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Immigration and Higher Education Entry: Evidence from Switzerland

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Abstract

In this paper, I use the TREE dataset to investigate whether there are differences between Swiss nationals and immigrants, as well as among ethnic groups, in the probability of obtaining a higher education degree in Switzerland. The case of Switzerland is particularly interesting because of the diversity of its immigration, as well as its stratified education system, which is oriented towards both academic and vocational trainings. A probit model reveals that immigrants are disadvantaged relative to Swiss nationals. Among immigrants, those from Switzerland's neighboring countries outperform immigrants from Eastern Europe and Turkey. With regards the educational path chosen by immigrants, I find that they are more likely to study in traditional universities than in vocational institutions. However, immigrants with the lowest socioeconomic status are overrepresented in VET. My paper contributes to the literature by suggesting that stratified education systems from an early stage of education disadvantage students from a lower social class and especially immigrants.

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1. INTRODUCTION

Switzerland's education system offers a wide range of opportunities to pursue higher education, students can either go to traditional Universities, Applied Science Universities or Universities of Teacher education. The Swiss education system places a strong emphasis on Vocational Education Training (VET) orientations, particularly at the upper secondary and tertiary levels. Around 60 percent of students that finish compulsory school enter vocational trainings (Hupka-Brunner et al., 2010). It is the country with the highest number of students enrolled in dual training courses that combine practical experience in a company and theoretical classes at school (Bol and Van de Werfhorst, 2013). Research shows that VET can reduce the risk of unemployment and enhance the transition from compulsory school to the labour market. Moreover, it offers higher economic prospects in comparison with other European countries, especially for students with academic difficulties (Tjaden et al. 2017). Social inclusion of immigrants is largely influenced by their ability to integrate into the Swiss national education system. Therefore, the structure of the school system affects their likelihood of pursuing higher education.

With regards to immigration, Switzerland is one of the countries with the highest rate of foreign-born as a share of population (29.5% in 2018), ahead of Sweden (18.8% in 2018) and Germany (16% in 2018) (OECD, database). This wealthy country located in the center of Europe has attracted very different types of immigrants over the years. Moreover, immigration policies have strongly influenced the quality of the foreign-born labor force. Between the 1960s and the 1970s immigrants were mostly Italians and Spaniards who were employed in low-skilled jobs. In the following decades, from the late 1980s to the 1990s labour immigrants came from Portugal, Turkey and Eastern Europe, who had a significantly lower socio-economic status than the Swiss nationals. Finally, after the bilateral agreement on the free movement of persons between the EU and EFTA countries, Switzerland attracted highly skilled immigrants who were mainly from European countries. Consequently, labor immigration shifted from lowly-skill workers after the Second World War to highly-skill workers after the 2000s.

Given the different language regions, Switzerland is an interesting case for this analysis. Most municipalities, also called cantons are monolingual, which allows for the identification of settlement patterns among groups of immigrants. It has been observed that

language similarity is a strong driver to immigration. For instance, in 2008, 92 percent of the German immigrants residing in Switzerland lived in the German-speaking region (Ruedin, 2011). Among the French living in Switzerland in 2008, 72 percent lived in the French-speaking side. According to Ruedin (2011) the difference in the proportions is due to the fact that the German-speaking region is bigger than the French-speaking part and is also a hub for many economic areas. Alternatively, there is a larger difference in the immigration patterns of Italians residing in Switzerland, where only 17 percent lived in the Italian-speaking area in 2008. This can be explained by the history of immigration: Switzerland's growing economy after the Second World War attracted a large proportion of Italians to the French- and German-speaking areas. The percentage of foreign-born residing in a region with the same language as their home country has largely increased since the implementation of the Free movement of persons between the European Union and Switzerland, which reflects the changing patterns of immigration. Moreover, the structure of Switzerland makes this analysis even more interesting since language is sometimes a significant barrier affecting students' academic performance.

In this paper, I classified the different groups of immigrants according to the social distance shared with Switzerland based on the cultural proximity, language similarities, and the knowledge of the educational system, in order to answer the research question: How likely are immigrants to obtain a tertiary education diploma in comparison with the Swiss nationals, and are there any difference between countries of origin? The aim of my study is to determine whether the Swiss system is favorable to the social integration of immigrants. I will use the TREE (Transitions from Education to Employment) dataset, which is a longitudinal survey that followed students at the end of compulsory school in 2000 until 2014.

The structure of this paper is as follows: Section 2 is a literature review; Section 3 contains general information on the history of immigration to Switzerland as well as a short explanatory section on the education system; Section 4 explains the theory behind my research question and the framework I use in my paper; Section 5 is the research design, which describes the data, the variables and the methodology I use; Section 6 exposes my results, contribution and the limitations of the study; Finally, Section 7 is the conclusion.

2. LITERATURE REVIEW

Previous research relating immigration background with education is mainly based on the analysis of students' academic achievements. Some authors argue that children of immigrants are often disadvantaged in comparison with their native peers due to their lower socioeconomic status, which negatively affects the students' schooling performance (Suarez-Orozco et al., 2010; Meunier et al., 2013; Gutierrez-Domenech and Adser., 2012). However, this argument is counterbalanced by the findings stating that immigrants' self-motivation, as well as their parents higher aspirations for their children, explains why in some cases immigrants perform better at school than their native counterparts (Kao & Tienda, 1995 ; Rumbaut, 1995; Kao, 2004). School performance and educational choice are the main components of the theories explaining educational inequality (Jackson et al., 2012). A large set of studies studying socioeconomic disparities in educational achievement have made the distinction between the primary effects, which relate to the school performance, and the secondary effect, which is the choice to continue higher education. It seems obvious that academic achievements are an important factor in the process to pursue education. However, it has been proved that even when keeping the level of performance constant, the probability to continue education will vary depending on the social status of the students. This effect is based on a rational choice theory that relies on the assessment of costs and benefits in the probability to succeed in higher education (Erikson, et al. 1996; Breen and Goldthorpe, 1997).

Groups of immigrants are often defined as ethnic minorities (Health, Rethon and Kilpi, 2008). The literature has shown that these minorities have, on average, lower academic performance but higher continuation rates. This is the case in Great Britain, where Pakistani immigrants have on average higher tertiary education enrolment rates than their native counterparts, although only for low-status universities (Boliver, 2006). Similarly, in France it has been shown that when controlling for the socioeconomic status of the family, the children of immigrants do better at the French lycée than their native classmates. This is observed for most immigrants, North African, Portuguese and South-East Asians, with the exception of Turks. This is explained by the fact that although immigrant parents are often disadvantaged with regard to their educational level and social status in the destination country, they have higher educational aspirations for their children which is a key factor in explaining educational continuation rates (Vallet and Caille, 1999). This is also the case for Germany, where natives

outperform immigrants in terms of grades at the Abitur, the final examinations of secondary school but the tendency reverse in terms of tertiary education enrolments (Kristen et al. 2008). In the analysis of second-generation of immigrants in Norway, Fekjaer and Birkelund (2007) find the same patterns. Likewise, in the Finish case, foreign-born students who perform worse than natives in compulsory school are also more likely to continue education in traditional secondary schools (Kilpi-Jakonen, 2011). Although these studies are carried out in different contexts and use different methods, the conclusion is the same: ethnic minority students are more likely to make a successful transition to higher levels of education than native-born students, if the socio-economic status of the family is controlled for.

The OECD project on students' educational outcomes (PISA) has shown that Switzerland is by far the country where the socioeconomic status of the parents has the strongest effect on the child's educational achievements (OECD, 2002; Bauer and Riphahn, 2007). In comparison with other countries, the Swiss educational system indicates low educational mobility, which seems to favour the most privileged students. This is confirmed by Bauer and Riphahn (2007), who find using the Census 2000 that children whose parents have a low level of education have few opportunities to catch up with their peers, both for native-born and second-generation immigrants. In terms of variation among groups of immigrants, those from former Yugoslavia, Albania and Turkey have lower probability to engage in higher education than Spanish immigrants when the father's education is controlled for. The main conclusion is that despite some disparities among groups of immigrants, the parents' education is the main factor explaining educational mobility between generations in Switzerland. A different study from Switzerland using the same data set from the 2000 census, reveals that among immigrants, those who are naturalised are more likely to continue higher education. Moreover, when social origin is controlled for, naturalised students have higher probability to attend tertiary education than the Swiss-by-birth (Fibbi et al., 2007). Besides, the authors also show that naturalised women outperform naturalised men as well as swiss born males. Several studies highlight gender differences in terms of higher education enrolment among immigrants. Females with migration background are more inclined to continue tertiary education than males in several countries such as in Belgium, Denmark, France, Germany and Sweden (Colding, 2006; Phalet et al. 2007; Simon, 2003; Grönqvist, 2006). For some ethnic minorities, such as Turkish women immigrants in Austria, they seem to be disadvantaged relative to men (Herzog-Punzenberger, 2003).

Similarly, Turkish females' immigrants in France experience higher drop-out rates than their Turkish men counterparts (Simon, 2003).

Countries largely differ in the structure of the educational systems, which has raised much interest among researchers. Some papers analyze the extent to which those institutions foster or reduce the disparities among students from different social and ethnic backgrounds (Van de Werfhorst and Van Tubergen, 2007; Dronkers and Fleischmann, 2010; Dronkers and de Heus, 2010). The vocational pathway developed by France has largely encouraged students with an immigrant background to enroll in higher education through professional trainings, which compensates for their underrepresentation in traditional academic institutions (Murdoch et al. 2014). In the Austrian context, vocational trainings are a way to avoid unemployment and reach economic security, which is a reason why a large share of second-generation immigrants engage in those kind of education (Schneebaum et al., 2016). Finally, Picot (2012) argues that the secondary school tracking in Switzerland is highly correlated with that large gap in higher education enrolments between natives and immigrants. These institutional settings partly explain why immigrants are underrepresented in the Swiss higher education institutions. A stratified education system determines since an early stage of schooling the future educational path of students, which directly affects the probability of reaching higher education. Research shows that stratified systems increase educational inequalities, while comprehensive systems reduce the gap between social classes (Griga, 2014; Horn, 2008). The welfare regime plays an important role in the kind of institution implemented. Social-democratic governments such as in Scandinavia favour comprehensive school systems while conservative regimes such as Austria and Germany have stratified system, that turned out to be more unequal (Griga, 2014).

3. BACKGROUND INFORMATION

I. History of immigration

The first wave of immigrants that arrived in Switzerland between the 1960s and the 1970s was mostly composed of low-skilled workers from Spain and Italy. At that time, workers in Switzerland were recruited by the employers themselves. Since the demand for workers responded to the offer, there was no official restriction regarding the number of immigrants

allowed to enter the country (Liebig et al., 2012). Immigration to Switzerland was temporary through guest-worker programs, meaning that foreign labor was constantly rotating. The aim of time-limited permits was to substitute immigrants on a regular basis to avoid a permanent settlement of immigrants (Alfonso, 2004). The seasonal work permits were designed to allow immigrant workers to stay nine months a year in Switzerland, after that period, they had to return home for three months. After, four years of seasonal permits they were allowed to ask for a renewable annual permit. Holders of seasonal or annual permits were not allowed to stay in Switzerland if they lost their job. Finally, resident permits were only delivered to immigrants after five or ten years of stay. Most immigrants used to work in low skill industries such as construction, factories or catering (Alfonso, 2004). However, as the number of immigrants increased, discrimination and hostility affected immigrants, which induced the government to implement in 1963 a limit on the number of immigrants per establishment. In 1970, as a response to a popular initiative aiming at restricting the share of foreigners, the Swiss government implemented an annual quota of total immigrants allowed to enter the country. The latter remained in place until 2002 (Liebig et al., 2012). In the 1980s after the Mediterranean economies recovered, Switzerland attracted many immigrants from Portugal, Turkey and former Yugoslavia (Fibbi, 2010). At the beginning of the 1990s the motives of migration changed. The workers who finally got a stable status were allowed to bring their family which resulted in a major inflow of immigrants. At the same period, the number of asylum seekers in Switzerland increased as well. In the past, Switzerland welcomed many refugees from the Soviet bloc as a sign of traditional humanitarian assistance (Alfonso, 2004). However, as Yugoslavia' internal war broke out in the early 1990s, Switzerland received 40'000 asylum requests. Similarly, the conflict in Kosovo in 1999 rose that number to 65'000 requests. As a response to the increasing asylum demand, the Swiss Federation implemented several restrictions to limit immigration.

Some authors mentioned that the large low-skilled migration had a negative impact on the Swiss economic growth. As a response, the Government implemented in 1990 the three circles model. The first circle allowed a preferential treatment to EU and EFTA citizens, such that they could benefit from free movements of persons in Switzerland. The second circles used to include the United States, Canada and Eastern European countries, such that their citizens could access the swiss labour market, according to the Swiss workforce demand. Finally, people from other countries were not allowed to immigrate permanently in

Switzerland (Perkowska, 2015). This policy was considered discriminatory and was harshly criticized. As a result, from 1995 to 2002, Switzerland merged the second and the third circles together. In order to enhance economic integration, Switzerland signed in 2002 the free mobility agreement with the EU/EFTA, which put an end to the government's ability to strictly control immigration to Switzerland (Gross, 2006). EU and EFTA citizens are allowed to immigrate if they find an employment in Switzerland, while immigrants from third countries must satisfy very strict conditions (Hercog and Sandoz, 2018). The immigration policy only allows 'qualified workers from third countries who are absolutely needed' to integrate the Swiss labour market (Swiss Federal Council, 2002, p. 3473). There is no way of immigrating from third countries as a low-skill worker throughout the normal admission system, only highly qualified individuals are admitted. Several legal criteria are in place to select those immigrants. First, "foreign nationals may be admitted working as an employee if this is in the interests of the economy as a whole" (art. 18a Foreign Nationals Act). Second, the application must be submitted by the employer (art. 18b Foreign Nationals Act). Third, it is proven that no other suitable candidate can be found within the Swiss labor market or among the EU/EFTA citizens willing to work in Switzerland (art. 21 Foreign Nationals Act). Finally, the immigration permit is only granted to managers, specialists and other qualified workers (art. 213 Foreign Nationals Act). In addition, there is an annual quota on the number of permits that can be distributed to third-country nationals (Hercog and Sandoz, 2018). There are currently four main permits allowing foreign workers from EU/EFTA citizens to stay in Switzerland. The L permit is issued for foreign workers who have a working contract of at least 4 months. The B permit is delivered to the individuals who have a work contract for a time period of at least 12 months. The C permit is a residence permit which is delivered to individuals that have stayed in Switzerland for at least 5 years. Finally, the G contract is for frontier workers who return home at least once a week. The same permits exist for third-country nationals, but as mentioned previously, the requirements are stricter. Despite the history of immigration in Switzerland, children of foreigners born in Switzerland do not have the right to receive the Swiss citizenship automatically. Instead, they benefit from the citizenship of their parents.

These immigration patterns indicate that over time, the selection of immigrants shifted from a negative to a positive selection of foreign workers. Borjas (1987) explains that the negative selection of immigrants is observed when foreign-born workers from the lower tail

of income distribution in the source country remain at the bottom of the distribution in the receiving country, while the positive selection occurs when immigrants from the upper tail of the income distribution in the home country stay in the upper tail of the distribution in the destination country. In that case, the immigrant is positively self-selected based on his skills and characteristics. In Switzerland, this change was the result of the immigration policies, while southern European immigrants were mostly negatively selected, most Northern European immigrants are now positively selected.

II. System of education

The Swiss compulsory education is composed of two blocks: The primary school and lower secondary school. The former starts when pupils are on average four years old and lasts until they are twelve. Lower secondary school lasts three years and is taught at different performance levels, such that students' direction after compulsory school is determined by their competencies. Upper secondary school starts at fifteen and is composed of three main types of education: Baccalaureate schools, Upper secondary specialized schools and Vocational Education and Training (VET) schools.

Baccalaureate schools lasts four years and provide general education to prepare students for University. At the end of the program, students obtain the *Matura*, the certificate that allows for University enrollment. Alternatively, students can choose upper secondary specialized schools. The latter gives a general school education and prepare students for professional education and trainings (PET) in some specific fields such as health care and social work. Students that succeed in these institutions have the option to take an additional year, in which they gain practical experience through traineeships in order to incorporate universities of applied science (UAS). Finally, VET trainings last between two and four years and aim at preparing students for technical occupations. Those trainings are based on a dual track which combines education in VET schools with apprenticeships in companies. After completion, students in specific fields can pass the Federal Vocational Baccalaureate, which gives the option to enroll in UAS (Expatica, 2020)

Tertiary education is divided into three main sectors: Universities (which include the Federal Institute of Technology of Zurich and Federal Institute of Technology Lausanne),

Universities of applied science and Universities of teacher education. In Switzerland, traditional Universities mostly conduct basic research, while Universities of applied science conduct application-oriented research. Universities of applied science provide practice-oriented trainings for those who wish to develop professional skills. Finally, Universities of teacher education are often categorized as UAS due to the practice-oriented trainings, however they are administered differently. The degrees offered in those institutions are a combination of theory and practice in the field, as well as a combination of teaching with research. This training offers the possibility to become a teacher for the primary, lower secondary, baccalaureate levels, as well as in special needs education (educa, 2020).

4. THEORY

Over the past century, education attainment has largely increased in developed economies and a growing demand for upper secondary and tertiary educational trainings has been observed. The educational expansion has been affected by social class differentials; however, the evolution of social inequalities is still unclear. Breen and Goldthorpe (1997) state that social class differentials in educational attainment have stayed stable over time, meaning that children from less advantageous backgrounds have equally participated in the educational expansion as privileged students. However, evidence from Sweden, Germany and the Netherlands show that the gap between social classes has narrowed over time (Erikson and Jonsson 1993; De Graaf and Ganzeboom 1993). This can be explained by the implementation of policies aiming at reducing inequalities in educational attainment.

According to Breen and Goldthorpe (1997), the different social classes have different educational purposes. High social classes strongly aspire to high levels of education, while working-class students may not enroll in tertiary education institutions by fear of failing and facing higher unemployment rates. A well-known theory implemented by Boudon (1974) states that the effect of social background on students' academic performance is determined by two components: *The primary effects* and the *secondary effects*. This approach has been taken up by Heath & Brinbaum (2007) who extended Boudon's theory to the primary and secondary effects of ethnic origins on academic achievements. The primary effects refer to the direct impact of ethnicity on academic performance during compulsory school, while the

secondary effects refer to the choice of the students to continue education based on the costs and benefits of the alternative solutions, such as direct incorporation into the labor market. Most theoretical models are based on a decision-making approach, where students choose the option that offers the brightest future (Breen and Goldthorpe 1997, Becker and Hecken, 2009). The decision-process is based on the costs and benefits of the different options, combined with the likelihood to achieve each educational alternative. Since the framework is mainly designed for the transition from compulsory school to secondary educational trainings, I decided to follow Kristen et al (2008) methodology in which they illustrate how costs, benefits and probability to succeed affect the immigrants' likelihood to continue tertiary education in comparison with native German students.

I. The general effect of social background

Kristen et al. (2008) identify two main channels through which social background affect tertiary education enrolments. First, the opportunity cost of continuing education may be too high for students who have a low social background. Engaging into higher education implies that the student will not earn a salary for an additional period of time, which may not be affordable (Heath & Brinbaum, 2007). Therefore, students with low social status are more likely to incorporate the labor market earlier than students from higher social classes. Similarly, even if students with a lower social background decide to pursue higher education, they are more likely to choose shorter trainings or those that offer higher economic prospects in the labor market. The second channel identified, is the transmission of information across generations. In the traditional models of rational decision taking, students whose parents are highly educated have better information regarding the different trainings, because the parents have gone through the same educational process themselves (Kristen, 2007; Kilpi-Jakonen, 2011). Moreover, it gives children more confidence in their chances of success as they are guided through the education process.

II. The role of social background for children of immigrants

Social background is an important source of divergence between natives and immigrants in the probability to engage in tertiary education. While most papers study the difference

between migrants and natives, I will look at differences among immigrant groups. The theory of social distance states that immigrants are disadvantaged in terms of economic integration when the social distance between the country of origin and the destination country is high. Ebner and Helbling (2016) study the impact of social distance on wages in Switzerland, and I want to expand the analysis by looking at the effect of social distance on higher education achievements.

In order to study the social distance of each immigrant group, I will use the same steps as Ebner and Helbling (2016). They identify three main components that differ across groups of countries: Culture, language and educational system. Germany and Austria have the lowest social distance as each component is extremely similar to Switzerland. France, Belgium and Italy share a similar culture, speak one of the national languages but have a different education system, which results in an intermediate social distance. Spain and Portugal share a Western European culture, but the language and education system differ from that of Switzerland, so the social distance is quite high. Finally, former Yugoslavia, Albania, Kosovo and Turkey do not share any similarities with Switzerland on the basis of these three components, so the social distance is very high. My hypothesis, which is reflected in Table 1, is that immigrant groups that face greater social distance in terms of culture, language and education system are less likely to pursue higher education.

Table 1: Social distance by country of origin

	Western Europe	Language	Education System	Social Distance
Germany	+	+	+	Low
Austria	+	+	+	
France	+	+	-	Intermediate
Belgium	+	+	-	
Italy	+	+	-	
Spain	+	-	-	High
Portugal	+	-	-	
Former Yugoslavia	-	-	-	Very High
Albania/Kosovo	-	-	-	
Turkey	-	-	-	

Cultural differences may help to understand why some immigrants from specific countries are more likely to pursue higher education than others. First of all, the language

barrier is an important factor to consider for immigrant students as well as for their parents. For immigrants from Germany, Austria, France, Belgium or Italy that settle in the part of Switzerland where the language is the same, their integration in the education system is easier. At the contrary, for immigrants that speak a different language it requires more time, effort and implication to catch up with natives (Kristen et al.,2008). As I mentioned previously, the lower secondary school is divided into levels, which implies a good command of the national language in order to be at the highest level, the one that gives access to baccalaureate schools and later to university. Moreover, language may be a barrier for parents as well. In general, parents that are highly educated are more involved and contribute more to the educational development of the child, such that the academic performance of the student is enhanced. In the case of immigrants who do not master the language of the destination country, they are disadvantaged in terms of their ability to help their children with regular schooling and administrative tasks. This relationship has been demonstrated in the Netherlands and Germany, where parents' usage of the national language positively affects the children's performance as well as their entry into secondary school (Alba et al., 1994; Van de Werfhorst, 2007).

Additionally, parents who studied in a different country may lack of knowledge about the local educational system (Chiswick and DebBurman, 2004; Kristen and Granato, 2007). In that case, children of immigrants are disadvantaged by the lack of information provided by the parents. The lack of guidance and confidence about career opportunities after higher education negatively affects the likelihood of engaging in higher education. Kristen (2005) demonstrates that children of Turkish immigrants in Germany are less likely to enroll in certain schools due to the lack of knowledge of the education system and the different options offered to students. Similarly, Colding et al. (2005) illustrate the same educational disadvantage in Denmark. However, this should not be the case for immigrants from Germany and Austria who share a school system very similar to that of Switzerland (Ebner et al., 2013). In these countries, education is also very stratified in terms of qualifications, such that university enrolments are mainly reached by the elite (Allmendinger, 1989). There are also dual-tracks options based on apprenticeships for those willing to start a professional career that requires specific technical skill (Müller and Shavit, 1998). The combination of traditional education in classrooms with practical experience is fundamental for the diversification of production in terms of quality (Streeck, 1991). As a result, Switzerland, as well as Germany

and Austria make the clear distinction between traditional universities and universities of applied science (Ebner and Marc Helbling, 2016).

Regarding students who have the resources to continue tertiary education, it has been demonstrated that immigrants are more likely to choose traditional academic careers, instead of applied science education (Kristen et al.,2008). In the case of Germany, both Turks and Southern Europeans show higher preferences for academia in comparison with Germans who often select into applied education. Moreover, it has been proved that children of immigrants favor traditional fields of study such as law and medicine, which are generally favored by immigrants for two main reasons. First, they offer higher value and prestige in the immigrant's home country. Second, parents of immigrants are more familiar with those fields, contrary to social science faculties or Universities of applied science. Similarly, dual professional degrees are less likely to be selected by immigrants because it is not a common pathway in their country of origin (Kristen et al.,2008).

Alternatively, there are also immigrant specific characteristics that favor their likelihood to succeed in higher education institutions. Some authors state that labor immigrants are positively selected in terms of ambition and motivation (Heath & Brinbaum, 2007). The main reason behind an individual's decision to immigrate is the aspiration to higher socioeconomic status (Chiswick, 1978). Since most immigrants remain in the low social class in the destination country, the strong motivation of the parents for upward social mobility is reflected through the educational achievements of the children. Vallet (2005) claims that investment in education is perceived by immigrants as the main path towards social climbing. As a consequence, they have higher expectations in the educational system of the destination country than natives who share similar socioeconomic backgrounds. This effect is confirmed by a branch of the literature who states that migrant descendants perform better than natives either because of parental engagement or self-motivation. Some studies indicate that parent's optimism regarding the education prospects of the children is an important factor of academic performance (Hao and Woo, 2012; Kao and Tienda, 1995; Kao, 2004; Vaquera and Kao, 2012). However, sometimes, such as in the case of Switzerland, high aspirations in educational attainments are not sufficient. In order to enter tertiary education institutions, a demanding minimal grade is required at the end of secondary school. Moreover, in comparison with other countries, the Swiss educational system offers low educational mobility, which seems to favour the most privileged students.

In Switzerland, there are reasons to believe that immigration policies affected the quality of immigration. After the implementation of the three circles model, a new wave of highly skill workers from Germany and Austria who were positively selected in terms of education arrived in Switzerland. As the theory explains, the social background of the parents has a strong impact on the likelihood to engage in higher education. Therefore, western European immigrants who settled in Switzerland after the second half of the 1990s not only benefited from a relatively low social distance with the host country but also from the privilege of immigration policies. According to Borjas theory, those individuals who were positively selected in terms of qualifications, were at the top of the income distribution in their home country and remained at the top of the distribution in the destination country (Borjas, 1987). Therefore, I expect those individuals to be part of the “elite” of immigration, such that they perform better or at similar levels than the native population. At the contrary, history of immigration in Switzerland indicates that foreign-born workers from Southern Europe, Turkey, former Yugoslavia, Albania and Kosovo were mostly low-skilled workers who were negatively selected in terms of human capital. As a result, their low social background was a disadvantage in terms of the probability of enrolling in higher education. Moreover, even immigrants who were above the middle social class were still at a disadvantage in terms of cultural and institutional differences between their country of origin and the country of destination (Kristen and Granato, 2007).

Based on the theory I developed four hypotheses:

1. Immigrants perform less well than Swiss nationals.
2. As social distance increases, the likelihood for immigrants to enter higher education decreases.
3. Immigrants are more likely to enroll into traditional universities than applied science universities or vocational trainings.
4. As social distance increases, the likelihood for immigrants to enter Applied science or vocational trainings decreases.

5. RESEARCH DESIGN

I. Description of the data

The data I use for this analysis is the Swiss TREE longitudinal panel survey (Transitions from Education to Employment) that follows more than 6'000 individuals from the end of compulsory school to their early employment career. TREE¹ was launched in 2000, based on the Swiss sample of the Program for International Student Assessment (PISA) of the OECD. It has been extended up to 2014, when individuals reached on average 30 years old. The surveys are mainly financed by the Swiss National Science Foundation and are available under request, free of charge (Jann et al.,2016).

PISA is a survey created by the OECD which aims at evaluating the ability of 15 years old students from 80 different countries to read, use their mathematics and science knowledge in real situations. The purpose of the survey is to improve international comparisons in terms of knowledge and skills acquired by students instead of evaluating educational outcomes based on the number of years of education, as it has been done previously. PISA's first survey was released in 2000 and is now conducted every three years. The latter is of great help for policy makers whose objective is to improve education in their home country. This survey contains several demographic variables that are important for my analysis. In the first Swiss PISA survey, there were 6'434 participants coming from different regions of Switzerland. Unlike most other countries who strictly performed the test on students who were 15, Switzerland was more flexible. Some schools decided to stick on the school grade (last year of compulsory school) as the main criterion and performed the test on participants who were not necessary 15 but were on the 9th grade, while some others decided to use age as the main benchmark and performed the test on students who were 15 but who were not necessary on the 9th grade. Despite some heterogeneity in this aspect, most individuals in the dataset fit both criteria.

The TREE panel survey can be divided into three different phases; The first three surveys (2001 to 2003) correspond to the to the transition from lower to upper secondary school. There are mainly open questions that capture the reasons why some students follow

¹ In 2016, an additional longitudinal panel survey (TREE2) has been launched and is expected to be performed until 2021 on an annual basis.

a typical trajectory, while some others drop out. The four following surveys (2004 to 2007) capture the transition from upper secondary to tertiary education as well as the integration in the labor market. Finally, the last two surveys (2010 and 2014) focus on the integration in the labor market only (sector of activity, occupations, wages, social and personal status).

There is an additional file that collects information regarding the obtention of diplomas and certificates. It shows the data for the type of diploma, the subject, the date of the obtention and the final grade obtained, which is the main dataset I use. It collects all the certificates from the upper secondary level of studies, tertiary education, and other diplomas. An additional file collects information on employment, it contains information on the sector of activity and the description of employment according to the ISCO standards.

II. Attrition

Given the extended period of the study, there is a large loss of participants over time. In 2000, there were 6343 students taking part in the survey, but this number gradually decreased to 3139 in the last panel wave (Appendix A). Since the sample is cut by half throughout the whole period it might have serious implications for my analysis and the conclusions that I could draw from it.

The probability that a student obtained a tertiary education diploma prior 2007 is very low, as a consequence, I restricted the sample of my analysis to those individuals that participated at least until the 8th panel wave. There are reasons to think that by restricting the sample I am selecting the individuals that continued higher education relative to those who started working in the labor market, which could potentially bias the results. Therefore, I look at the mean of the main variables to see how attrition affects the sample (Appendix B). The mean of the total *immigrants* variable slightly decreases over time, but the difference is relatively small. Similar results are observed for the different groups of immigrants.

With respect to parental education, we notice Appendix B that attrition mainly affect the students whose parents' education is the lowest. For the mother's and father's primary education variable, the average decreases by a few percentage points, while for the parents' tertiary education, the average slightly increases. The table shows that the sample has been narrowed around the students who continued higher education. However, since the

difference in the mean is very small for both, the parents' education and the groups of immigrants, attrition is not a big issue in this analysis. The effect it may have on the coefficients is expected to be very low, as a consequence I decide to ignore this issue.

III. Dependent variable

All information regarding the obtention of diplomas and certificates contained in the surveys has been gathered in a single dataset. As it is mentioned in the codebook, this kind of information cannot be related to the one point of participation of each wave. As a result, they have been cumulated over several waves. My dependent variable is a dummy variable which takes the value of 1 if the individual has obtained a tertiary education diploma, 0 otherwise. Then, I classified students who obtained at least one tertiary education diploma into three categories (Appendix C):

1. Diploma from a regular university (Bachelor, Master, PhD)
2. Diploma from an Applied Science University (Bachelor, Master, PhD)
3. Professional diploma (Federal Diploma of Higher VET, Advanced Federal Certificate; Diploma of College of Higher Vocational Education and Training)

The summary of statistics also includes the proportion of individuals who obtained a diploma from more than one institution (Appendix C).

IV. Independent variable

The independent variable is the *immigrant* variable, which I then divide into four different groups according to the social distance determined in the previous section. I create four dummy variables that identify whether the individual has a migrant background from the corresponding group or not (Appendix D). The variable *Group1* identifies immigrants from Germany and Austria, who share low social distance with Switzerland. *Group2* contains immigrants from France, Belgium and Italy, for whom the social distance is at an intermediate level. *Group3* is composed of Iberian immigrants from Spain and Portugal, who share high social distance with Switzerland. *Group4* is composed of immigrants from former Yugoslavia, Albania, Kosovo and Turkey for whom the social distance is very high. Finally, I create an

additional *Group5* containing all other nationalities, which are not identified in the dataset. The last group is likely to be very heterogeneous and may include individuals from Northern Europe, such as England or the Netherlands, as well as individuals from non-European countries, such as Sri Lanka, who immigrated in large numbers as refugees in the 1990s (Ruedin, 2011).

In the first place, the migration background of the individual is broadly defined. The dummy variable $Group_i$ takes the value of 1 if either the student or at least one of the parents were born in group i and 0 otherwise. By gathering the first and second generation of migrants together, I include at least 74 observations per group. The number of observations is considerably reduced when the definition of *migrant background is narrowed* to the first and second generation of immigrants, this is the reason why I combine both generations in my analysis. Moreover, in the few cases where the mother and the father's country of origin is different, there are reasons to believe that the mother's origin dominates, especially in terms of language spoken at home (Lewis et al. 2016). In the few cases where the parents' country of origin was missing, I replaced the missing values by the origin associated to the language spoken at home. Given the limited number of immigrants in my sample, it avoids dropping values in seven specific cases.

Since there are four national languages in Switzerland, three of which are currently spoken (German, French and Italian), I created a table to analyze in which speaking part of Switzerland the immigrants in my dataset settled (Appendix E). As we can see, the majority of immigrants from *Group1* and *Group2* moved to a region with the same language as their country of origin. Near 58 percent of Austrians and Germans immigrated in the German-speaking area, almost 88 percent of the French and Belgian people moved to the French-speaking part and 44 percent of Italians settled in the Italian-speaking area of Switzerland. Regarding Southern European immigrants, both Spaniards and Portuguese immigrated in very large proportions in the French-speaking part of Switzerland (75 and 83 percent respectively). This is explained by the linguistic proximity between Latin languages which facilitates the integration of newcomers. Language was also an important factor in the recruitment process of companies (Fibbi, 2010). Immigrants from Albania and Kosovo also immigrated in larger proportions to the French-speaking area of Switzerland, while immigrants from former Yugoslavia settled on the German-speaking side. Finally, Turkish immigrants are equally divided between the French and German-speaking side of Switzerland. These trends are the

result of immigration concentration and job opportunities. The network of immigrants also played an important role in the decision process to live in a specific city.

I need to identify immigrants from Groups 1 and 2 who settled in the Swiss part where the language is the same as in their country of origin. This step is essential to capture the “low” and “intermediate” social distance defined in the previous section. To illustrate that, let’s take the example of an individual from France that immigrates to the French-speaking part of Switzerland. If this is the case, the immigrant’s social integration will be relatively easier because he or she will share the same language as Swiss nationals. On the contrary, if the same individual immigrates to the German-speaking side of Switzerland, his integration will be more complicated due to the language obstacles he will face. Consequently, the same individual may experience a different social distance with Switzerland depending on the region where he or she immigrates.

In order to capture the effect of social distance properly, I create an interaction between the country of origin (Germany, France/Belgium, Italy) and the linguistic region where the immigrant settled. Given the small number of people in *Group1* who immigrated to the French- or Italian-speaking part of Switzerland, this does not allow me to analyze each language region separately, instead I decide to gather those individuals together. With regard to *Group2*, 87.6 percent of the French and Belgians immigrated to French-speaking area of Switzerland. I therefore decide to drop the 12.4 percent of immigrants who ended up in another linguistic region. Since there are only 12 people outside the French-speaking part, this does not allow me to create an additional variable. By doing that, I am sure to capture the intermediate social distance that I defined earlier. Regarding Italian immigrants, there are sufficient observations to identify the effect of language for those who immigrated to each linguistic region of Switzerland. I thus create three additional interactions (Italian-German, Italian-French, Italian-Italian).

V. Control variables

At the time when the PISA survey was performed, there was heterogeneity regarding the level of education of the students who participated in the survey. Most of them were on the 9th grade, but some others were on the 8th or 10th grade. Therefore, it is important to control for the *school grade*. The second control variable is *birth year*; the summary of the statistics

indicates that the youngest individuals of the sample were born in 1988, while the oldest were born in 1981. It is important to control for this kind of variance because age has important implications in the decision-making process to either continue education or start an early professional career through VET trainings. Regarding the student's characteristics, it has been proved in previous studies that gender may influence the student performance, as a consequence I create a dummy variable that takes the value of 1 if the individual is a **male** and 0 otherwise. For example, evidence from the PISA surveys show that in most European countries, females perform better in "reading" than males. Alternatively, in scientific subjects such as mathematics, males perform slightly better than females in some countries. Since gender may affect the school performance, we may expect it to affect the field of study chosen after compulsory school as well. An analysis from the OECD (2019) shows that some field of study in Switzerland are very stratified. For example, in 2017, 77 percent of the individuals who started a Bachelor program in health and welfare were women. In contrast, in science, technology engineering and mathematics were clearly dominated by men. Only 22 percent of the undergraduates were women which is below the OECD average of 30 percent. I also add a variable for the **birth order** because it has been proved in the literature that older siblings usually obtain more schooling than younger siblings (Schachter, 1963; De Haan, 2010, Kim 2020). This is explained by the fact that first-born children receive on average more time, attention and other family resources.

The socio-economic condition of the family is a very influential factor that affects the student's likelihood to continue higher education. Students were asked to classify their parents' highest level of education on the basis of national qualifications that were then coded according to the International Standard Classification of Education to obtain a ranking of education attainment that is comparable at the international level (ISCED, OECD, 1999b). There are six different levels: Primary education (level 1), lower secondary education (level 2), upper secondary education which aim in most countries at providing direct entry into the labour market (level 3), upper secondary education, which aim in most countries at gaining entry into tertiary education (level 4), first stage of tertiary education (level 5) and second stage of tertiary education (level 6). Therefore, I control for the **mother and father's highest level of education**. The second variable that I control for is the index of **family wealth**. The wealth index was created on the basis of the furniture available at home as reported by students. It is based on the availability in their home of a dishwasher, a room of their own,

educational software, a link to the Internet, the numbers of cellular phones, televisions, computers, motor cars and bathrooms at home. The code book explains that scale scores are standardized Warm estimates, where positive values indicate more wealth related possessions and negative values indicate fewer wealth-related possessions. Finally, I control for the ***family educational support***, which was derived from students' reports on how frequently the mother, father, or brothers and sisters worked with the student regarding schoolwork. It is an index created by PISA, based on the five-point scale answers: never or hardly never, few times a year, about once a month, several times a month and several times a week. Scale scores are standardized Warm estimates, where positive values indicate higher frequency of family (parents and siblings) support for the student's schoolwork while negative values indicate lower frequency. A summary statistic of all the variables is shown in Appendix F (Ray and Wu, 2003, PISA 2000 technical report).

VI. Methodology

A probit model would be suitable to analyze the impact of migration background on the likelihood to obtain a higher education diploma. I run the regressions for four different dichotomous dependent variables. In the first place I will analyze the effect of social origin on the overall likelihood to enroll in tertiary education. Then, I will narrow the definition of tertiary education diploma to the likelihood of obtaining a degree from a: Traditional University, Applied Science University and Vocational Education Training.

$$\begin{aligned}
 Diploma_i = & \beta_0 + \beta_1 Group_i + \beta_2 MotherEduc_i + \beta_3 FatherEduc_i + \beta_4 Male_i \\
 & + \beta_5 Grade_i + \beta_6 BirthYear_i + \beta_7 BirthOrder_i + \beta_8 Wealth_i \\
 & + \beta_9 Support_i + \varepsilon_i
 \end{aligned}$$

The estimates of the marginal effects of the probit model and the estimates of the linear probability model are very similar. The advantage of such alternative is that I can perform a Ramsey reset test to check if there are omitted variables. In this case, my model seems to be properly specified, given that the F-statistics is 0.95 and a p-value is 0.41. Therefore, I cannot reject the null hypothesis that the model has no omitted variables.

6. RESULTS

I. Results and discussion

In the first regression of Table 2, I gathered all the different groups of immigrants together in order to have a general perspective on the likelihood that students with a migrant background obtain a tertiary education diploma in Switzerland. In model 1, we see that immigrants are less likely to continue higher education in comparison with the Swiss-born. The coefficient is negatively signed and significant at a 1 percent level which indicates that being an immigrant has a strong effect on the dependent variable. In model 2, I only add the mother and father's level of education as control variables. We observe that students with highly qualified parents are more likely to incorporate university institutions than students whose parents only have primary education. Interestingly, the secondary level of education of the father is not significant, while it is significant at a 1 percent level for the mother. This suggests that mothers' implication in the children's education is stronger than fathers. Overall, the parents' education is a strong determinant in the decision to continue education, which confirms the general literature on intergenerational transferability of education. Contrary to the general literature which claims that immigrants have higher continuation rates than native population, it seems not to be the case in Switzerland where immigrants are disadvantaged in comparison with natives, even when controlling for parental education (Vallet and Caille, 1999; Boliver, 2006; Kristen et al. 2008). This is an interesting finding which can be explained by the poor intergenerational mobility in terms of education. By international comparison, Switzerland is the country where the parents' socioeconomic status has the strongest effect on children's educational performance (OECD, 2002). This kind of system may disadvantage children of immigrants and favor the better-off (Bauer and Riphahn, 2007). However, additional research on intergenerational mobility in Switzerland should be performed in order to confirm this hypothesis. Regarding model 3, the independent variable remains negative and significant at a 1 percent level, which confirms my first hypothesis, immigrants perform less well than natives. In this model, only two out of six additional control variables are significant at a 1 percent level; the birth year and the wealth index. Since the birth year is a dummy variable indicating whether the individual was born in 1985 or not, the estimate shows that individuals born in the 1985 cohort have a serious advantage in comparison with

the other students. The descriptive statistics indicate that the vast majority of students who are not part of the same cohort were born before 1985. This indicates that age is a key determinant of the probability of pursuing higher education. There are two main reasons why age is heterogeneous in the dataset. First, around 40 percent of the students who are older than 15 have a migrant background. In general, newly arrived immigrants who incorporate the Swiss schooling system must go through a one- or two-years special program that helps them to catch up with the language and the Swiss education system before incorporating normal classes. This explains why some of them were more than 15 years old when the PISA survey was performed. Second, students with strong difficulties in the learning process are often required to repeat a school year in order to close the gaps between students. Consequently, there is reason to believe that students who go through an atypical process are less likely to enter higher education institutions. The descriptive statistics presented in Appendix G show the percentage of students in each immigrant group who were born in a year other than 1985. We notice that the probability to experience an atypical school path increases with the social distance. While only 3.4 percent of the Germans and Austrians experienced an unusual school training, it increases up to 13.4 percent for immigrants from Turkey, Albania and former Yugoslavia. This seems to confirm the hypothesis that educational integration is more difficult for people from countries that share less similarities with Switzerland. Similarly, as social distance increases, the wealth index decreases (Appendix G), which means that immigrants with high or very high social distance are more financially constrained than those from Switzerland's neighboring countries. Traditionally, as a result of the Swiss migration policy, migrants from the Iberian Peninsula, Turkey, Albania and the former Yugoslavia have long held modest positions on the labour market, deserted by nationals. In recent decades, a growing proportion of immigrants from Turkey and the former Yugoslavia have found themselves in situations of relative poverty or insecurity, especially for asylum seekers (Neuenschwander et al., 2008). The family's economic situation contributes to the likelihood to continue education, which is perceptible through the wealth index estimate in Table 2. The latter shows that students with more economic resources are more likely to continue higher education. This outcome is to be expected, as financially better-off households can invest in additional school materials for children, which contributes positively to their school performance. Finally, the literature states that female immigrants are more likely to pursue higher education than males. In order to verify this result for the case of

Switzerland, I create an interaction variable between gender and migration background, which I add in model 4. Although it is not significant, it shows a negative relationship, suggesting that men with immigrant background are less likely to pursue higher education than women, which is consistent with the common literature (Colding, 2006; Phalet et al. 2007; Simon, 2003; Grönqvist, 2006).

Table 2: Probit coefficients, dependent variable: Tertiary education

VARIABLES	(1) Tertiary	(2) Tertiary	(3) Tertiary	(4) Tertiary
Immigrant	-0.341*** (0.050)	-0.290*** (0.052)	-0.268*** (0.053)	-0.339*** (0.078)
Mother secondary educ.		0.265*** (0.087)	0.256*** (0.087)	0.258*** (0.087)
Mother tertiary educ.		0.475*** (0.091)	0.448*** (0.092)	0.449*** (0.092)
Father secondary educ.		0.0386 (0.086)	0.0175 (0.086)	0.0166 (0.086)
Father tertiary educ.		0.443*** (0.087)	0.429*** (0.088)	0.427*** (0.088)
Male			-0.0797* (0.045)	-0.0477 (0.052)
Male immigrant				-0.125 (0.102)
9 th Grade			0.409 (0.249)	0.411* (0.249)
Birth year ₁₉₈₅			0.366*** (0.071)	0.364*** (0.072)
Birth order			0.0478 (0.045)	0.0463 (0.045)
Wealth Index			0.134*** (0.045)	0.133*** (0.045)
Family support			-0.0337 (0.045)	-0.0330 (0.045)
Constant	0.246*** (0.025)	-0.263*** (0.084)	-1.011*** (0.271)	-1.025*** (0.271)
Observations	3,423	3,423	3,423	3,423

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

In Table 3, I divide the *immigrant* variable into different categories according to the social distance immigrants share with Switzerland and the region where they settled. In this way, I can test my second hypothesis that the probability of entering higher education

decreases as social distance increases. In Model 1, the coefficients for immigrants from Austria and Germany (*Group1*) are not significant, but negatively signed. This means that they may be less likely to enroll in higher education than the Swiss, which is the base category in my regressions. In order to check whether the language spoken in the destination region has a significant impact on the chances of success, I carry out a Wald Chi-Squared test on the equality of the two coefficients of *Group1*. The null hypothesis is not rejected, meaning that there is no statistical difference between the coefficients. Therefore, Germans who immigrate in the German speaking side of Switzerland have a relatively similar probability of obtaining a higher education diploma than those who immigrate to the French or Italian linguistic region of the country. As a consequence, for immigrants who share low social distance with Switzerland, language proximity does not seem to be a strong determinant in the probability of enrolling in higher education. With regard to Group 2, the model indicates that French and Belgians who immigrated to the French-speaking region of Switzerland are less likely to incorporate higher education institutions than natives at a 10 percent significance level. The main characteristic that differentiates low and intermediate social distance is familiarity with the education system. Consequently, the French are more disadvantaged than the Germans in their ability to guide their children through the Swiss institutions, which may explain why they perform less well than Germans. *Group2* also includes Italians, who have immigrated in similar proportions to each linguistic region of Switzerland. Thus, I examine how language affects the probability of obtaining a higher education degree by including the interaction with the language region of Switzerland where they immigrated. The coefficient of those who immigrated to the Italian part is negative but not significant, while the coefficients of those who immigrated to the German and French-speaking part are negative and significant at the 1 percent level. Since the coefficients are compared to the base category, Italians who immigrated to the Italian region of Switzerland are the only ones who do not seem to be at a great disadvantage in comparison with natives. In this case, language seem to be an important component in the likelihood to continue higher education. Italian is more similar to French than to German because of the Latin roots these two languages share. We observe that the magnitude of the coefficient increases as the linguistic similarities across regions decrease. I perform a Wald Chi-Squared test on the equality of the coefficients of immigrants from Italy, but the null hypothesis that the coefficients are equal is not rejected, meaning that there is no statistical difference between the estimates. The coefficient of Group 3, which is

composed of Spaniards and Portuguese is statistically significant and negatively signed. Similarly, the group of Turks, Albanians and Yugoslavs is also negative and statistically significant at a 1 percent level. As the social distance increases, the magnitude of the coefficients increases as well, which seems to confirm my second hypothesis that immigrants whose country of origin shares high or very high social distance with Switzerland are less likely to incorporate higher education institutions.

Since a good command of the language of schooling is a selection criterion for further education in the most qualifying school streams, it is essential that children with migration background also practice the language outside school in order to improve it. This often depends on the type of socialization of the family (Bader and Fibbi, 2012). It has been shown that families with a bilingual socialization circle improve children's academic performance. On the other hand, empirical analyses show that children whose families speak only the language of origin in their social circle are disadvantaged (Bader and Fibbi, 2012). The type of socialization of the migrant family often depends on the reception given to foreigners in the host country. Spatial segregation or, in general, a hostile reception of immigrants towards newcomers favors a response of cultural withdrawal rather than openness from the migrant family (Crul 2000, Bader and Fibbi, 2012). Conversely, a kind reception facilitates integration into the immigration society. In other words, the nature of the reception has indirect but indisputable consequences on the chances of success for children of migrants, since it determines the speed of their linguistic integration. Meunier (2007) claims that the level of integration in Switzerland also depends on the wave and period of immigration. He explains that the negative effects of immigration fade over time. With regards pupils' performance, he finds that students from Spain and Portugal score better than their peers from former Yugoslavia, Albania, Kosovo or Turkey (Meunier 2007). This confirms that the longer a migration flow has been in place and the more accepted it is, the better the children's educational outcomes (Bader and Fibbi, 2012). While nationals from former Yugoslavia were considered model workers until the 1990s, more recent developments, combined with the increasing number of asylum immigrants and family reunification, have led to higher levels of discrimination (Bolzman et al. 2003; Neuenschwander et al. 2008). These have contributed to reinforcing an existing trend towards community withdrawal, which is partly due to the rejection of the host society (Neuenschwander et al. 2008).

Table 3: Probit coefficients, independent variable: immigrants' country of origin

VARIABLES	(1) Tertiary	(2) Tertiary	(3) Tertiary
Group 1 <i>Germany/ Austria – German speaking side</i>	-0.218 (0.189)	-0.295 (0.192)	-0.266 (0.192)
Group 1 <i>Germany/ Austria – French & Italian speaking side</i>	-0.203 (0.234)	-0.368 (0.236)	-0.388 (0.237)
Group 2 <i>France/ Belgium – French speaking side</i>	-0.232* (0.138)	-0.277** (0.141)	-0.301** (0.142)
Group 2 <i>Italy – Italian speaking side</i>	-0.246 (0.156)	-0.216 (0.159)	-0.236 (0.159)
Group 2 <i>Italy – French speaking side</i>	-0.559*** (0.177)	-0.428** (0.179)	-0.443** (0.180)
Group 2 <i>Italy – German speaking side</i>	-0.619*** (0.232)	-0.418* (0.236)	-0.383 (0.236)
Group3 <i>Spain/Portugal</i>	-0.641*** (0.108)	-0.386*** (0.115)	-0.368*** (0.116)
Group4 <i>Turkey/Yugoslavia/Albania</i>	-0.666*** (0.105)	-0.545*** (0.108)	-0.449*** (0.110)
Group5 <i>Others</i>	0.0160 (0.087)	-0.0646 (0.089)	-0.0526 (0.090)
Mother secondary educ.		0.239*** (0.088)	0.238*** (0.089)
Mother tertiary educ.		0.429*** (0.093)	0.412*** (0.093)
Father secondary educ.		0.0415 (0.087)	0.0203 (0.087)
Father tertiary educ.		0.429*** (0.089)	0.416*** (0.090)
Male			-0.0748* (0.045)
9 th Grade			0.358 (0.252)
Birth year ₁₉₈₅			0.359*** (0.072)
Birth order			0.0480 (0.045)
Wealth Index			0.130*** (0.045)
Family support			-0.0327 (0.045)
Constant	0.246*** (0.025)	-0.228*** (0.087)	-0.929*** (0.277)
Observations	3,411	3,411	3,411

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

There is reason to believe that it is a combination of unfavorable circumstances that explains the deterioration in the conditions of integration of this community at a given point in time rather than its "culture". The conflicts in the Balkans, the abolition of seasonal status and the increase in unemployment Switzerland did not favor their integration (Neuenschwander et al. 2008). Migrant families, especially those from the former Yugoslavia and Turkey are on average part of the lower social class. It is common for them to have suffered social downgrading in relation to their country of origin. Contrary to popular belief, these social disadvantages have a greater impact on their behavior and the importance they give to education than cultural characteristics. It is important to note that cultural characteristics are not homogeneous within an ethnic group as is generally believed, and that they are constantly changing as a result of migration experiences and contact with the new environment. The longer a family stays in its new environment, the closer its values are to those of the host country. The type of residence permit also plays an important role in integration. Only since the 1990s has Switzerland pursued a conscious integration policy at the federal level (Neuenschwander et al. 2008). In Model 2, I add control variables for parental education. As in Table 2, both parents' tertiary education and the mother's secondary education are significant at 1 percent level. In addition, the magnitude of the coefficients for immigrants from Italy, Spain, Portugal, Turkey, Yugoslavia, Kosovo and Albania decrease in comparison with model 1. The effect that was initially attributed to the country of origin is now taken into account by parental education. Similarly, for Italians who immigrated to French and German-speaking Switzerland, the level of significance also decreases. When the parents' education level is controlled for, the difference in the probability of obtaining a higher education degree between immigrants and natives decreases. Therefore, part of the effect attributed to the social distance is captured by the socioeconomic status of the groups of immigrants. As shown in Appendix G, the level of parental education varies among the different groups. The tertiary level of parental education is lower among immigrants sharing a high and very high social distance, while immigrants from Germany and Austria have a higher tertiary level of education than the Swiss people. These dynamics also reflect the quality of immigration that took place in Switzerland over the past decades. Finally, when all the control variables are incorporated in the regression (model 3) the level of significance of the coefficients remain the same except for Italians that

immigrated in the German region of Switzerland, where the coefficient is not significant anymore.

Table 4 presents the estimates for each dependent variable: traditional university degree, applied science degree or vocational degree. I can now test my third hypothesis that immigrants are more likely to enroll in traditional university degrees than into applied science and professional streams. Then, I will try to identify if there are differences between the groups of immigrants. In each model of table 4, the coefficient of the independent variable is negative and significant. Thus, in each education path, immigrants are disadvantaged in comparison with natives. The main question is whether they tend to favor traditional trainings over applied science and professional paths. The magnitude of the coefficient is larger in model 3 than in model 1 and 2, and the level of significance is greater as well, meaning that immigrants are significantly more disadvantaged relative to natives in vocational trainings. To test whether the coefficients are statistically different between educational careers I conduct a Wald Chi-Squared test on the equality of the estimates between immigrants that chose a traditional university and those who selected an applied science institution. The null hypothesis that both estimates are equal is rejected, therefore the coefficients are not statistically different. At the contrary, when testing for the equality of the estimates between traditional university and vocational training, the null hypothesis is rejected which means that immigrants are more likely to enroll in regular universities than in vocational education. Therefore, my third hypothesis is confirmed, immigrants are more likely to choose traditional educational careers.

Unfortunately, the lack of data does not allow me to run regressions for each educational path using the different groups of immigrants as independent variables. Nevertheless, the descriptive statistics presented in Appendix G indicate that the proportion of students enrolled in traditional universities is the highest for students from Group 1 and 2. With regards the vocational stream, the opposite is observed, students from Group 4 are more likely to enroll in VET than their immigrant counterparts. This suggests that immigrants who share a low social distance are more likely to enter traditional university, while there is an overrepresentation of immigrants sharing very high social distance in vocational trainings. This goes against my argument that immigrants from countries with high social distance are under-represented in professional paths due to a poor knowledge of the Swiss educational system.

Table 4: Probit coefficients, dependent variables: Traditional University, Applied

VARIABLES	Science University, VET		
	(1) University	(2) Applied Science	(3) VET
Immigrant	-0.0946* (0.055)	-0.151* (0.077)	-0.284*** (0.067)
Mother secondary educ.	0.388*** (0.097)	-0.00148 (0.129)	-0.0524 (0.105)
Mother tertiary educ.	0.626*** (0.100)	0.113 (0.133)	-0.210* (0.111)
Father secondary educ.	-0.0322 (0.094)	0.0172 (0.127)	0.0890 (0.105)
Father tertiary educ.	0.492*** (0.095)	0.0424 (0.129)	0.0139 (0.108)
Male	-0.136*** (0.046)	-0.136** (0.063)	0.144*** (0.053)
9 th Grade	0.923*** (0.331)	-	-0.490* (0.258)
Birth year ₁₉₈₅	0.410*** (0.079)	0.0939 (0.106)	-0.0235 (0.084)
Birth order	0.0837* (0.046)	0.0125 (0.062)	-0.0200 (0.053)
Wealth Index	0.106** (0.046)	0.139** (0.063)	0.0201 (0.053)
Family support	-0.120*** (0.046)	0.0351 (0.063)	0.0910* (0.053)
Constant	-2.224*** (0.354)	-1.519*** (0.164)	-0.502* (0.287)
Observations	3,423	3,396	3,423

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Interestingly, parental education is only positive and significant in model 1, which shows that having highly qualified parents is an important factor in the likelihood to choose academic studies, while for applied universities it is not so relevant. Besides, with regards vocational trainings, individuals whose mother has tertiary education are disadvantaged in comparison with those whose mother has only primary education. Therefore, the social status of the family highly influences the educational path chosen by the student. Furthermore, the coefficient of the wealth index is significant at the 5% level in the first two specification, while it is not significant anymore in model 3, which means that the economic situation of the family is a strong factor for students who enroll in regular and applied science universities, but not so much for vocational trainings. Additionally, the family's support variable shows counter-intuitive results in model 1, because the coefficient is negatively

signed and statistically significant. Students who may need more frequent family support may be those who are struggling academically. As a result, they are less likely to continue education than those who receive less frequent academic support. In model 3 at the contrary the family's educational support is positively signed and significant at a 10 percent level, which support my argument. Students who need more family's support may be less likely to enter institutions with higher academic requirements. It is also interesting to note that the gender effect varies according to the educational path chosen. While men are under-represented in traditional and applied science universities, they are more likely than women to obtain a vocational degree.

Based on the regressions of table 4 and descriptive statistics in Appendix G, my fourth hypothesis is not confirmed. It seems that social distance has the opposite effect to that expected. The most plausible interpretation is that immigrants who share a very high social distance are disadvantaged in terms of socio-economic status, which explains why they attend vocational training. This is especially the case for immigrants from former Yugoslavia, Kosovo, Albania and Turkey, many of whom arrived in Switzerland from conflict areas. As already mentioned, they also have the lowest economic status among immigrants. As a result, vocational trainings offer relatively good professional and economic prospects. This confirms Heath & Brinbaum's (2007) theory that the opportunity costs of engaging in higher education for students with low socio-economic background may be an important factor in the decision to choose vocational education over traditional university.

II. Contribution

Using the TREE dataset, I showed that in contrast with other papers which demonstrate that immigrants are more likely to obtain a tertiary education diploma than natives, this does not seem to be the case in Switzerland. The Swiss education system seems to favor the better-off, since an early divergence in the school system makes it difficult for immigrants to rise in the social ladder. My paper contributes to the literature by suggesting that stratified education systems from an early stage of education disadvantage students from a lower social class and especially immigrants. Furthermore, the social distance framework helped me to show the existence of ethnic differences among immigrants (Ebner

and Helbling, 2016). This could help policy makers to implement new policies to better integrate students into the national education system. The early stratification in the Swiss education system causes large gaps in higher education achievements between Swiss nationals and immigrants, which confirms the findings by Picot (2012). As Murdoch (2014) mentioned for France, VET promotes integration into higher education because, as in Austria, it provides employment and economic security (Schneebaum et al., 2016). However, this creates social inequalities with regard to the quality of employment offered to those completing academic training and those undergoing vocational training. This can be compared to Germany, where the education system is similar to Switzerland. The literature has also found that Turkish students are the most disadvantaged by this multi-track system, which is highly discriminatory (Fernandez-Kelly, 2012). It is contrasted with the Scandinavian systems where there are comprehensive school systems. Sweden, for example, which established a centralized unitary school in the early 1960s, is now oriented towards equality and social integration, with the aim of providing access to education for children from disadvantaged social classes (Andersson et al., 2010; Gulbrandsen, 2018). The current education system is composed of two stages, the nine-year elementary school and three-year high school that is divided into 18 training profiles. Until 2011, the skills acquired in the gymnasium's optional courses gave access to vocational training and entry to certain faculties of the university. Therefore, as mentioned by Kraus (2017), Swedish high schools work as training institutions that prepare students for the labor market. Both systems are very different and the debate on education systems and their role in the integration of students from a lower social class is still ongoing.

III. Limitations and future research

The main limitation of this analysis is the quality of the data. The Law of Large Numbers theorem states that as the sample size grows, the mean gets closer to the average of the whole population. Therefore, a bigger sample would give more reliable results and would allow me to study the effect of language on the probability of continuing higher education for all groups of immigrants that I have identified. The second limitation concerns the way in which the questionnaire was organized. It would have been interesting to have the final

grades for each wave in order to investigate also the academic performance of the students and their evolution over time. In the TREE dataset, the missing observations are too numerous to make this kind of analysis.

Further research could study the linguistic proximity of each country of origin to the language spoken in each region of Switzerland; French, German and Italian, and examine the likelihood of entering higher education for each of them, instead of using the social distance framework. Language has been proved to be a key factor for the integration of immigrants and could be a strong determinant in the decision to continue tertiary education. Moreover, it could also be interesting to look at the difference between the first and the second-generation of immigrants. Language can be expected to have a greater impact on the first generation of immigrants because their integration is more complicated as they have to learn the language of the host country but also to socialize in order to practice it outside home. While children born in Switzerland have the advantage of learning the language at an early stage of their lives. In addition, second-generation immigrants benefit from the integration of their parents into society, and very often also from that of their siblings. Therefore, we may expect them to have a better understanding of the Swiss education institutions.

7. CONCLUSION

In conclusion, through this paper, I was able to investigate using the TREE dataset whether there are differences between Swiss-born and immigrants, as well as among ethnic groups, in the probability of obtaining a higher education degree. The case of Switzerland is particularly interesting because of the diversity of its immigration, as well as its stratified education system, which is oriented towards both academic and vocational trainings. Immigrants are disadvantaged relative to Swiss nationals in three main aspects: culture, language and knowledge of the Swiss education system. These characteristics determine the level of social distance between the immigrant's country of origin and Switzerland (Ebner and Helbling, 2016). In order to observe ethnic differences, I classified immigrants in four different groups: Those sharing low social distance (Germans and Austrians), intermediate (French, Belgians and Italians), high (Spaniards and Portuguese) and very high social distance (former Yugoslavia, Albania, Kosovo and Turkey). Given the three national languages spoken in

Switzerland, it provides a good study case to measure the cultural proximity of immigrants with the host country. Using a probit model, I found that immigrants are disadvantaged in comparison with natives with regards the likelihood of obtaining a higher education diploma. This can be explained by the fact that Switzerland is by far the country where the socioeconomic status of the parents has the strongest effect on child's educational achievements (OECD, 2002; Bauer and Riphahn, 2007). In comparison with other countries, the Swiss educational system indicates low educational mobility. Among immigrants, those from Switzerland's neighboring countries outperform immigrants from Eastern Europe and Turkey. The socioeconomic status of immigrants has been shown to have a strong effect on the probability to continue education. Moreover, the level of integration of immigrants plays an important role as well. According to previous research, the ethnic effect seems to fade over time, as immigrants get more included in the host society.

With regards the educational path chosen by immigrants, I find that they are more likely to study in traditional universities than in vocational institutions. However, among groups of immigrants, social distance does not seem to have the expected effect. Immigrants with the highest level of social distance are overrepresented in VET, while I was expecting to observe an overrepresentation in traditional universities. This is explained by the fact that immigrants sharing the highest social distance are also the ones with the lowest economic status. Therefore, vocational trainings which combine professional experience within a company and academic classes are the option that offers the best economic prospects.

Finally, further research could look at the linguistic similarities between the immigrant's country of origin and Switzerland and study the impact of language on student's integration in the Swiss education system. Moreover, it could be interesting to have a dataset that allows for an analysis of first and second-generation of immigrants, since the effect is expected to be stronger for the first generation of immigrants.

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APPENDIX A

Attrition over time

	Year	Number of observations	Percentage
PISA survey	2000	6343	100 %
Panel wave 1	2001	5532	87.21 %
Panel wave 2	2002	5210	82.13 %
Panel wave 3	2003	4880	76.93 %
Panel wave 4	2004	4680	73.78 %
Panel wave 5	2005	4504	71.00 %
Panel wave 6	2006	4135	65.19 %
Panel wave 7	2007	3982	62.77 %
Panel wave 8	2010	3423	53.96 %
Panel wave 9	2014	3139	49.48 %

APPENDIX B

Attrition, mean statistics (percentages)

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8	Wave 9
Total immigrants	0.289	0.281	0.281	0.285	0.281	0.280	0.275	0.252	0.241
Swiss nationals	0.711	0.718	0.719	0.715	0.719	0.719	0.725	0.748	0.759
Group 1	0.023	0.022	0.021	0.020	0.021	0.019	0.020	0.021	0.021
Group 2	0.078	0.074	0.074	0.076	0.075	0.072	0.074	0.072	0.068
Group 3	0.050	0.049	0.049	0.052	0.050	0.048	0.045	0.044	0.042
Group 4	0.069	0.065	0.063	0.062	0.064	0.064	0.061	0.047	0.041
Group 5	0.069	0.072	0.070	0.073	0.070	0.076	0.073	0.068	0.068
Mother education, Primary	0.076	0.071	0.065	0.067	0.067	0.064	0.062	0.058	0.046
Mother education, Secondary	0.578	0.577	0.580	0.572	0.577	0.575	0.577	0.572	0.581
Mother education, Tertiary	0.296	0.303	0.308	0.315	0.308	0.316	0.318	0.325	0.329
Father education, Primary	0.065	0.063	0.060	0.061	0.058	0.055	0.054	0.050	0.040
Father education, Secondary	0.499	0.497	0.498	0.494	0.499	0.499	0.497	0.496	0.502
Father education, Tertiary	0.374	0.379	0.384	0.385	0.383	0.389	0.393	0.401	0.405

APPENDIX C

Descriptive statistics

Variable Name	Value	Number of observations	Proportion
Tertiary education Diploma	1 = Obtained diploma 0 = No diploma	1,928 1,495	56.32 %
Traditional university diploma	1 = Obtained diploma 0 = No diploma	1,235 2,188	36.08 %
Applied science university diploma	1 = Obtained diploma 0 = No diploma	296 3,127	8.65 %
Professional diploma	1 = Obtained diploma 0 = No diploma	541 2,882	15.80 %
Several Diplomas from different institutions			
Professional & Traditional University	1 = Obtained diploma 0 = No diploma	50 3,373	1.5 %
Professional & Applied Science University	1 = Obtained diploma 0 = No diploma	24 3,399	0.7 %
Traditional University & Applied Science University	1 = Obtained diploma 0 = No diploma	73 3,350	2.1 %

APPENDIX D

Descriptive statistics

<i>Variable Name</i>	Value	Number of	Percentage
Description		observations	
<i>Total Immigrants</i>	1 = Immigrant 0 = Other	863	100%
<i>Group 1</i> Immigrants from Germany and Austria	1 = Immigrant 0 = Other	74	8.5 %
<i>Group 2</i> Immigrants from France, Belgium, Italy	1 = Immigrant 0 = Other	247	28.6 %
<i>Group 3</i> Immigrants from Spain and Portugal	1 = Immigrant 0 = Other	150	17.4 %
<i>Group 4</i> Immigrants from former Yugoslavia, Albania, Kosovo and Turkey	1 = Immigrant 0 = Other	160	18.5 %
<i>Group 5</i> Others	1 = Immigrant 0 = Other	232	26.9 %

APPENDIX E

Immigrants' countries of origin and linguistic region of Switzerland where they settled

Destination origin	German part (Number)	Percentage	French part (Number)	Percentage	Italian part (Number)	Percentage	Total
Germany/ Austria	45	58.4 %	18	23.4 %	11	14.3 %	77
France/ Belgium	6	6,18 %	85	87.6 %	6	6.18 %	97
Italy	31	20.6 %	53	35.3 %	66	44%	150
Spain	12	20.3 %	44	74.6 %	3	5 %	59
Portugal	7	7.7 %	74	81.3 %	10	11 %	91
Former Yugoslavia	50	55 %	15	16.5 %	26	28.6 %	91
Albania/Kosovo	8	24.2 %	17	51.5 %	8	24.2 %	33
Turkey	15	41.7 %	15	41.7 %	6	16.7 %	36
Other	76	32.8 %	133	57.3 %	23	9.9 %	232

APPENDIX F

Summary statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Tertiary	3,423	0.563	0.496	0	1
VET	3,423	0.158	0.365	0	1
Applied Science University	3,423	0.087	0.281	0	1
Traditional University	3,423	0.361	0.480	0	1
Swiss natives	3,423	0.748	0.434	0	1
Total immigrants	3,423	0.252	0.434	0	1
Group1	3,423	0.022	0.145	0	1
Group2	3,423	0.072	0.259	0	1
Group3	3,423	0.044	0.205	0	1
Group4	3,423	0.047	0.211	0	1
Group5	3,423	0.068	0.251	0	1
Male	3,423	0.427	0.495	0	1
9 th Grade	3,423	0.986	0.116	0	1
Birth year, 1985	3,423	0.889	0.314	0	1
Birth order	3,423	0.468	0.499	0	1
Mother education, Primary	3,423	0.0581	0.234	0	1
Mother education, Secondary	3,423	0.572	0.495	0	1
Mother education, Tertiary	3,423	0.326	0.469	0	1
Father education, Primary	3,423	0.051	0.220	0	1
Father education, Secondary	3,423	0.496	0.500	0	1
Father education, Tertiary	3,423	0.401	0.490	0	1
Wealth Index	3,423	0.525	0.499	0	1
Family support Index	3,423	0.531	0.499	0	1

APPENDIX G

Descriptive statistics

	Group1	Group2	Group3	Group4	Group5	Swiss
Not born in 1985	3.4 %	4.5 %	8.3 %	13.4 %	8.8 %	61 %
Wealth Index	56.8%	53.2%	43.3%	21.25%	52.6%	54.8%
Mother education						
Primary level	4.1 %	12.2%	46.7%	28.12%	4.3%	1.8%
Secondary level	44.6%	48.9%	38.7%	52.5%	31.9%	62.1%
Tertiary level	50%	34.9%	12.7%	17.5%	53.9%	32%
Father education						
Primary level	0 %	10.2%	43.3%	16.8%	3.9%	1.9%
Secondary level	37.8%	51.5%	42%	51.8%	34.05%	51.6%
Tertiary level	58.1%	31.9%	11.3%	28.8%	56.03%	41.3%
Tertiary education						
Traditional university	68.4%	68.2%	61.5%	55.6%	74.3%	63.1%
Applied science university	13.1%	14%	23.1%	12.9%	12.9%	15.5%
VET	23.6%	22.4%	23.1%	37%	19.3%	29.17%