same timeframe, it was 16.4% (CEGEA, 2008): http://www.cotecportugal.pt/images/stories/iniciativas/Economia_Informal/estudo_economia_informal.pdf

Fonseca, 2011). In 2015, the lowest value among the resident foreign population[6] in this decade was recorded (388,731 foreigners with residence permits). In this context of crisis, the migratory balance was reversed, with the revival of some traditional destinations for Portuguese emigration, such as Switzerland, Germany and Luxembourg, and the appearance of other destinations, such as the United Kingdom, Spain and Angola. In the second half of the first decade of the 2000s, the number of annual departures was estimated at approximately 70,000 individuals (Malheiros, 2011). Since 2015 we have witnessed a reversal of the situation; entries have intensified, with the number of foreigners with residence permits reaching almost half a million in 2018, 4.7% of the total resident population in the country (Oliveira &Gomes, 2019).

Until the beginning of the new century, the Portuguese-speaking communities from the PALOP countries contributed largely to the stock of foreigners (Cape Verdeans, Angolans, Guineans and São Tomeans). From 2001 onwards, this position was taken by people from the European continent, namely Ukrainians, Moldavians, Russians and Romanians. Meanwhile, labour immigration from Brazil has intensified, with a higher degree of qualification and diversification in relation to previous flows. The rapid growth of this group quickly brought it to the leading position in terms of numbers (105,423 in 2018), surpassing immigrants from Cape Verde, Romania and Ukraine (Table I). Both the flow from Eastern Europe and the flow from Brazil are more dispersed throughout the Portuguese territory than the previous flows. This internal mobility was facilitated by greater professional flexibility due to the higher levels of education of these migratory groups (Pires 2002).

Table I. Evolution and change of the top 10 numerically stronger resident foreign nationalities in Portugal, 2017 and 2018

Main nationalities	2018		2017		Change 2017-2018	
	No.	%	No.	%	No.	%
1st Brazil	105 423	21.9	85 426	20.3	+19 997	+23.4
2nd Cape Verde	34 663	7.2	34 986	8.3	-323	-0.9
3rd Romania	30 908	6.4	30 750	7.3	+158	+0.5
4th Ukraine	29 218	6.1	32 453	7.7	-3235	-10.0
5th United Kingdom	26 445	5.5	22 431	5.3	+4014	+17.9
6th China	25 357	5.3	23 197	5.5	+2160	+9.3
7th France	19 771	4.1	15 319	3.6	+4452	+29.1
8th Italy	18 862	3.9	12 925	3.1	+5937	+45.9
9th Angola	18 382	3.8	16 854	4.0	+1528	+9.1
10th Guinea Bissau	16 186	3.4	15 198	3.6	+988	+6.5
Total foreigners	**480 300**	**100**	**421 711**	**100**	**+58589**	**+13.9**

Source: Portuguese Immigration and Borders Service. In (Oliveira & Gomes, 2019: 67)

[6] The Portuguese Immigration and Borders Service (SEF) considers, for statistical purposes, 'resident foreigners' to be foreigners with a residence permit issued under the Immigration Law, the Free Movement of EU Nationals, and the Asylum Law.

With a remarkable growth (23.4% between 2017-2018) since 2000, Brazilian citizens are now the most significant nationality. Some nationalities of the Asian continent, although numerically still not very relevant, have shown considerable growth, such as Chinese, Indian, Nepalese, Pakistani and Thai.

As for the composition by age groups, 'the population of foreign nationality residing in Portugal tends to be younger than the population of Portuguese nationality.' (Oliveira & Gomes, 2019: 67). The highest numbers are recorded in the working ages (20-49 years) and, with the exception of immigrants from France, Italy and the United Kingdom, the 0-19 age group occupies the second numerical position. Among the nationalities with younger age structures (higher percentage of the population aged between 0-19 years), the Chinese (24.6%), the Guinean (19.8%), the Cape Verdean (15.7%) and the Romanian (15.4%) are the most significant.

III. METHODOLOGY

To conduct this study, we explored the anonymised database of the Ministry of Education Information System (MISI) of the Directorate-General for Education and Science Statistics (DGEEC), which gathers data on pre-school education and basic and secondary education in state schools in Mainland Portugal. First, we identified the students with an immigrant background using their parents' and the students' own birthplace. Before that, a review of the literature on the concept of students with an immigrant background was conducted, given that considering students with a foreign background based on the analysis of the students' and their parents' birthplace is the most consensual option, especially since it is considered that, even in the case of students who have not undergone a migration process, their conditions and experiences continue to be influenced by their parents' (Schnapper, 2007, Portes, 1996; Portes & Rumbaut, 2001). Thus, in this study, students with an immigrant background are those who have a foreign nationality themselves or one of their parents does. Four groups are distinguished:

- *1st generation*: the parents and the student have foreign nationality;
- *2nd generation*: both parents are of foreign nationality, and the student is Portuguese;
- *Mixed-heritage students*: one of the parents is Portuguese, and the other is foreign, while the student is Portuguese;
- *Returning foreign-born students*: the student's nationality is foreign, and either the parents are Portuguese, or one of them is foreign and the other Portuguese.

Regarding the criteria for the constitution of groups based on birthplace, we chose, on the one hand, to create groups that combined countries, with the exception of Brazil, due to the variety of different birthplaces found in the school population. This option allowed us to focus the analysis on birthplace groups with some proximity from an economic, social and cultural point of view. On the other hand, these groups were intended to reflect the trend of immigration flows in Portugal. Bearing this in mind, we formed the following birthplace groups:

- *Portuguese Speaking African Countries (PALOP)* because these countries share historical, cultural and linguistic ties with Portugal. We should also mention that immigration, particularly from the PALOP countries, has been occurring in Portugal since the 1960s, reaching its peak in 1975, after the independence of the Portuguese Overseas territories, when there was a large flow of returnees from the Portuguese colonies (Rocha-Trindade, 2001, p.170). From the 1970s to the 1980s, the great flow of migration that Portugal received was mainly from the PALOP countries and particularly from the Cape Verdean community.
- *Eastern Europe*, which, besides representing a group of countries with the same geographical, political and historical characteristics, is a region from where a large part of immigration to Portugal has come, particularly since 2000. In 2001, the new legal framework of residence permits (Decree-Law No. 4/2001 of 10 January) brought to light the rapid development of a new flow of immigrants from Eastern Europe, which changed the immigration trends in Portugal.
- *The EU-15* represents a group of countries bound by relations or cooperation in areas such as politics, trade, culture or education and has facilitated the movement of goods, capital, people and services between member states. EU citizens can live, work, study or retire in any member state. This has entailed a reduction in the administrative burden and the recognition of professional qualifications between member states. This has allowed the movement of citizens from member states to Portugal. During the first two decades of the 21st century, the upward trend and diversification of European flows have continued, and more and more Europeans, especially from the EU-15 countries, are coming to Portugal.
- *Brazil*, the sole category that includes only one country, is explained by the numbers of immigrants coming to Portugal; in 2001, the new legal framework of residence permits (Decree-Law No. 4/2001 of 10 January) also brought to light the unprecedented increase in immigration from Brazil.
- *Other*, this group is made up of countries that are very different from a geographical, cultural, political or economic point of view and with little quantitative significance, and it includes: Switzerland, China, Venezuela, Nepal, the United States, India, Andorra, Pakistan, Canada, Morocco, South Africa, Guinea, Senegal, Bangladesh, Cuba, Colombia and the Philippines.

To estimate differences in the performance of students from different origins and immigrant backgrounds in the LMA, where most of the immigrant school population is gathered, and uncover potential explanatory factors, we considered only students enrolled in the 9th grade in public schools in the 2016/2017 school year in the LMA.

To explain the differences in student performance, we use a linear regression model, which allows us to estimate the association between a given variable (often called an explanatory variable) and a variable of interest (called dependent variable), controlling for possible correlations between the variable of interest and other observed factors (called control variables and consisting of additional explanatory variables).

In this study, the variables of interest are three indicators of student performance: (a) the result obtained in the national Maths Exam; (b) the result obtained in the national Portuguese Language Exam; and (c) a binary indicator that indicates whether the student has had a successful academic record, which consists of completing the 3rd cycle of basic education[7] without failing any year, and passing the 9th grade national exams (DGEEC, 2016). Several linear regression models have been estimated using each of these performance indicators as dependent variables.

The first group of regressions includes as explanatory variables only those that identify the different immigrant backgrounds and the birthplace of the students. The coefficients obtained in these regressions measure the differences in average performance among students from different backgrounds. However, these differences in averages also capture differences in performance related to gaps in other sociodemographic factors of the students, their families, their schools and regions.

In the linear regression models, we considered control variables such as the gender of the student and a vector relating to the student's socioeconomic status that includes an indicator of whether the student has internet at home or not, an indicator of whether the student is a SASE beneficiary (with the following levels: non-beneficiary, A bracket and B bracket), the mother's academic background and the father's academic background (with the following levels: no education, 4th grade completed, 6th grade completed, 9th grade completed, 12th grade completed, bachelor's degree, master's degree, PhD), and the employment status of the parents. A set of additional control variables capturing the performance of the student immediately before starting the 3rd cycle is also considered: an indicator of whether the student started the 3rd cycle without having been held back in the past, and the results obtained in the Portuguese and Maths 6th grade national exams. With the inclusion of these control variables in the regression models, the results obtained reflect the relationships between the various explanatory variables and the evolution in student performance throughout the 3rd cycle.

The regression models also include a set of fixed effects at the level of each student's class, school and municipality. In other words, we included dummy variables for each class, school and municipality as additional control variables. In these models, the estimates obtained capture the differences in performance between students of different immigrant backgrounds and birthplaces within the same class, the same school, or the same municipality. Thus, the estimates of differences

[7] The 3rd cycle of studies corresponds to *Level 2 - Lower secondary education* according to the International Standard Classification of Education (ISCED).

in performance between students from different immigrant backgrounds and birthplaces obtained with this approach are isolated from all the factors associated with differences between classes, schools, or municipalities, such as having different teachers or different socioeconomic backgrounds.

For more details on the variables used in the study, descriptive statistics for the LMA are presented in Tables II and III.

Table II. Descriptive statistics of the variables used in the study – LMA

Variable	Average	DP	Min-Max	N
9th grade Math Exam result	49.92	26.97	0-100	14,635
9th grade Portuguese Language Exam result	58.00	14.35	3-100	14,635
Successful academic record	.45	.50	0-1	14,621
Male student	.50	.50	0-1	14,635
Student with internet at home	.72	.45	0-1	14,635
Beneficiary of SASE – A bracket	.12	.33	0-1	14,635
Beneficiary of SASE – B bracket	.16	.36	0-1	14,635
Student with at least one unemployed parent	.22	.42	0-1	14,635
6th grade Math Exam result	2.71	0.93	1-5	14,635
6th grade Portuguese Language Exam result	3.10	0.76	1-5	14,635

Data source: MISI, 2016/2017.

Table III. Number of students by immigrant background and birthplace in the sample – LMA

	Birthplace						
Immigrant background	PT	*Brazil*	*PALOP*	*EU-15*	*Eastern Europe*	*Other*	Total
Native students	11.751	0	0	0	0	0	11.751
Mixed-heritage students	1.564	0	0	0	0	0	1.564
2nd-generation students	821	0	0	0	0	0	821
Returning foreign-born students	0	26	16	49	4	25	120
1st-generation students	0	141	149	14	52	23	379
Total	14.136	167	165	63	56	48	14.635

Data source: MISI, 2016/2017.

IV. STUDENTS WITH AN IMMIGRANT BACKGROUND: TERRITORIAL DISTRIBUTION

The first data analysis sought to understand who the students with an immigrant background enrolled in basic and secondary education[8] in Portugal were. The territorial distribution of students by immigrant background and birthplace in Portugal and in the LMA focuses on the 3rd cycle of basic

[8] Secondary education corresponds to *Level 3 - Upper secondary education* according to the International Standard Classification of Education (ISCED).

education since it includes the 9th grade, which is the object of this paper. Finally, we analysed the territorial distribution of students by origin and birthplace in the 9th grade in the LMA.

4.1 Students with an immigrant background in Portugal

In the 2016/2017 school year, there were 145,917 students with an immigrant background enrolled in basic and secondary education in Portugal, i.e., 14.62% of the students enrolled in these cycles of studies (Table IV).

Among the groups of students with an immigrant background, the most represented in basic and secondary education were *Mixed-heritage students* (69,646), followed by *1st-generation* students (29,912), *2nd-generation students* (28,428) and *Returning foreign-born students* (17,931).

Table IV. Distribution of students in basic and secondary education and by immigrant background, 2016/2017

			Immigrant Background			
Type of studies	**Native students**	**Non-native students**	**Mixed-heritage students**	**2nd-generation**	**Returning foreign-born students**	**1st-generation**
TOTAL	**852,448**	**145,917**	**69,646**	**28,428**	**17,931**	**29,912**
	N	**N**	**N**	**N**	**N**	**N**
1st cycle of basic education	276.094	43.778	21.622	10.234	4.707	7.215
2nd cycle of basic education	146.676	25.035	11.975	5.336	2.846	4.878
3rd cycle of basic education	232.095	41.611	19.542	7.928	4.861	9.28
Secondary education	197.583	35.493	16.507	4.93	5.517	8.539

Source: MISI, 2016/2017.

Looking at the number of students with an immigrant background enrolled in the 3rd cycle of basic education in mainland Portugal – where the 9th grade, the object of this study, is included – they represent 15.20% of the population enrolled in that cycle of studies. Their distribution in the territory is heterogeneous, fitting in with the distribution patterns of the immigrant population in the country (Fig. 1). As recorded in recent data regarding the trend of foreign population distribution in the country (Oliveira & Gomes, 2018), students with an immigrant background are mainly concentrated in the districts of Lisbon (34.63%), Setúbal (15.05%), Porto (8.80%) and Faro (8.60%).

The over-representation of the foreign population residing in urban areas and consequently the over-representation of students with an immigrant background, mainly in metropolitan areas and in the Algarve region, is due to the perception by immigrants of more employment opportunities and faster integration into the labour market in these regions. As a result, stronger social networks of mutual help are formed in these places and thus attract more immigrants (family, friends, acquaintances), as seen in most OECD countries (Oliveira & Gomes, 2018, p. 65).

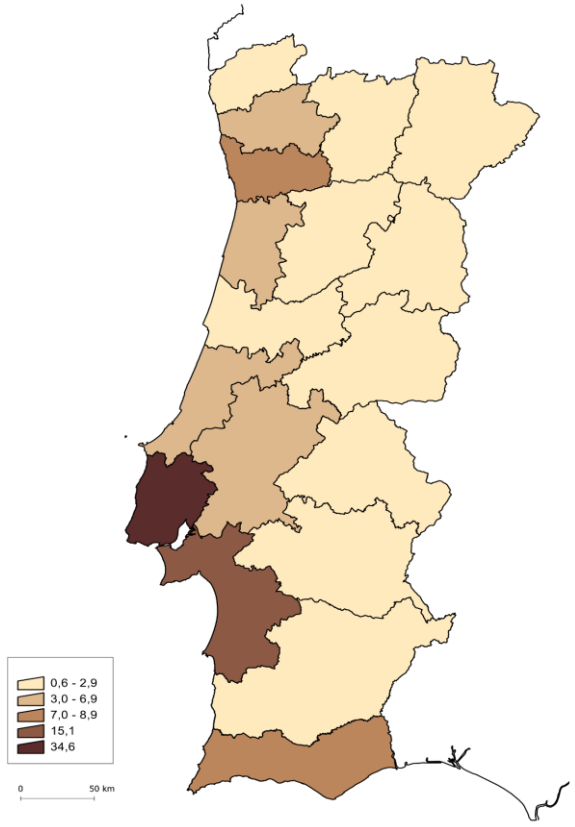

Fig. 1 – Proportion of students with an immigrant background enrolled in the 3rd cycle of basic education by district (in relation to the total number of non-native students), 2016/2017
Data source: MISI, 2016/2017.

The breakdown of students in the 3rd cycle of basic education by district, taking into account the groups with an immigrant background and the birthplace groups, highlights that the group of *Mixed-heritage students* is the largest group in almost every district (Fig. 2). The districts of Lisbon, Setúbal, Faro and Portalegre are exceptions to this trend. In Lisbon and Faro, the largest groups are the *1st-generation* and *2nd-generation students*. In Portalegre, the group of *Returning foreign-born students* occupies the second position. This group is mainly concentrated in the north of the country, particularly in the districts of Vila Real, Viseu, Bragança, Viana do Castelo, Braga, Porto and Aveiro, where it holds the second position among the various birthplace groups. From Aveiro to the south along the coast and also in the districts of Évora, Beja and Faro, *1st-generation students* take the second position among the four provenances under analysis.

As regards the distribution of the students' birthplace, the group from Brazil, present in every district, is concentrated in the districts of Faro, Lisbon, Setúbal, Santarém, Leiria and Porto. Students from PALOP countries are concentrated in the districts of Aveiro, Lisbon and Castelo Branco. The group from the EU-15 is located relatively further north, with the majority in the districts of Bragança, Vila Real, Viana do Castelo, Braga, Viseu and Guarda and, to the south, in the districts of Portalegre and Beja. Finally, the students from Eastern Europe have greater numbers in three districts, Évora, Beja and Faro. These territorial distribution patterns of the different immigrant

origins indicate a tendency in the country towards a greater dispersion in inland districts, traditionally associated with emigration, but where the living conditions have become attractive in smaller cities and also in some rural areas as a result of ongoing restructuring processes (Fonseca; Esteves & Moreno, 2021; Morén-Alegret & Wladyka, 2020; Fonseca, 2008) and the greater labour flexibility of immigrants from the 'new migration flows'.

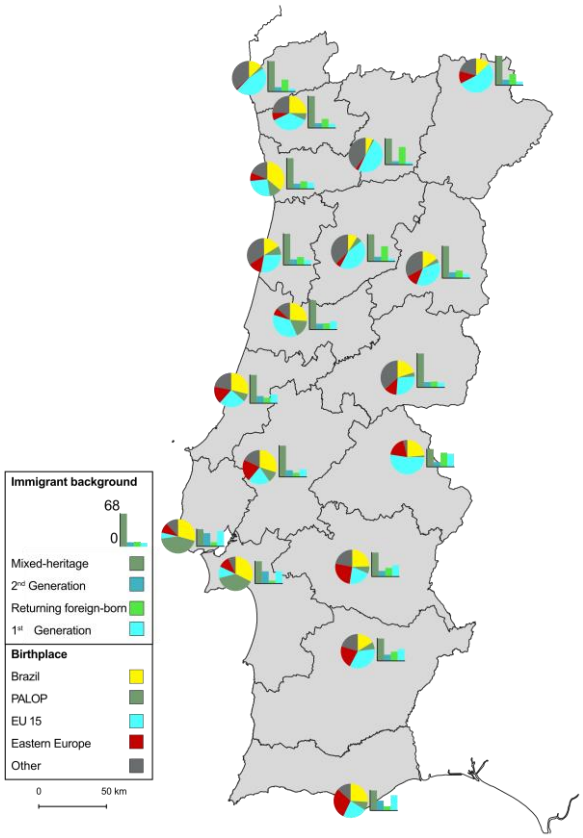

Fig. 2 – Students with an immigrant background enrolled in the 3rd cycle of basic education by district and by birthplace groups, 2016/2017

Source: MISI, 2016/2017.

Regarding the LMA, the municipality of Sintra stands out as the area where the proportion of students with an immigrant background in relation to non-native students is the highest (16-23.3%), followed by the municipality of Lisbon (10-15.9%) (Fig. 3). The municipalities bordering the city, Loures, Odivelas, Amadora and Oeiras, along with Cascais (on the northern edge), are in the third position in terms of the proportion of students with an immigrant background enrolled in the 3rd cycle of basic education in the group of non-native students. In the South, the municipalities of Almada and Seixal occupy this position (5.0 to 9.9% of students with an immigrant background). Looking at the map depicting the proportion of students enrolled in the 3rd cycle of basic education in each municipality in the region of the LMA with an immigrant background in relation to the total number of students in the municipality (Fig. 4), we can see the great impact that the proportion of students with an immigrant background has in virtually every municipality. We have found that

every municipality has more than 5% of students with an immigrant background in relation to the total school population and, with the exception of Mafra and Alcochete, every municipality has between 15 and 39.1% of students with an immigrant background. Amadora and Seixal have the highest relative weight of immigrant students, and the area with the highest proportion of immigrant students is concentrated on the north bank (Amadora, Loures, Odivelas, Sintra, Cascais and Oeiras). On the south bank, most municipalities have between 15 and 21.9 % immigrant students among the total school population. After Seixal, the municipalities of Almada and Moita have the highest percentages of immigrant students in their school population (22.9- 29.1%).

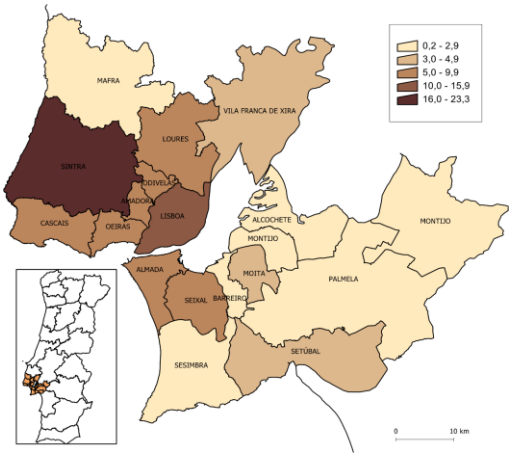

Fig. 3 – Proportion of students with an immigrant background enrolled in the 3rd cycle of basic education by municipality in the Lisbon Metropolitan Area (in relation to the total number of non-native students), 2016/2017
Source: MISI, 2016/2017.

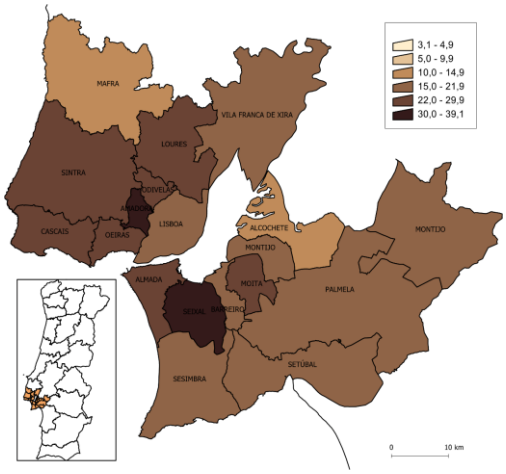

Fig. 4 – Proportion of students with an immigrant background enrolled in the 3rd cycle of basic education per municipality in the Lisbon Metropolitan Area (in relation to the total number of students in the municipality), 2016/2017
Data source: MISI, 2016/2017.

Moving on to the analysis of the immigrant background of 9th grade students in the LMA (Fig. 5), the *Mixed-heritage* group has the highest relative weight in a wide range of municipalities of the south bank, where Sesimbra, Palmela, Setúbal, Barreiro and Moita stand out for being further away from the average of the LMA (41.6%). The *1st-generation* of immigrant students is very evenly distributed across the various municipalities of the LMA, with the exception of the municipalities of Amadora, Cascais and Alcochete, due to their greater relative weight. The *2nd-generation students* have a greater weight in the municipalities of Loures, Sintra and Amadora. The group of *Returning foreign-born* students has the lowest relative weight in the metropolitan territory (5.9%) – only in the municipalities of Montijo, Alcochete, Cascais, and Mafra is this percentage higher.
Considering the birthplace of these 9th grade students, Figure 6 illustrates that in ten of the eighteen municipalities in the LMA, Brazilian students have the highest relative weight and are present in every municipality. PALOP students, who are in the first place in the LMA as a whole, stand out in

five municipalities – Sintra, Loures, Seixal, Moita and Alcochete – with a relative weight above 50%. In third place, in terms of relative position in the whole LMA, we find the students from Eastern European countries (9.8%). The municipalities of Alcochete, Montijo, Mafra, Palmela and Sesimbra have the highest percentages of students from these countries. These municipalities are also those with the highest relative weight of students from the EU-15 countries.

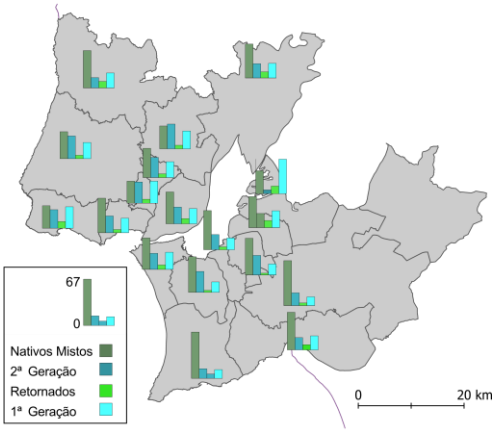

Fig. 5 – Students with an immigrant background enrolled in the 9th grade by municipality in the LMA, 2016/2017

Source: MISI, 2016/2017.

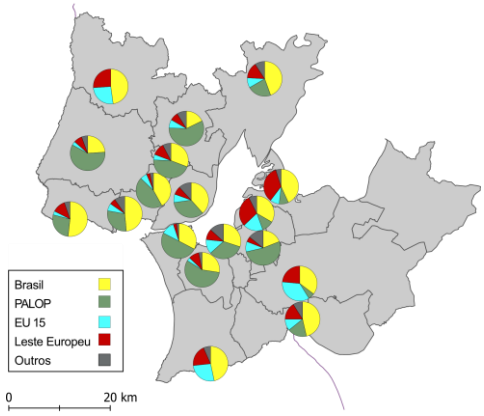

Fig. 6 – Students enrolled in the 9th grade by municipality in the LMA and by birthplace, 2016/2017

Source: MISI, 2016/2017.

V. ANALYSIS OF DIFFERENCES IN STUDENTS' ACADEMIC PERFORMANCE

In this section, we consider the students of the LMA, who comprise approximately 25% of the total number of students of the national sample. First, we examine whether there are significant differences in the students' academic performance, namely in the 9th grade exams, depending on the student's immigrant background. The analysis then focuses on the differences between students of different nationalities.

5.1. Considering the immigrant background of the student

We begin by analysing the results presented in column (1) of Tables V, VI and VII. These focus on estimating the average difference in academic achievement between students from different immigrant backgrounds and *Native students*.

The first point to note in these figures is that the *Mixed-heritage students* group is the only one associated with better results, on average, compared to *Native students*. In fact, *Mixed-heritage students* are associated with 2 and 1 more points in the Maths and Portuguese 9th grade exams, respectively, as well as a higher probability (3 p.p.) of finishing the 3rd cycle of basic education with a successful academic record. With very similar results, on average, to the *Native students* are the

Returning foreign-born students, who have no statistically significant differences in any of the indicators used. Larger differences are estimated for *2nd-generation students* and, in particular, *1st-generation students*, who had worse performances in comparison to their *Native* peers in all three indicators used. Regarding the results in the 9th grade exams, the widest gaps are found in Maths, with *2nd-generation students* scoring, on average, 8 points less than *Native students*, while for *1st-generation students*, the estimated difference is 15 points. In the Portuguese Language Exam, *2nd-generation students* have, on average, 4 points less than *Native students*, a value which is only exceeded by *1st-generation students* – 6 points. Regarding the probability of having a successful academic record, *2nd-generation students* have a 13 p.p. lower probability compared to *Native students*, while for *1st-generation students,* this difference is 24 percentage points.

In column (2) of Tables V, VI and VII, we estimate the differences between students of similar socioeconomic conditions but with different immigrant backgrounds, and one can see that part of the differences found previously in column (1) can be explained by such conditions (such as the educational level of the parents or whether the student is a beneficiary of a government grant (SASE), among others).

The first result to notice here is that controlling for socioeconomic variables, *Mixed-heritage students* are no longer associated with better performances compared to *Native students*, but rather with similar performance levels. Similar performances are also obtained by *Returning foreign-born students.* Regarding *2nd-generation* and *1st-generation students*, these continue to be associated with significantly worse performances in comparison to *Native students* of similar socioeconomic conditions. However, the coefficients presented in this column are smaller than in the previous one, which indicates that part of the results of column (1) is explained by the socioeconomic conditions of the students. In fact, in the case of Maths, we can see that, on average, *2nd* and *1st-generation students* perform 3 and 9 points lower, respectively, than *Native students* of similar socioeconomic backgrounds. Regarding the Portuguese Language exam, the coefficients decreased to approximately half the magnitude presented in column (1), with *2nd* and *1st-generation students* exhibiting significantly lower performances of 2 and 4 points, respectively, relative to *Native students*. As for the probability of having a successful academic record, *2nd-generation students* are associated with a probability of approximately 4 p.p. lower vis-à-vis *Native students* of similar socioeconomic backgrounds, while *1st-generation students* are associated with a probability approximately 13 p.p. lower.

The next step was to introduce class fixed effects in the regressions in column (3) to examine whether the differences found in column (1) still hold when comparing students from different immigrant backgrounds but controlling for the average performance obtained by their classmates. Being that the case, whereas in column (1) we analysed the disparities between students from different immigrant backgrounds on average, we now only compare the performance of these students with the ones obtained by *Native students* in their class.

The first noteworthy aspect in column (3) of Tables V, VI and VII is that, as seen in column (1), *Mixed-heritage students* are associated with significantly higher performances compared to *Native students* in the same class, even if the differences are small (about 2 points in the Maths Exam, and a 3 p.p. higher probability of having a successful academic record). *Returning foreign-born students* have very similar results to *Native students* across all indicators, regardless of whether they are classmates or not.

The largest differences found in column (3) are for *2nd-generation students* and, in particular, for *1st-generation students*, both of whom are associated with significantly lower performances across all indicators compared to the *Native students* in their class. However, students from these two groups have lower coefficients (approximately half) compared to column (1), which indicates that these students are in classes where their *Native* peers perform below the LMA average.

In column (4) of Tables V, VI and VII, we compare students from different immigrant backgrounds but of similar socioeconomic characteristics and from the same class. Therefore, this column is similar to column (2) but with the addition of class fixed effects.

On the one hand, we have found that *Mixed-heritage students* and *Returning foreign-born students* have coefficients in column (4) that are very similar to those in column (2), i.e., it makes no difference if we compare their academic performance to the performance of *Native students* of similar socioeconomic background from the whole LMA, or only from their class. In other words, the performance obtained by their classmates does not differ from the LMA average, controlling for socioeconomic characteristics.

On the other hand, *2nd-generation* and *1st-generation students* display different coefficients, and with smaller differences in column (4), compared to what is estimated in column (2). This implies that these students are associated with lower performances, on average, when compared to *Native students* of similar socioeconomic background, but when compared to *Native students* of the same class, who also have a similar socioeconomic background, the estimated differences are much smaller.

In the case of *2nd-generation students*, we can see that when class fixed effects are introduced in the regression comparing students of similar socioeconomic backgrounds, the negative coefficients presented in column (2) (3 and 2 points less in the Maths and Portuguese Language Exams, respectively, as well as a 4 p.p. lower probability of having a successful academic record) are no longer statistically significant. In other words, *2nd-generation students* obtain statistically indistinguishable results from *Native students* in column (4), i.e., when compared to their *Native* classmates with the same socioeconomic background. Regarding *1st-generation students*, we can see that they still have lower results than *Native students* with the same socioeconomic background, even after controlling for factors inherent to the students' class. However, we have found that the coefficients in column (4) are lower in magnitude than those presented in column (2). Indeed, while column (2) reports differences of 8 and 3 points in the Maths and Portuguese Language Exams, respectively, as well as a 13 p.p. difference in the probability of having a successful academic record,

in column (4), the magnitude of these coefficients decreases to 6 and 2 points, in the case of the Maths and Portuguese Language Exams, and to 9 p.p. in the case of the probability of having a successful academic record. It should be noted that the differences, compared to column (2), are significant and indicate that these students are in classes where their *Native* peers, on average, perform worse than the LMA average. However, it is also important to note that the difference in the magnitude of the coefficients presented between column (2) and (4) is lower than the difference between columns (1) and (3), which indicates that, in part, the worse performance obtained by *Native students* in the same class as the *1st-generation students* seems to be explained by the socioeconomic background of these students.

Thus, the results shown in this column complement those presented in column (3), exhibiting not only that students from certain immigrant backgrounds (in particular, *2nd-generation* and *1st-generation students*) are, generally, enrolled in classes where their *Native* peers perform below average, but also that this difference in academic performance is only partially explained by socioeconomic factors and is therefore also the result of other factors related to the student's school or class.

Subsequently, we introduce in the regressions the performance of students at the end of the 2nd cycle of studies, presented in column (5) of Tables V, VI and VII. Here, the aim is to understand which part of the differences observed initially in column (1) can be explained by disparities prior to the beginning of the 3rd cycle.

Looking at the results presented in column (5), we have found that, in fact, most of the inequalities between students from different immigrant backgrounds in the 3rd cycle are no longer statistically significant when controlling for the students' academic performance at the end of the 2nd cycle. *Mixed-heritage students* no longer have significantly positive coefficients (albeit low) and show coefficients that are almost indistinguishable from zero, a sign of a similar evolution throughout the 3rd cycle to that of *Native students*. As for *1st-generation students*, they are no longer associated with significantly negative coefficients, and present in column (5) coefficients very close to zero, indicating that, although these students are associated with much lower results when compared to *Native students* at the end of the 3rd cycle, the inequalities in academic performance seem to be mostly explained by factors prior to their entry into this cycle of studies.

Returning foreign-born students and *2nd-generation students* exhibit a negative evolution throughout the 3rd cycle in comparison to *Native students*. In the case of *Returning foreign-born students*, this evolution is only found in the Maths Exam, where *Returning foreign-born students* obtain, on average, 3 points less in comparison to *Native students* with a similar performance at the end of the 2nd cycle. For *2nd-generation students*, we estimate that this negative evolution is seen across the three indicators used and that these students are associated with lower performance (of 1 point in both exams and 2 p.p. in the probability of having a successful academic record) in comparison to Native students with similar performance at the end of the 2nd cycle.

We also sought to understand how some of the disparities observed between students from different immigrant backgrounds persist after controlling simultaneously for the different socioeconomic conditions of the students and their academic performance prior to entering the 3rd cycle of basic education. Column (6) of Tables V, VI and VII highlights that the disparities between students from different immigrant backgrounds are considerably lower when controlling simultaneously for socioeconomic factors and for the student's academic performance when they start the 3rd cycle of studies. In fact, *Returning foreign-born students* are the only ones associated with significantly lower performances (of 3 points in Maths) compared to *Native students* of similar socioeconomic background and academic performance at the end of the 2nd cycle.

Finally, in column (7) of Tables V, VI and VII, we also introduced class fixed effects in the regression. By doing so, we wanted to determine whether students from different immigrant backgrounds but of similar socioeconomic characteristics and academic performance at the end of the 2nd cycle and from the same class performed differently at the end of the 3rd cycle. In general, it can be observed that the differences found in the academic performance of students in the 3rd cycle are no longer statistically significant when controlling for all the variables described above (except for *Returning foreign-born students*, who have a statistically significant coefficient of negative 3 points in Maths).

Table V. Linear Regression Model: Students' performance in the 9th grade Maths Exam considering their immigrant background

Dep. Var.:	Maths Exam Results						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant background Base category: Native students							
Mixed-heritage students	2.3090***	0.4270	2.2510***	0.8832	0.6908	0.2607	0.5928
	(0.7962)	(0.6838)	(0.6308)	(0.6125)	(0.5503)	(0.5446)	(0.4942)
2nd-generation students	-8.3088***	-2.4884***	-3.3344***	-1.0672	-1.3481**	0.1039	0.4786
	(1.1326)	(0.9272)	(0.9357)	(0.8979)	(0.6555)	(0.6688)	(0.6637)
Returning foreign-born students	-3.9265	-4.0246*	-3.9862*	-4.0902*	-3.0070**	-3.2057**	-3.2391**
	(2.4556)	(2.2852)	(2.2734)	(2.2129)	(1.5087)	(1.4743)	(1.4546)
1st-generation students	-15.1909***	-8.4569***	-8.8930***	-6.1115***	-1.4578	-0.5769	-0.2356
	(1.3161)	(1.2570)	(1.2355)	(1.1946)	(0.9747)	(1.0024)	(1.0049)
Parents' educational level	No	Yes	No	Yes	No	Yes	Yes
Student's gender	No	Yes	No	Yes	No	Yes	Yes
Socioeconomic control variables	No	Yes	No	Yes	No	Yes	Yes
Student's 6th grade results	No	No	No	No	Yes	Yes	Yes
Class fixed effects	No	No	Yes	Yes	No	No	Yes
N	14,635	14,635	14,635	14,635	14,635	14,635	14,635
R-Squared	0.0139	0.2370	0.2711	0.3741	0.5321	0.5596	0.6277

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Parents' education level includes the following categories for both parents: no level of education completed, 4th grade, 6th grade, 9th grade, 12th grade, bachelor's degree, master's degree and PhD; Socioeconomic control variables include variables accounting for whether the student has access to the internet at home, whether s/he has, at least, a parent unemployed, and whether s/he receives a government grant; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table VI. Linear Regression Model: Students' performance in the 9th grade Portuguese Language Exam considering their immigrant background

Dep. Var.:	Portuguese Language Exam Results						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant background Base category: Native students							
Mixed-heritage students	0.8046**	-0.0577	0.5901	-0.0352	0.0965	-0.1138	-0.1623
	(0.3966)	(0.3587)	(0.3579)	(0.3517)	(0.3058)	(0.3073)	(0.3015)
2nd-generation students	-3.8623***	-1.7276***	-1.5904***	-1.0408**	-0.9114**	-0.5861	-0.4607
	(0.5856)	(0.4922)	(0.4844)	(0.4452)	(0.3906)	(0.3886)	(0.3561)
Returning foreign-born students	1.2811	1.1574	1.1211	0.9840	1.4278	1.3243	1.1535
	(1.2690)	(1.2120)	(1.0470)	(1.0603)	(0.9802)	(0.9499)	(0.8579)
1st-generation students	-5.5429***	-3.0183***	-2.7153***	-1.9840***	0.4853	0.5479	0.7058
	(0.7724)	(0.7092)	(0.6971)	(0.6741)	(0.6345)	(0.6212)	(0.6060)
Parents' educational level	No	Yes	No	Yes	No	Yes	Yes
Student's gender	No	Yes	No	Yes	No	Yes	Yes
Socioeconomic control variables	No	Yes	No	Yes	No	Yes	Yes
Student's 6th grade results	No	No	No	No	Yes	Yes	Yes
Class fixed effects	No	No	Yes	Yes	No	No	Yes
N	14,635	14,635	14,635	14,635	14,635	14,635	14,635
R-Squared	0.0080	0.1672	0.2236	0.3017	0.3981	0.4279	0.5124

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Parents' education level includes the following categories for both parents: no level of education completed, 4th grade, 6th grade, 9th grade, 12th grade, bachelor's degree, master's degree and PhD; Socioeconomic control variables include variables accounting for whether the student has access to the internet at home, whether s/he has, at least, a parent unemployed, and whether s/he receives a government grant; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table VII. Linear Regression Model: Analysis of students' probability of having a successful academic record considering their immigrant background

Dep. Var.:	Successful Academic Record						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant background Base category: Native students							
Mixed-heritage students	0.0367***	0.0045	0.0342***	0.0109	0.0082	0.0000	0.0043
	(0.0140)	(0.0128)	(0.0127)	(0.0128)	(0.0104)	(0.0106)	(0.0109)
2nd-generation students	-0.1328***	-0.0414**	-0.0571***	-0.0225	-0.0242*	-0.0024	-0.0006
	(0.0201)	(0.0170)	(0.0179)	(0.0167)	(0.0137)	(0.0140)	(0.0141)
Returning foreign-born students	-0.0204	-0.0220	-0.0254	-0.0279	-0.0085	-0.0111	-0.0160
	(0.0465)	(0.0437)	(0.0462)	(0.0450)	(0.0340)	(0.0329)	(0.0353)
1st-generation students	-0.2398***	-0.1331***	-0.1288***	-0.0850***	-0.0285	-0.0171	-0.0006
	(0.0219)	(0.0218)	(0.0223)	(0.0214)	(0.0175)	(0.0185)	(0.0188)
Parents' educational level	No	Yes	No	Yes	No	Yes	Yes
Student's gender	No	Yes	No	Yes	No	Yes	Yes
Socioeconomic control variables	No	Yes	No	Yes	No	Yes	Yes
Student's 6th grade results	No	No	No	No	Yes	Yes	Yes
Class fixed effects	No	No	Yes	Yes	No	No	Yes
N	14,621	14,621	14,621	14,621	14,621	14,621	14,621
R-Squared	0.0102	0.1875	0.2157	0.2991	0.4206	0.4449	0.5018

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Parents' education level includes the following categories for both parents: no level of education completed, 4th grade, 6th grade, 9th grade, 12th grade, bachelor's degree, master's degree and PhD; Socioeconomic control variables include variables accounting for whether the student has access to the internet at home, whether s/he has, at least, a parent unemployed, and whether s/he receives a government grant; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

5.2. Considering the birthplace of the student

The previous analysis is replicated, but now with the purpose of assessing whether there are, on average, significantly different academic performances between students of different nationalities.

We start by examining the results presented in column (1) of Tables VIII, IX and X, where one can identify two major groups of students: on the one hand, *Brazilian* students and students from the *PALOP* countries, who are associated with lower performances than their Portuguese peers across all indicators used; on the other hand, students from the *EU-15*, *Eastern Europe* and the category *Other*, whose outcomes are statistically indistinguishable from those of *Native students*. For students of *Brazilian* or *PALOP* nationality, the biggest differences, on average, vis-à-vis students of Portuguese nationality, are estimated in Maths (minus 16 and 19 points, respectively), and in the probability of having a successful academic record (minus 25 and 28 p.p., respectively), although significant differences are also estimated in the Portuguese Language Exam (of 3 and 8 points, respectively).

In column (2) of Tables VIII, IX and X, we present the results controlling for the socioeconomic factors described above. Again, students of *Brazilian* and *PALOP* nationality are those associated with the worst performances. In fact, students from these groups perform below students of

Portuguese nationality of similar socioeconomic background, on average, particularly in the Maths Exam (with 12 and 8 points less, respectively), and in the probability of having a successful academic record (19 and 10 p.p. less, respectively). It is important to note that the socioeconomic background of the student seems to explain approximately half the inequalities of *PALOP* students vis-à-vis Portuguese students; however, in the case of *Brazilian* students, it seems to explain only a small part of the gap, since the coefficients presented in column (2) for these students are not very different from those presented in column (1). For the Portuguese Language Exam, *Brazilian* and *PALOP* students are associated with lower performances, of 2 and 4 points respectively, than their Portuguese peers, the difference being statistically significant only in the latter.

In column (3) of Tables VIII, IX and X, we add class fixed effects to the initial regression. In this manner, we sought to understand whether the estimated disparities between students of different birthplaces, on average, hold when comparing students from the same class.

Here we can distinguish two large groups of students: on the one hand, students from the *EU-15*, *Eastern Europe*, and the *Other* category, who show very similar coefficients in column (3) to the initial column. This suggests that these are students who are enrolled in classes in which *Portuguese students* display academic performances similar to the average of *Portuguese students* in the LMA as a whole. The only exception found in these three groups concerns *EU-15 students* in the case of Maths. In fact, when comparing these students with *Portuguese students* in their class, we found that *EU-15 students* perform significantly lower (minus 6 points), something that was not estimated when comparing with the *Portuguese* LMA students in general. Therefore, students from the *EU-15* seem to be enrolled in classes where *Portuguese students* tend to perform above the average in the LMA in the subject of Maths.

On the other hand, students of *Brazilian* and, especially, *PALOP* origin have considerably smaller differences in this column than in the initial column. This indicates that the performance obtained, on average, by the remaining *Portuguese students* in these students' classes is lower than the one obtained by *Portuguese students* in the LMA. This seems to be particularly the case of *PALOP* students who, on average, score 19 points less in the Maths Exam and are associated with a 28 p.p. lower probability of having a successful academic record than a *Portuguese student*, but the differences drop to 9 points and 10 p.p., respectively, when comparing with *Portuguese students* in the same class. For *Brazilian* students, the difference shrinks from 16 to 11 points in the Maths Exam and from 26 p.p. to 18 p.p. regarding the probability of having a successful academic record when comparing with *Portuguese students* in the same class.

Thus, the results presented in column (3) suggest that students of certain nationalities (*Brazilian* and, especially, *PALOP*) are usually enrolled in classes where the academic performance of the remaining *Portuguese students* is below the average of the LMA.

Afterwards, in column (4) of Tables VIII, IX and X, we examine which part of the estimated differences when comparing students from different backgrounds and with the same socioeconomic

status are eliminated when only comparing students from the same class. Thus, this column is identical to column (2), additionally introducing class fixed effects.

We identify two distinct effects in this column: on the one hand, we find that students from the *EU-15*, *Eastern Europe* and the category *Other* are associated with similar coefficients as in column (2), indicating that the school performance of the remaining students in their class does not differ significantly from the LMA average, controlling for students' socioeconomic characteristics. On the other hand, for students from *Brazil* and the *PALOP* countries, we observed large disparities between the coefficients presented in column (2) and column (4). Given that we are controlling for socioeconomic factors, this considerable difference between the coefficients shown in column (2) and (4) indicates that students of *Brazilian* and *PALOP* origin are enrolled in classes where the performance of their *Portuguese* peers is lower than the performance of *Portuguese students* in the LMA on average, even after taking into account differences in socioeconomic status.

We also intended to ascertain whether part of the differences initially found was explained by factors prior to the 3rd cycle. For that purpose, we introduced in column (5) of Tables VIII, IX and X control variables concerning the performance of students at the end of the 2nd cycle, namely regarding the marks obtained in the 6th grade exams and the number of years they had been held back before entering the 3rd cycle.

We also were able to see, when analysing column (5), that most of the disparities found in the initial column seem to be explained by factors prior to the student's entry into the 3rd cycle. In fact, students from the *EU-15*, *Eastern Europe* and the category *Other* display a similar evolution throughout the 3rd cycle as *Portuguese students* across all the indicators used. The only exception is for students from the *EU-15* in the Maths Exam, where they have a negative and significant coefficient (even if only for a confidence interval of 90% or less) of almost 5 points.

Regarding *Brazilian* and *PALOP students*, we found a different evolution over the 3rd cycle for students from each of the groups: in the case of *PALOP students*, despite being associated with much lower performances in the 3rd cycle than *Portuguese students*, when compared to students who had obtained a similar performance at the end of the 2nd cycle of education, these inequalities cease to be statistically significant. In other words, the inequalities presented by *PALOP students* enrolled in the 3rd cycle in the LMA vis-à-vis *Portuguese students* seem to be mostly explained by factors preceding their entry into the 3rd cycle. As regards *Brazilian students*, we can see that they exhibit a negative evolution throughout the 3rd cycle, compared to Portuguese students with similar performance at the end of the 2nd cycle. In fact, *Brazilian students* show, on average, 4 points fewer in the Maths Exam and an 8 p.p. lower probability of having a successful academic record than *Portuguese students* with similar academic performance at the end of the 2nd cycle.

In column (6) of Tables VIII, IX and X, we estimate which part of the disparities observed between students of different birthplaces persist after controlling for the different socioeconomic backgrounds of the students and their academic performance prior to entering the 3rd cycle of basic education, simultaneously. In general, we find that students of similar socioeconomic characteristics

and academic performances in the 2nd cycle tend to have similar performances in the 3rd cycle, regardless of their nationality. One of the exceptions is for *Brazilian students*, who are associated with a 4-point lower performance in the Maths Exam and an 8 p.p. lower probability of having a successful academic record than *Portuguese students* of similar socioeconomic characteristics and academic performance in the 2nd cycle. Thus, the results presented in column (6) complement those of column (5), indicating not only that *Brazilian students* display particular difficulties in the 3rd cycle of studies (particularly in Maths), but also that this negative development in this period does not seem to be explained by the socioeconomic background of the student. The other exception is *EU-15 students*, who also display a negative evolution along the 3rd cycle in Maths when compared to *Portuguese students* of the same socioeconomic background and with similar academic performances at the end of the 2nd cycle.

Finally, in column (7) of Tables VIII, IX and X, we also introduce class fixed effects in the regression. By doing so, we assess whether students with different birthplaces but of similar socioeconomic characteristics, similar academic performance at the end of the 2nd cycle, and from the same class perform differently at the end of the 3rd cycle. In general, the estimated coefficients in this column are similar to those in the previous column, so the class fixed effect does not seem to have had a considerable impact on most groups of students. However, the performance of *PALOP students* should be highlighted with respect to the probability of having a successful academic record. In fact, we estimate that these students have a 6 p.p. higher probability of having a successful academic record than *Portuguese students* of similar socioeconomic characteristics, from the same class, and with identical academic performance at the end of the 2nd cycle. Since this result was not found in the previous column, it may be due to the fact that these students tend to be in classes with Portuguese students who perform below the LMA average.

Table VIII. Linear Regression Model: Students' performance in the 9th grade Maths Exam considering their birthplace

Dep. Var.:	Maths Exam Result						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Birthplace							
Base category: Portugal							
Brazil	-15.9998***	-11.8256***	-11.3681***	-9.0616***	-4.4047***	-4.2016***	-2.8424**
	(1.8458)	(1.6818)	(1.8654)	(1.6728)	(1.3610)	(1.3436)	(1.3780)
PALOP	-19.3048***	-8.1442***	-8.8701***	-4.5539***	-0.3330	1.2654	1.4859
	(1.8852)	(1.7685)	(1.6548)	(1.6702)	(1.3990)	(1.4301)	(1.4913)
EU-15	-4.1030	-6.1648*	-6.2404**	-7.4885**	-4.7587*	-5.1857**	-6.0583***
	(3.2406)	(3.2335)	(2.8889)	(2.9072)	(2.6437)	(2.5988)	(2.2182)
Eastern Europe	1.4267	2.6395	1.0759	1.0937	1.9471	2.3552	0.7949
	(3.5155)	(3.4364)	(2.9189)	(3.0263)	(2.1928)	(2.3007)	(1.9564)
Other	-1.6536	-0.6353	-3.1400	-2.3016	1.8464	1.7251	1.1404
	(4.0699)	(3.9250)	(3.4860)	(3.8393)	(2.0452)	(2.1335)	(2.2154)
Parents' educational level	No	Yes	No	Yes	No	Yes	Yes
Student's gender	No	Yes	No	Yes	No	Yes	Yes
Socioeconomic control variables	No	Yes	No	Yes	No	Yes	Yes
Student's 6th grade results	No	No	No	No	Yes	Yes	Yes
Class fixed effects	No	No	Yes	Yes	No	No	Yes
N	14,635	14,635	14,635	14,635	14,635	14,635	14,635
R-Squared	0.0097	0.2374	0.2701	0.3743	0.5322	0.5599	0.6279

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Parents' education level includes the following categories for both parents: no level of education completed, 4th grade, 6th grade, 9th grade, 12th grade, bachelor's degree, master's degree and PhD; Socioeconomic control variables include variables accounting for whether the student has access to the internet at home, whether s/he has, at least, an unemployed parent, and whether s/he receives a government grant; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table IX. Linear Regression Model: Students' performance in the 9th grade Portuguese Language Exam considering their birthplace

Dep. Var.:	Portuguese Language Exam Result						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Birthplace							
Base category: Portugal							
Brazil	-3.2391***	-1.7511*	-1.4733	-0.8760	1.5567	1.4307	1.5656*
	(1.1328)	(1.0337)	(1.0431)	(1.0017)	(0.9770)	(0.9818)	(0.9053)
PALOP	-8.0162***	-3.7064***	-3.1481***	-1.9324**	0.2535	0.5335	0.8734
	(1.0421)	(0.9475)	(0.9810)	(0.9342)	(0.8937)	(0.8675)	(0.8071)
EU-15	1.2557	0.7717	0.3421	0.2825	0.6949	0.8887	0.6150
	(1.3860)	(1.6781)	(1.2779)	(1.4934)	(1.2286)	(1.2465)	(1.2485)
Eastern Europe	-0.5717	-0.5273	-1.0570	-1.3880	0.2966	-0.0045	-0.6186
	(2.4163)	(2.2524)	(2.1889)	(2.1645)	(1.8233)	(1.7593)	(1.7779)
Other	-1.3128	-0.8391	-1.2400	-0.9930	0.4714	0.3900	0.7494
	(2.0798)	(1.9969)	(1.6661)	(1.7535)	(1.4741)	(1.4486)	(1.3702)
Parents' educational level	No	Yes	No	Yes	No	Yes	Yes
Student's gender	No	Yes	No	Yes	No	Yes	Yes
Socioeconomic control variables	No	Yes	No	Yes	No	Yes	Yes
Student's 6th grade results	No	No	No	No	Yes	Yes	Yes
Class fixed effects	No	No	Yes	Yes	No	No	Yes
N	14,635	14,635	14,635	14,635	14,635	14,635	14,635
R-Squared	0.0041	0.1663	0.2226	0.3013	0.3979	0.4279	0.5124

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Parents' education level includes the following categories for both parents: no level of education completed, 4th grade, 6th grade, 9th grade, 12th grade, bachelor's degree, master's degree and PhD; Socioeconomic control variables include variables accounting for whether the student has access to the internet at home, whether s/he has, at least, an unemployed parent, and whether s/he receives a government grant; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table X. Linear Regression Model: Analysis of students' probability of having a successful academic record considering their birthplace

Dep. Var.:	Successful Academic Record						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Birthplace							
Base category: Portugal							
Brazil	-0.2548***	-0.1906***	-0.1812***	-0.1462***	-0.0747***	-0.0750***	-0.0543*
	(0.0354)	(0.0338)	(0.0370)	(0.0348)	(0.0277)	(0.0284)	(0.0298)
PALOP	-0.2816***	-0.0992***	-0.0955***	-0.0244	0.0092	0.0355	0.0577**
	(0.0278)	(0.0278)	(0.0297)	(0.0291)	(0.0219)	(0.0229)	(0.0247)
EU-15	-0.0140	-0.0422	-0.0446	-0.0595	-0.0209	-0.0245	-0.0336
	(0.0572)	(0.0573)	(0.0539)	(0.0541)	(0.0484)	(0.0474)	(0.0448)
Eastern Europe	-0.0120	0.0012	-0.0149	-0.0191	-0.0090	-0.0082	-0.0277
	(0.0714)	(0.0683)	(0.0627)	(0.0629)	(0.0547)	(0.0555)	(0.0523)
Other	-0.0209	-0.0077	-0.0342	-0.0227	0.0347	0.0301	0.0338
	(0.0693)	(0.0682)	(0.0626)	(0.0684)	(0.0401)	(0.0415)	(0.0438)
Parents' educational level	No	Yes	No	Yes	No	Yes	Yes
Student's gender	No	Yes	No	Yes	No	Yes	Yes
Socioeconomic control variables	No	Yes	No	Yes	No	Yes	Yes
Student's 6th grade results	No	No	No	No	Yes	Yes	Yes
Class fixed effects	No	No	Yes	Yes	No	No	Yes
N	14,621	14,621	14,621	14,621	14,621	14,621	14,621
R-Squared	0.0064	0.1876	0.2148	0.2993	0.4206	0.4452	0.5021

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Parents' education level includes the following categories for both parents: no level of education completed, 4th grade, 6th grade, 9th grade, 12th grade, bachelor's degree, master's degree and PhD; Socioeconomic control variables include variables accounting for whether the student has access to the internet at home, whether s/he has, at least, an unemployed parent, and whether s/he receives a government grant; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

VI. ANALYSIS OF THE EXPLANATORY POWER OF THE ESTIMATED DISPARITIES IN FACTORS RELATING TO MUNICIPALITY, SCHOOL AND CLASS

Another aim of this study is to explore in more detail the previously estimated inequalities among students of different immigrant backgrounds and birthplaces and to determine whether some of them can be explained by factors related to the municipality, the school and the class of the student. Indeed, one of the main findings from the previous tables was that when comparing students of different backgrounds, but from the same class, the difference between them was considerably smaller than the estimated difference between students from different classes. This is an indication that students from certain immigrant backgrounds and of certain birthplaces generally seem to be in classes where their *Native* peers perform below average in the LMA. We now want to see if this can be explained by the characteristics of the municipality, the school, or the different classes of these students.

6.1. Considering the immigrant background of the student

We start by looking at Tables XI, XII and XIII, where we estimate the differences between students from different immigrant backgrounds. In these tables, we compare the academic

performance of students from a given immigrant background with that of *Native students* from the LMA (column 1), with *Native students* from the same municipality (column 2), with *Native students* from the same school (column 3), and with *Native students* from the same class (column 4). We can thus state that if the coefficients do not change significantly between the different columns, as is the case for *Mixed-heritage students* and *Returning foreign-born students*, then these students, on average, are in classes with *Native students* whose performance is within the average of the school, the municipality and the LMA.

However, this is not the case for all immigrant backgrounds. In fact, *2nd* and *1st-generation students* perform worse when compared to *Native students* in general (column 1), but much of this difference (about half) is not found when we compare with students of the same class (column 4).

In the case of *2nd-generation students*, we can see that this is related to factors inherent to the class, and mainly to the student's school, since the coefficients presented in column (1) of Tables XI, XII and XIII are similar to those in column (2) (i.e., the performance obtained by *Native students* from the municipality of these *2nd-generation students* is within the average of the performance obtained by *Native students* in the LMA in general). Regarding the results in column (3) and (4), we should point out that their magnitude is much lower compared to the initial columns, indicating that students from this immigrant background are generally in schools where the average performance of *Native students* is lower than the average performance of *Native students* in the municipality, and in classes with an average performance lower than the school's average.

Regarding *1st-generation students*, we also observed that the differences vis-à-vis *Native students* decrease as the granularity of the fixed effect increases. This indicates that *Native students* in the same class as *1st-generation students* have, in general, lower performances in comparison to the average of *Native students* in their school; *Native students* from the same school as *1st-generation students* have, on average, lower performances in comparison to the average of *Native students* in that municipality; and *Native students* from the same municipality of *1st-generation students* have, in general, lower performances in comparison to the average of *Native students* in the remaining municipalities of the LMA. However, we should point out that the biggest differences seem to be explained by factors inherent to the class and, in particular, to the school of the student. In other words, *1st-generation students* seem to be in classes whose students' performance is below the school's average and in schools whose students' performance is well below the municipality's average. The results estimated in Tables XI, XII and XIII may be an indicator of the presence of some sort of segregation experienced by *2nd* and *1st-generation student*s, both at intra-municipality and intra-school level.

Table XI. Linear Regression Model: Students' performance in the 9th grade Maths Exam considering their immigrant background

Dep. Var.:	Maths Exam Results			
	(1)	(2)	(3)	(4)
Immigrant background Base category: Native students				
Mixed-heritage students	2.3090***	2.4870***	2.2613***	2.2510***
	(0.7962)	(0.7594)	(0.6918)	(0.6308)
2nd-generation students	-8.3088***	-7.7852***	-4.4575***	-3.3344***
	(1.1326)	(1.0707)	(0.9533)	(0.9357)
Returning foreign-born students	-3.9265	-3.9311	-3.3276	-3.9862*
	(2.4556)	(2.3960)	(2.2840)	(2.2734)
1st-generation students	-15.1909***	-14.8083***	-10.6878***	-8.8930***
	(1.3161)	(1.2550)	(1.1986)	(1.2355)
Municipality fixed effects	No	Yes	No	No
School fixed effects	No	No	Yes	No
Class fixed effects	No	No	No	Yes
N	14,635	14,635	14,635	14,635
R-Squared	0.0139	0.0249	0.1471	0.2711

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table XII. Linear Regression Model: Students' performance in the 9th grade Portuguese Language Exam considering their immigrant background

Dep. Var.:	Portuguese Language Exam Results			
	(1)	(2)	(3)	(4)
Immigrant background Base category: Native students				
Mixed-heritage students	0.8046**	0.8524**	0.7553**	0.5901
	(0.3966)	(0.3888)	(0.3568)	(0.3579)
2nd-generation students	-3.8623***	-3.6316***	-2.1875***	-1.5904***
	(0.5856)	(0.5563)	(0.4869)	(0.4844)
Returning foreign-born students	1.2811	1.1993	1.2657	1.1211
	(1.2690)	(1.2322)	(1.0485)	(1.0470)
1st-generation students	-5.5429***	-5.4064***	-3.5587***	-2.7153***
	(0.7724)	(0.7619)	(0.6988)	(0.6971)
Municipality fixed effects	No	Yes	No	No
School fixed effects	No	No	Yes	No
Class fixed effects	No	No	No	Yes
N	14,635	14,635	14,635	14,635
R-Squared	0.0080	0.0152	0.1179	0.2236

N.B.: The dep. var. is the 9th grade Portuguese Language Exam result (0 to 100); Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table XIII. Linear Regression Model: Analysis of students' probability of having a successful academic record considering their Immigrant Background

Dep. Var.:	Successful Academic Record			
	(1)	(2)	(3)	(4)
Immigrant background Base category: Native students				
Mixed-heritage students	0.0367***	0.0390***	0.0353***	0.0342***
	(0.0140)	(0.0137)	(0.0129)	(0.0127)
2nd-generation students	-0.1328***	-0.1239***	-0.0763***	-0.0571***
	(0.0201)	(0.0195)	(0.0180)	(0.0179)
Returning foreign-born students	-0.0204	-0.0206	-0.0102	-0.0254
	(0.0465)	(0.0453)	(0.0441)	(0.0462)
1st-generation students	-0.2398***	-0.2322***	-0.1664***	-0.1288***
	(0.0219)	(0.0213)	(0.0223)	(0.0223)
Municipality fixed effects	No	Yes	No	No
School fixed effects	No	No	Yes	No
Class fixed effects	No	No	No	Yes
N	14,621	14,621	14,621	14,621
R-Squared	0.0102	0.0197	0.1033	0.2157

N.B.: The dep. var. is a binary indicator which takes the value of one when a student has not been retained during the 3rd cycle of primary education and has passed both 9th grade national exams; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

6.2. Considering the birthplace of the student

In Tables XIV, XV and XVI, we have replicated the previous analysis but now taking into account the inequalities between students from different birthplaces.

Here, once again, we can distinguish two large groups of students: on the one hand, students from the *EU-15*, *Eastern Europe*, and the category *Other*, who are not associated with significant changes in the coefficients across the different columns, thus indicating that these students are in classes where *Native students* perform similarly to the average of the *Native students* in their school, in their municipality, and in the LMA as a whole. The only exception that we find in these three groups refers to students from the *EU-15* in the case of Maths. In fact, when comparing these students to the *Native students* in their class, we demonstrate that *EU-15 students* perform significantly worse (minus 6 points), something that we do not find when comparing them to *Native students* from the LMA as a whole. Therefore, *EU-15 students* seem to be in classes where *Native students* perform above the average of *Native students* in their school, municipality, and the LMA as a whole, in the *Maths* Exam.

On the other hand, *Brazilian* students, and in particular students from the *PALOP* countries, show considerably lower differences compared to *Native students* when comparing only with students in their own class. This indicates that the performance obtained by the *Native students* in the classes of these students is lower than the average obtained by *Native students* in the LMA.

We should, however, highlight two aspects. The first is that students from the *PALOP* countries, in particular, seem to be enrolled in classes with considerably lower than average performance – e.g., on average, a *PALOP student* scores 19 points less in the Maths Exam and is associated with a 28 p.p. lower probability of having a successful academic record than a *Native student*, but the differences fall to 9 points and 10 p.p., respectively, when comparing them to *Native students* in the same class. For *Brazilian students*, the difference drops from 16 to 11 points in the Maths Exam and from 26 p.p. to 18 p.p. less in the probability of having a successful academic record.

The second aspect is that these differences are largely explained by factors inherent to the school and class of the student, rather than to the municipality (in the tables, we have seen that the differences between column (1) and (2) are much smaller than in columns (3) and (4)). This indicates that these students born in *Brazil* and, in particular, in the *PALOP* countries are in classes where the average performance obtained by their *Native* classmates is below the average performance obtained by *Native students* in the school, and in schools where the average performance obtained by their *Native* peers is below the municipality's average.

Table XIV. Linear Regression Model: Students' performance in the 9th grade Maths Exam considering their birthplace

Dep. Var.:	Maths Exam Results			
	(1)	(2)	(3)	(4)
Birthplace				
Base category: Portugal				
Brazil	-15.9998***	-15.9204***	-13.3564***	-11.3681***
	(1.8458)	(1.8193)	(1.8312)	(1.8654)
PALOP	-19.3048***	-18.5245***	-11.8054***	-8.8701***
	(1.8852)	(1.8238)	(1.5550)	(1.6548)
EU-15	-4.1030	-4.4875	-4.8129	-6.2404**
	(3.2406)	(3.2365)	(3.1132)	(2.8889)
Eastern Europe	1.4267	1.8074	2.8832	1.0759
	(3.5155)	(3.3028)	(2.9205)	(2.9189)
Other	-1.6536	-1.8825	-2.0830	-3.1400
	(4.0699)	(3.9490)	(3.5206)	(3.4860)
Municipality fixed effects	No	Yes	No	No
School fixed effects	No	No	Yes	No
Class fixed effects	No	No	No	Yes
N	14,635	14,635	14,635	14,635
R-Squared	0.0097	0.0211	0.1460	0.2701

N.B.: The dep. var. is the 9th grade Maths Exam result (0 to 100); Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table XV. Linear Regression Model: Students' performance in the 9th grade Portuguese Language Exam considering to their Birthplace

Dep. Var.:	Portuguese Language Exam results			
	(1)	(2)	(3)	(4)
Birthplace				
Base category: Portugal				
Brazil	-3.2391***	-3.3124***	-2.5965**	-1.4733
	(1.1328)	(1.1026)	(1.0545)	(1.0431)
PALOP	-8.0162***	-7.6681***	-4.2358***	-3.1481***
	(1.0421)	(1.0592)	(0.9290)	(0.9810)
EU-15	1.2557	1.0775	0.4705	0.3421
	(1.3860)	(1.3348)	(1.3876)	(1.2779)
Eastern Europe	-0.5717	-0.5211	-0.1663	-1.0570
	(2.4163)	(2.3495)	(2.3117)	(2.1889)
Other	-1.3128	-1.3142	-1.0306	-1.2400
	(2.0798)	(2.0223)	(1.7231)	(1.6661)
Municipality fixed effects	No	Yes	No	No
School fixed effects	No	No	Yes	No
Class fixed effects	No	No	No	Yes
N	14,635	14,635	14,635	14,635
R-Squared	0.0041	0.0116	0.1162	0.2226

N.B.: The dep. var. is the 9th grade Portuguese Language Exam result (0 to 100); Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

Table XVI. Linear Regression Model: Analysis of students' probability of achieving a successful academic record considering their Birthplace

Dep. Var.:	Successful Academic Record			
	(1)	(2)	(3)	(4)
Birthplace				
Base category: Portugal				
Brazil	-0.2548***	-0.2534***	-0.2129***	-0.1812***
	(0.0354)	(0.0351)	(0.0372)	(0.0370)
PALOP	-0.2816***	-0.2664***	-0.1601***	-0.0955***
	(0.0278)	(0.0270)	(0.0279)	(0.0297)
EU-15	-0.0140	-0.0178	-0.0187	-0.0446
	(0.0572)	(0.0562)	(0.0549)	(0.0539)
Eastern Europe	-0.0120	-0.0066	0.0161	-0.0149
	(0.0714)	(0.0709)	(0.0652)	(0.0627)
Other	-0.0209	-0.0248	-0.0257	-0.0342
	(0.0693)	(0.0679)	(0.0614)	(0.0626)
Municipality fixed effects	No	Yes	No	No
School fixed effects	No	No	Yes	No
Class fixed effects	No	No	No	Yes
N	14,621	14,621	14,621	14,621
R-Squared	0.0064	0.0163	0.1020	0.2148

N.B.: The dep. var. is a binary indicator which takes the value of one when a student has not been retained during the third cycle of primary education and has passed both 9th grade national exams; Robust standard errors are presented in parenthesis; Significance level at which the null hypothesis is rejected: *** 1%, ** 5%, * 10%.

VII. CONCLUSION

The distribution of students with an immigrant background in the national territory follows the territorial patterns of immigration in the country: higher concentrations are found in the metropolitan areas of Lisbon and Porto and in the district of Faro. In the Metropolitan Area of Lisbon, the municipalities of the north bank have the highest relative weight of students with an immigrant background in the school population, particularly in the municipality of Amadora. Nevertheless, we should stress the greater dispersion of students from Eastern Europe and Brazil throughout the Portuguese territory, explained by the greater labour flexibility of their parents in contrast with the traditional profile of immigration in Portugal.

The findings of this study confirm the hypothesis that there are significant differences in the academic performance of students according to their immigrant background and birthplace. In fact, *2nd-generation* and *1st-generation students* perform worse than *Native students* across all the indicators used, particularly in the Maths Exam (on average, 8 and 15 points less, respectively), and in the probability of having a successful academic record (on average, 13 percentage points and 24 p.p. less, respectively).

Regarding birthplaces, *Brazilian* and *PALOP students* show the greatest differences vis-à-vis Portuguese students, particularly in Maths (on average 16 and 19 points less, respectively) and in the probability of having a successful academic record (25 p.p. and 28 p.p. less, respectively).

In addition to analysing the average differences between students from different immigrant backgrounds and birthplaces, we investigated the impact of different explanatory factors on these inequalities. We started by analysing students of the same socioeconomic status, and found that the differences between students from different immigrant backgrounds and birthplaces decreased; however, the above-mentioned groups (*2nd-generation*, *1st-generation*, *Brazilian* and *PALOP students*) continued to perform significantly lower, compared to *Native students* with the same socioeconomic status.

We have also found that students from different birthplaces and immigrant backgrounds but from the same class show much smaller differences between them, which indicates that students from the above-mentioned groups are assigned to classes where the average performance of the *Native students* is lower than the average in the LMA. Moreover, we found that this inequality is only partially explained by socioeconomic factors and is thus also the result of other factors related to the student's school or class.

When controlling for the academic performance of the students at the end of the 2nd cycle, we demonstrated that a large part of the inequalities presented are no longer statistically significant (*Brazilian* and *2nd-generation students* are exceptions, exhibiting a negative evolution throughout the 3rd cycle when compared to *Native students* with similar performances at the end of the 2nd

cycle). This means that part of the estimated inequalities is explained by factors prior to admittance to the 3rd cycle.

Regarding the impact of the municipality, school and class factors on the estimated inequalities, we have observed that a considerable part of the differences is explained by these factors. We have found that *2nd-generation*, *1st-generation*, *Brazilian* and, in particular, *PALOP students* are in classes where the average performance of their *Native* peers is below the school's average and attend schools where the average performance of their *Native* peers is below the municipality's average. This might be an indicator of some sort of segregation experienced by these students, either at the intra-municipality level (by school) or at the intra-school level (by class).

Acknowledgement

This paper was carried out as part of the research project Inclusão ou discriminação? Da análise dos resultados escolares às estratégias para o sucesso dos alunos com origem imigrante, which has been funded by the Association EPIS – Empresários pela Inclusão Social. Special thanks to Mr. Diogo Simões Pereira and Professor Pedro Martins for the various comments and suggestions that helped to improve the results presented.

The authors thank Professor Lucinda Fonseca for suggestions for improvement.

The authors also thank Direção Geral de Estatísticas da Educação e Ciência for providing access to the anonymized administrative education data used in this research.

Luís Catela Nunes acknowledges support by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2019, UIDB/00124/2020 and Social Sciences DataLab, PINFRA/22209/2016), POR Lisboa and POR Norte (Social Sciences DataLab, PINFRA/22209/2016).

João Firmino gratefully acknowledges the support from Fundação para a Ciência e a Tecnologia [grant SFRH/BD/122573/2016].

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