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Essays in Migration and Labor Economics

Essais sur la migration et l'économie du travail

by

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Abstract

This thesis explores the intersection of migration, education, and labor market integration in Switzerland through three empirical studies, each addressing distinct aspects of how migration policies and external conditions impact both natives and refugees. The first study examines the influence of a high-skilled immigration shock on young natives' educational outcomes, leveraging the variation in the inflow of skilled cross-border workers into Switzerland. It reveals that the increased availability of high-skilled workers led to a shift toward tertiary education, though this effect is not consistent across all cohorts. The second study investigates the economic integration of refugees in Switzerland, utilizing a unique longitudinal dataset to track refugees over a 20-year period. The study shows that local labor market conditions at arrival, particularly unemployment rates, significantly affect refugees' integration trajectories, while co-ethnic networks play a less decisive role. Moreover, it highlights that more restrictive attitudes toward refugees at the canton level (relative to attitudes in other cantons) can lead to improved employment outcomes for subsequent cohorts. The third study focuses on gender differences in labor market integration among refugees. It finds that source country culture and initial local conditions, including attitudes toward gender equality, are critical factors influencing labor market outcomes, particularly for women. Across these studies, the thesis underscores the importance of understanding long-term dynamics and the varying effects of local conditions and policies in shaping both native and refugee outcomes in education and employment.

Cette thèse explore l'intersection entre la migration, l'éducation et l'intégration sur le marché du travail en Suisse à travers trois études empiriques, chacune abordant des aspects distincts de l'impact des politiques migratoires et des conditions extérieures sur les natifs et les réfugiés. La première étude examine l'influence d'un choc migratoire de travailleurs hautement qualifiés sur les résultats éducatifs des jeunes natifs, en exploitant la variation de l'afflux de travailleurs transfrontaliers qualifiés en Suisse. Elle révèle que la disponibilité accrue de travailleurs hautement qualifiés a conduit à un basculement vers l'enseignement tertiaire, bien que cet effet ne soit pas constant pour toutes les cohortes. La deuxième étude examine l'intégration économique des réfugiés en Suisse, en s'appuyant sur un ensemble de données longitudinal unique pour suivre les réfugiés sur une période de 20 ans. Cette étude montre que les conditions locales du marché du

travail à l'arrivée, en particulier les taux de chômage, affectent de manière significative les trajectoires d'intégration des réfugiés, tandis que les réseaux co-ethniques jouent un rôle moins décisif. De plus, elle montre qu'un changement vers des attitudes plus restrictives au niveau cantonal (par rapport à celles d'autres cantons) peut entraîner de meilleurs résultats d'emploi pour les cohortes de réfugiés successives. La troisième étude se concentre sur les différences de genre dans l'intégration des réfugiés sur le marché du travail. Elle constate que la culture du pays d'origine et les conditions locales initiales, y compris les attitudes envers l'égalité des sexes, sont des facteurs clés influençant les résultats sur le marché du travail, en particulier pour les femmes. À travers ces études, la thèse souligne l'importance de comprendre les dynamiques à long terme et les effets variés des conditions locales et des politiques dans la détermination des résultats des natifs et des réfugiés en matière d'éducation et d'emploi.

Contents

Introduction

The first chapter investigates the effect of a high-skilled immigration shock on young natives' educational outcomes. I focus on a policy that facilitates cross-border workers' access to the Swiss labor market. Exploiting the variation in the inflow of highly skilled cross-border workers, I find that in contrast to the canonical labor supply model, the policy increased the probability of following the university track by 2 percentage points and decreased the probability of doing apprenticeship in the border region relative to municipalities further away from the border by 2.19 percentage points. The availability of high-skilled workers and the resulting increase in high-skilled wages have pushed residents into tertiary education. This effect, however, is not observed across all cohorts.

In the second chapter, the focus moves to refugees. We examine the patterns of their economic integration in Switzerland, a country with a long tradition of hosting refugees, a top-receiving host in Europe, and a prominent example of a multicultural society. It relies on a unique longitudinal dataset consisting of administrative records and social security data for the universe of refugees in Switzerland over 1998–2018. This data is used to reconstruct the individual-level trajectories of refugees and to follow them since arrival over the life-cycle. The empirical analysis exploits the government dispersal policy in place since 1998, which consists of the exogenous allocation of refugees across cantons, to identify the effects of the local initial conditions. The study finds that higher unemployment rates at arrival slow down the integration process, whereas the existence of a co-ethnic network does not consistently lead to a faster integration. It is shown that a change toward more restrictive attitudes over time in a canton (relative to attitudes in other cantons) leads to higher employment rates of the successive refugee cohorts. These effects persist over the refugees' life-cycle. Together these results, highlight the importance of taking a longer run perspective when examining the effectiveness of policies, as the effects may vary over time and different complementary interventions may be needed in the short vs. long-run.

Lastly, the third chapter examines the gender differences in labor market integration among refugees and their determinants. It focuses on a longitudinal dataset that includes the universe of the refugee population in Switzerland over a 20-years period. The quasi-random allocation of asylum seekers across cantons, which are different in their socio-economic characteristics, provides a natural experiment to identify the causal effect of

the source country culture as well as the role of the local initial conditions in affecting the trajectory of refugees' labor market integration. Empirical findings highlight the importance of source country culture, though there is some variation in the persistence of the effects over time, which varies by indicator. The research also highlights the negative role of initial unemployment and the positive effects of local attitudes towards gender equality in affecting women refugees' labor market outcomes.

Chapter 1

The effect of opening borders on education outcomes in Switzerland

1.1 Introduction

According to the International Organization for Migration (IOM), the stock of international migrants has increased by 128 million over the past 30 years, representing 3.6 % of the global population in 2020. Whether immigration and the presence of a foreign labor force have a significant impact on the host countries' local labor markets is the subject of lively debate in many countries. Understanding the impact of migration on social and economic conditions, as well as demographic changes, is important for successful integration. Natives often fear that their opportunities could deteriorate because of an increased inflow of foreigners. The existing literature concentrates predominantly on the impact on wages and employment, and documents contradicting evidence about the effect of immigration on the host country. Switzerland, in addition to refugees and economic migrants, hosts an important number of skilled cross-border commuters, who are often seen as competition for natives in the labor markets and are frequently a topic of political debate. Facing this increased inflow of a skilled workforce could change the returns to education for natives in the labor market and hence impact their educational choices. Understanding the effect of immigration on educational opportunities for young natives is therefore crucial, and the question whether they complete more or less tertiary degrees or opt for other tracks such as apprenticeships arises.

This study addresses the question of how the inflow of skilled workers from bordering

countries affects the educational outcomes of Swiss residents. The gradual implementation of the free movement of persons between Switzerland and the European Union (EU) provides a natural experiment that can be leveraged to answer this question. Restrictions were removed faster for cross-border workers than for resident EU citizens, which resulted in an important increase in (mostly skilled) CBW in regions close to the border.

The empirical strategy aims to examine the outcomes of natives who were not yet in the labor market when the restrictions were removed and could anticipate possible future implications from increased competition. They can invest in human capital by pursuing university education, aligning with the high level of education of many CBW. Instead, they could opt for an apprenticeship program that teaches country-specific knowledge, which potentially shields them from competing with CBW. To answer this question, I leverage the exogenous shock of a reform that liberalized access to the Swiss labor market for cross-border commuters in 2004. When estimating the effect of this reform, I rely on the temporal variation in CBW exposure determined by the timing of the reform, as well as spatial differences based on the distance of municipalities to border crossings. Indeed, the impact of the policy change was more pronounced in regions closer to a border and diminished with distance, considering that CBW must commute to work, and commuting costs rise with greater distance (Dustmann et al. (2017)). These sources of variation provide the basis for a difference-in-differences (DiD) design, building on the earlier work by Beerli et al. (2021). The DiD model was constructed by combining the two sources of variation as follows. Temporal variation was exploited by assigning individuals to treatment and control groups based on their year of birth. Those born before 1985 made their educational decisions before the reform, while those born after 1984 encountered the decision after the reform [1]. Spatial variation measures exposure to CBW after the reform by assigning individuals born in municipalities closer to a border crossing to the treatment group and those born further away to the control group. As a result, the DiD strategy allows me to estimate the probability of completing the university or apprenticeship track in municipalities located closer to a border crossing

[1] The cutoff is the year 1988 for apprenticeship because that decision is typically made at a younger age for apprenticeships, around 15 or 16, as opposed to university, which is decided upon at 18 or 19.

compared to regions further away in the pre- and post-reform periods. Second, I employ an event study design to detect anticipatory reactions to the reform and show varying impacts across different birth cohorts.

I employ individual-level survey data from a randomly selected sample of approximately 200 000 individuals annually, spanning 2010 to 2017, provided by the Swiss Federal Statistical Office (FSO). In addition to detailed demographic information, the data contain variables reporting every completed education degree and current enrollment in any training. I find that, on average, treated students invest more in their human capital by obtaining a university degree than do non-treated individuals. Looking at separate cohorts, I find that this effect is driven by the cohort that chose university in 2007/2008 [2]. The effect does not persist in treated cohorts that choose their education track some years after the reform. On average, the probability of choosing and completing a university track increased by 2 percentage points. By contrast, individuals in treated regions are less likely to take up an apprenticeship after the reform relative to individuals in non-treated regions. I observe an average decrease of 2.19 percentage points in the baseline, a finding consistent across various samples and specifications as confirmed by several robustness checks. Moreover, supplementary results indicate that the positive effect on university and the negative effect on apprenticeships are driven by individuals born with Swiss citizenship. Additionally, the decline in apprenticeships in exposed regions appears to be primarily influenced by residents of municipalities that supported the Bilaterals I agreement, by men, and individuals in German-speaking areas. Lastly, a potential explanation for the effects found in the main regressions could be attributed to concerns regarding unemployment. Additional analysis using unemployment data reveals a higher probability of experiencing unemployment episodes among individuals with education at the Secondary II level in the strong treatment region.n.

The contribution of this paper to the literature is threefold. First, my analysis leverages a natural experiment and allows me to identify the causal effects of the inflow of CBW on education outcomes. A related paper by Bächli and Tsankova (2023) uses a similar approach, but they focus on the decision to enroll in a specific educational track. By emphasizing education outcomes rather than enrollment, this study provides a nuanced

[2]From 2007, access to the NBR was also fully liberalized.

understanding, as enrollment decisions might be influenced by the reform itself. This skews the interpretations if marginal students, who had not enrolled absent of the reform, now enroll but drop out before they complete their education. Instead, focusing on completion of educational tracks offers a more realistic portrayal of the reform's true effects. Second, I examine the impact of the reform on two outcomes — the probability to graduate from university and the probability to successfully complete an apprenticeship — in a common framework. In the literature, these questions have been analyzed separately, using different and incompatible data sources. Apprenticeship or vocational training remains an important track in the Swiss education system that is still chosen by two out of three students (State Secretariat for Education, Research and Innovation SERI [3]). At the international level, the Swiss dual system, which combines theoretical knowledge with practical experience, has attracted great interest and is considered of significant labor market relevance. Third, in contrast to previous studies on education choices in Switzerland, this paper offers a refined empirical strategy. By conducting analyses at the municipality level, it precisely defines the treated and non-treated individuals, crucial for the estimation strategy. The concentration of CBW inflow in regions close to the border requires this granular approach. In contrast, due to data limitations, Bächli and Tsankova (2023) have to rely on commuting zones, which are much larger. Hence, the effects might be underestimated because the group of treated individuals includes marginally affected individuals.

This study focuses on the Swiss case, which is particularly interesting for two main reasons. First, in recent years, most immigrants and cross-border commuters who came to Switzerland were highly skilled, in contrast to most cases analyzed in the literature. Access to the Swiss labor market was restricted until the beginning of the 21st century. The introduction of the "free movement of persons" between Switzerland and the EU, gradually removed all immigration restrictions for EU workers after 2002, making the use of a natural experiment possible. An important aspect of the reform was the removal of all existing restrictions on CBW from the EU. Before the policy reform, Swiss firms were constrained to hire an EU immigrant only if they could demonstrate that they

[3] https://www.sbfi.admin.ch/sbfi/en/home/education/vocational-education-and-training–vet-.html [Homepage accessed on June 14, 2022]

were unable to find an equally qualified Swiss resident for a position (the "Priority requirement"). With the signing of the free movement of persons agreement as part of the bilateral agreements I ("Bilaterals I") in 1999, the priority requirement was abolished in 2004. This triggered a massive inflow of CBW [4] from neighboring countries, resulting in various effects on local labor markets. Along with the particular situation related to CBW, Switzerland is an interesting case because of its dual education system. The dual system offers choices for different tracks after lower secondary education, including one track leading to universities and another track of professional education. While the former is likely to provide natives with skills similar to those of CBW with a tertiary degree, the latter transfers country-specific skills.

Second, the findings from this analysis for Switzerland diverge from the canonical supply–demand model of wage returns to skill. The standard model predicts a decrease in earnings for natives with similar skills, who find themselves in competition with foreign workers, alongside an increase in earnings for natives with different skills (George J Borjas, 1995, George J. Borjas et al., 1997, G. J. Borjas, 2003). In this particular case of the inflow of skilled CBW, natives' incentives to accumulate human capital would be expected to decrease and the incentive to engage in an apprenticeship should be increased. However, more recent studies have revealed either minor effects on natives (Card, 2001, Card, 2009) or positive effects on average native wages, underscoring the imperfect substitutability between natives and foreign workers (Ottaviano and Peri, 2005, Ottaviano and Peri, 2012).

In the case of Switzerland, the mechanism appears to be different. Beerli et al. (2021) find that the abolition of immigration restrictions led to increased wages for highly educated natives. This phenomenon can be attributed to an increase in labor demand for resident workers. Existing firms increased their productivity and innovation performance, and new firms were attracted (see section 4.6). These findings align with the conclusions drawn in this study, suggesting that the wage channel incentivizes natives to invest in higher education, while apprenticeships are pursued less frequently. Additionally, firms that previously trained apprentices may opt to hire CBW instead of offering staining positions—a cost-effective alternative underscored by recent observations (Aepli

[4] see Figures 1 and 7

and Kuhn (2021)).

The remainder of this paper is organized as follows. The following subsection provides an overview of the existing literature. Section 2 presents the background of the study and describes the education system and policy reform that defines the treatment. Section 3 presents the data and empirical strategy. Section 4 discusses the main empirical findings and potential mechanisms, robustness, threats to identification, and additional results. Finally, Section 5 provides concluding remarks.

1.1.1 Literature Review

This study contributes to the literature on the impact of immigration on educational outcomes of natives, a subject extensively studied in the context of the United States with a focus on waves of low-skilled immigration.

Previous research has shown a positive relationship between immigration and education. Hunt (2017) and Jackson (2015) analyze the effect of immigration on native enrollment in college education and high school completion. Jackson (2015) demonstrates that an increase in relatively unskilled immigrant labor motivates natives to enroll in college. However, immigrant college students do not crowd out native students, which suggests that the demand for enrollment is sensitive to wages. Similarly, Hunt (2017) finds a net positive effect of immigration on natives' education, with the presence of adult immigrants increasing the probability of natives completing 12 years of schooling.

However, the context of these existing studies differs from mine. Immigrants in the US were predominantly low-skilled, and the authors rely on shift-share instruments for identification. In contrast, my empirical strategy employs a DiD design leveraging a direct and exogenous shock —the liberalization of labor market access for Cross-Border Workers (CBW) in Switzerland.

Llull (2018) explores the adjustment of education to immigration shocks in the US and finds heterogeneous effects depending on the individual returns to their investments into education. Using US data, he estimates an equilibrium dynamic discrete choice model, highlighting that about one-fourth of prime-aged natives alter their careers in response to immigration shocks, with some extending their education while others curtail it.

A theoretical contribution by Geis (2009) proposes that natives who correctly anticipate high-skilled immigration may acquire less education. If natives have rational expectations and foresee future immigration correctly, a decrease in expected wages in high-skilled jobs and an increase in expected wages in low-skilled occupations dissuade them from acquiring a high education level.

Meanwhile, Betts (1998) also uses a DiD strategy to link immigration to educational attainment in the US. Looking at both possibilities, a positive effect of an increase in the marginal benefits of education and a negative effect of an increase in marginal costs, he concludes that the crowding-out hypothesis prevails in the context of low-skilled immigrants in the period of analysis.

In a related strand of literature, studies on cross-border mobility have explored various outcomes and presented different results. Carrere et al. (2012) find positive wage and employment effects in border regions in Austria after the fall of the iron curtain and the resulting improved access to foreign markets, whereas Dustmann et al. (2017) document moderate wage declines and sharp employment reductions in Germany. Beerli et al. (2021) examine the impact of the same reform as my study on Swiss workers and firms, uncovering increased wages for highly educated natives and enhanced labor productivity, firm expansion, and new firm entries. Another outcome that has been studied in the Swiss context is domestic innovation. Cristelli and Lissoni (2020) document an increase in commuting inventors after the border opening and a surge in patent applications and collaboration between native and foreign inventors.

However, limited research has explored the effect of cross-border mobility on education decisions, with Bächli and Tsankova (2023) presenting one such exception. Their study, closely related to mine, examines enrollment responses of Swiss natives after the border opening.[5]. The authors reveal an increase in enrollment at Universities of applied studies and in non-STEM fields, indicating a preference for non-competitive occupations.

My paper differs in several aspects and complements these results by employing a dataset with a bigger sample and more extensive geographical information. By using the municipality to define treated and non-treated individuals, akin to Beerli et al. (2021), I

[5]The working paper version was released during my maternity leave, but my work had already reached an advanced stage by that time.

offer a more granular analysis crucial for understanding the impact of CBW inflow. In that way, I complement the results presented inBächli and Tsankova (2023) showing the aggregate effect on the whole border region without considering the preference of commuters for shorter distances. Additionally, while Bächli and Tsankova (2023) focus on enrollment, my study centers on completed education outcomes, providing complementary insights.

The consideration of the apprenticeship track in this paper contributes to the literature on vocational training and labor market outcomes, an area that remains largely unexplored. This study aims to fill this gap by analyzing the impact of a significant policy change on apprenticeship completion and labor market outcomes. Previous studies, such as those by Blatter et al. (2012) and Blatter et al. (2016), have primarily focused on the supply side of apprenticeships, emphasizing the sensitivity of firms' decisions to provide training positions in response to variations in hiring and training costs. In the Swiss context, researchers have investigated whether improved access to skilled foreign labor affects reduces a firm's willingness to train apprentices. Aepli and Kuhn (2021) suggest that enhanced access to CBW in Switzerland leads to a reduction in apprenticeship opportunities, illustrating the dynamics of substitution between hiring CBW and training apprentices. However, Oswald-Egg and Siegenthaler (2023), employing a different methodological approach, arrive at a contrary conclusion. They find no statistically significant effect of the border opening on the provision of training to unskilled workers, thus discounting the hypothesis of substitution between native apprentices and CBW.

In contrast to previous research that predominantly examines the firm's perspective, this study shifts the focus to completed education outcomes. By analyzing the impact of the policy change on apprenticeship choice and completion, this research offers novel insights into how individuals navigate educational and career pathways in response to significant policy shifts.

1.2 Background

1.2.1 The Reform, Border and Non-border Regions

Switzerland and its four direct neighbors, Austria, France, Germany, and Italy, have agreed on clear definitions of border regions on both sides of the frontier, with the aim of regulating and facilitating cross-border traffic. These areas are historically defined in different bilateral agreements between Switzerland and each bordering country[6]. Individuals from a border region on the other side of the border could come to Switzerland for work while maintaining their residency abroad. Before 2002, this was not necessarily very attractive to employers and employees, as the hiring process was subject to some restrictions. Employers had to go through a bureaucratic process in which they were required to prove that no Swiss applicant was equally qualified for the job ("Priority requirement") and work permits [7] were limited in terms of number. Moreover, along with the priority requirement, there were several other conditions for the recruitment of CBW. First, a person was only eligible for employment in Switzerland if he had lived for at least six months in a municipality close to the border. In addition, a permit had to be linked to a specific job and was only valid for one year, after which it had to be renewed. Another restriction concerns workers directly. They were obliged to commute back to their place of residence on a daily basis and were not allowed to find housing in Switzerland. Lastly, employment was permitted only in a BR and not outside the defined municipalities. These restrictions were gradually lifted after the signing of the bilateral agreements between the EU and Switzerland. One of the agreements was the *Agreement on the Free Movement of Persons (AFMP)*, which facilitated access to the Swiss labor market for CBW from the EU by repealing the restraints on cross-border movements in the years following the signature.

The AFMP and its contents became public in 1998, but negotiations began in 1994.

[6]The definition of border and non-border regions can be found in the following bilateral agreements between Switzerland and its neighboring countries (as in Losa et. al 2014):
- Austria RS 0.631.256.916.33
- France RS 0.142.113.498
- Germany RS 0.631.256.913.63
- Italy RS 0.631.256.945.41

[7]G permits are the relevant work permits for CBW, they are issued to residents of a foreign border zone that are employed in the neighboring border zone of Switzerland.

Switzerland and the EU signed agreements on June 21, 1999, which were brought to a popular vote on May 21, 2000. The referendum had a positive outcome, with 67.2 % of the population voting in favor of the agreements, and the treaty was enacted in June 2002. With the enactment in 2002, the first round of liberalization took place: restrictions were lifted for CBW commuting to a Swiss border region (BR). These first rounds of liberalization included several aspects: Employers could recruit CBW from places other than the border region in the neighboring countries [8], permit durations were extended to five years and not linked to a specific position; and finally, CBW no longer had to commute daily but weekly. In contrast, the priority requirement remained unaltered. This changed in 2004, when hiring was made even easier for Swiss firms, with the priority requirement dropping. Firms could henceforth hire CBW as easily as Swiss residents. The year 2004 marked the true start of the *free movement period*, as the priority requirement entailed high bureaucratic costs, making it a significant hurdle in the hiring process. Until 2007, these liberalizations were strictly limited to border regions, and non-border regions (NBR) became accessible only after 2007. Other immigrants faced annual national quotas and had to go through an admission process similar to that of the CBW until 2007. With the reform, they saw some of the immigration restrictions relaxed [9] but without distinction between border and non-border regions. Hence, the reform should have affected immigrants in the BR and the NBR symmetrically.

Figure 1.1 shows how the number of cross-border commuters evolved between 1994 and 2010. The main takeaway is that the AFMP caused a significant increase in the number of CBW in regions close to the border. The graph plots the share of CBW in total employment (in 1998) separately for border and non-border regions. Overall, most CBW are employed in the border region, while they constitute a very small share of overall employment in the NBR. More importantly, after the labor market became completely accessible to CBW, this share increased from approximately 10% to almost 14% between 2004 and 2010 in the border region. In the transition phase between 1999 and 2003, the share started to increase, but the change was smaller than that in the free-movement phase. Before the bilateral agreements were signed, the share of CBW

[8] Before the reform, a CBW had to live at least six months in a municipality of the border region in the neighboring country to be eligible

[9] Higher quotas, longer permit durations and possibility of family reunion.

remained stable or decreased even in some years. Regarding the non-border region, the share of CBW remained stable before 2004, and it only increased slightly after that. The graph confirms the assumption that the reform affected the BR more strongly than the NBR.

1.2.2 Dual Education System

Switzerland's education system operates using a decentralized approach managed at the cantonal level. This means that each canton independently determines school calendars, curricula, and criteria. Given that all cantons have municipalities in both the BR and NBR, the organizational structure of the educational system at the cantonal level has a limited impact on the design of the study.

Individuals select an education track after lower secondary education in all cantons. Upper secondary education is not compulsory in Switzerland and gives students the choice of different tracks. They can choose between two main axes: vocational education and training (VET) and a program that awards them the Baccalaureate (or Matura) or an upper secondary specialized school. Figure 1.2 illustrates the two main tracks, which I refer to as universities (on the right side) and vocational/apprenticeship track (on the left side). The vocational track follows a dual system, combining education in a vocational school with a company that offers apprenticeships. This leads to a *Federal VET Diploma* or a *Federal VET Certificate*, which helps students find work or continue further education. On the university track, students can follow *General Education Schools* such as *Baccalaureate Schools* or *Specialized Schools*. This track awards the *Baccalaureate* or *Specialized Baccalaureate*, making a student eligible for enrollment in a university, an institute of technologies, or teacher-training universities.

After upper secondary education, students can decide to pursue tertiary education. There are three types of institutions on the university track: universities and institutes of technology (UIT), universities of applied sciences (UAS), and universities of teacher education (UTE). All institutions follow the guidelines of the Bologna declaration since 1999 and award bachelor's, master's, and PhD degrees, as in most other European universities. There are 10 UIT, 2 UAS, and 20 UTE. [10] Students on the professional

[10] Source: Federal Statistical Office Section Educational Processes:

education track can either receive a *Federal Vocational Baccalaureate*, enabling them to transition to the university track, or stay on the professional track and receive a *Federal Diploma of Higher Education* if they want to continue to the tertiary level.

Admission requirements vary across Swiss universities, typically requiring an upper-secondary certificate that is equivalent to the baccalaureate. While bachelor's programs generally offer unlimited admission [11], apprenticeship positions theoretically have constraints. However, in practice, there are usually more open positions than candidates in the apprenticeship market. For instance, in 2004, 9% of the positions were left unfilled, whereas this number decreased to 8% in 2005 (Institut LINK, 2005). Apprenticeship offers are continuously adapted to the labor market situation, which makes vocational training a very efficient tool. Yet, firms could still displace native trainees by hiring CBW instead of offering training positions. This may lead to a perceived limitation in apprenticeship supply relative to native demand, posing challenges in disentangling shifts in demand from changes in supply. The validity of this concern for my study is mitigated for two primary reasons. Using the same reform and DiD design, research by Oswald-Egg and Siegenthaler (2023) contradicts this hypothesis, demonstrating a null effect of the reform on firms' willingness to train apprentices.

Moreover, within my analysis, this apprehension is directly addressed through the definition of the outcome variable. Notably, the majority of treated individuals in my sample have already completed their apprenticeships, with only 22% remaining as trainees. [12]

1.3 Research Design

1.3.1 Data

For the analysis, I use data provided by the Federal Statistical Office (FSO), Switzerland. The data were derived from eight consecutive waves of the Swiss Structural Survey (SSS) from 2010 to 2017. The SSS is a repeated cross-sectional survey conducted annually by

https://www.bfs.admin.ch/bfs/en/home/statistics/education-science.html (Website accessed on December 15, 2021).

[11] An exception to this are degrees in health, to access medicine studies many universities conduct an aptitude test to limit the number of students.

[12] In an additional analysis, not reported in the paper, the sample is restricted to individuals who have completed an apprenticeship. The results indicate that there is no mismatch between supply and demand that influences the results found in the baseline specification.

the FSO. It covers a sample of approximately 200,000 permanent residents aged 15 years and older in each wave. The dataset is a component of the population census and offers detailed information about every education degree an individual completed, as well as currently ongoing education, which will be used to define the education outcomes. In addition, it contains information on employment status, mobility patterns, language proficiency, family composition, and residence permits. Geographic information can also be extracted, specifying both the current municipality of residence with the length of stay and the municipality of birth. This study focuses on individuals born in Switzerland between 1975 and 1995. This definition includes both Swiss nationals and foreigners born in Switzerland. It intentionally excludes individuals of Swiss nationality who were born abroad. This selection criterion ensures that individuals have resided in Switzerland long enough and have followed a Swiss education path at the lower secondary level, and thus, have had the opportunity to become aware of the reform and its potential implications for local labor markets.

The available data offer the opportunity to investigate two outcome variables related to education: the *University* and the *Apprenticeship* track. I define an individual as having opted for university education if they have attained at least a bachelor's degree from a tertiary-level institution (see Figure 1.2) [13] or if they are currently enrolled in these institutions. In this case, the variable is coded 1. Conversely, the variable is set to zero for individuals who only possess a lower level of education and are not presently enrolled in a university program.

The *Apprenticeship* variable is assigned a value of one under the following conditions: 1) An individual has completed education corresponding to either basic professional training or higher technical and vocational training with a federal certificate. 2) An individual is currently engaged in professional training.

There is one education degree in the dataset with the following definition: "höhere Fachschule (Vorgänger von Fachhochschulen, z.B. HTL, HWV, HFG, HFS) inkl. Nachdiplome (3 Jahre Voll- oder 4 Jahre Teilzeitstudium)"[14], which is difficult to assign. Therefore,

[13] Definition in the SSS: Bachelor's degree (university, ETH, University of Applied Sciences, University of Teacher Education). Master's degree, diploma, state examination, postgraduate degree (university, ETH, university of applied sciences, university of teacher education); PhD, habilitation.

[14] This translates to a higher technical college (predecessor of universities of applied sciences, for example, HTL, HWV, HFG, HFS) incl. postgraduate diplomas (3 years full-time or 4 years part-time).

in the baseline regression, I exclude this category from the definitions and later run a robustness check, including the category in the apprenticeship variable.

To control for the differences between cities and rural areas, I include a variable *Urban* that is publicly available from the OFS. The dataset classifies Swiss municipalities into four levels of urbanization (state 2000): 1 City center of an agglomeration, 2 Another municipality of an agglomeration, 3 Isolated city and 4 Rural municipality. I define municipalities of categories 1 and 2 as urban, and the other two categories as rural. Finally, to account for the variability in university accessibility across regions and cantons, considering that not every area has a university and some individuals may forgo the university track due to limited mobility, I control for the distance to the nearest university. This variable is derived from my own calculations, measuring the distance between the coordinates of Swiss municipalities provided by Swisstopo. Using geodetic distance [15], I identify the nearest neighbor from the set of Swiss universities and calculate the distance in kilometers.

Treatment and Control Regions The identification strategy hinges on the spatial differences in exposure to CBW. As mentioned in Section 1.2.1 and visually represented in Figure 1.1, CBW were predominantly employed in the border region following the reform. To correctly define the treated and control individuals, the dataset is augmented with information about the distance of municipalities to the closest border crossing. It includes the nearest distance in terms of travel duration in minutes to the closest border crossing [16]. Adding information on the travel duration to the simple definition of border and non-border region is justified by examining Figure 1.3, which visualizes the substantial differences in the influx of CBW to different municipalities within the border region. Panel A plots the relationship between the share of CBW in total employment (1998) for the different phases of the reform and the driving duration in minutes. It is evident that the intensity of exposure varies with the distance to a border crossing. The closer a municipality is to a border, the higher is the share of cross-border commuters

[15] The length of the shortest curve between two points along the surface of a mathematical model of the earth (Picard (2010)).

[16] Andreas Beerli provided travel duration data. The travel duration was computed using road travel time by car between two municipalities from search.ch. The distance was calculated from a municipality's centroid with osrm (open-source routing machine) time to the next border crossing (by the authors, municipalities state 2008). See Huber and Rust (2016) for more information on the method.

in employment. This share diminishes quickly with increasing driving duration, even in municipalities in the border region. Specifically, municipalities within 0–15 minutes of a border crossing host the largest share of CBW during all three reform phases, with a lower share in municipalities more than 15 minutes away. Municipalities situated 15-30 minutes after a border crossing still have a significant share of CBW, but the impact of the reform on these municipalities is expected to be less pronounced. Lastly, municipalities in the BR, situated more than 30 minutes from an international border, have much lower shares of CBW. Panel B illustrates a similar pattern for the NBR. Beyond 30 minutes of driving distance to a border, the share of CBW is nearly zero and remains consistent over time. This highlights that the driving distance to the border is critical, and that treating the entire BR would underestimate the impact of the reform. Consistent with the definition of treatment proposed by Beerli et al. (2021) and with the insights from Figure 1.3, the treatment and control groups are set up as follows. The border region is split into three parts: 0-15 minutes, 15-30 minutes, and more than 30 minutes of driving duration to the border. Together with the NBR, Switzerland is partitioned into four areas, with two designated as treatment regions and two as control regions. Both treatment regions fall within the officially defined border region. Municipalities situated 0-15 minutes from a border crossing are termed the "Strong treatment" group due to their highest exposure to CBW, while municipalities 15-30 minutes away from a border constitute the "Weak treatment" group. The control group in the baseline regressions includes municipalities more than 30 minutes away, but still within the border region, implying that the first phase of liberalization applied to this region as well. In addition, the fourth region (NBR) is used in the robustness checks. The division of municipalities into these areas is illustrated in Figure 1.4.

Timing of the Reform and Birth Cohorts In addition to leveraging spatial variation, the empirical strategy relies on exploiting temporal variation based on an individual's year of birth. Given that the data starts in 2010 and does not directly provide information on education choices before and after the reform, I employ individuals' birth years and knowledge of the typical age at which these decisions are made to categorize

the treated and control cohorts. I assume that individuals generally decide to enter university education around the ages of 18-19. Therefore, individuals aged 18-19 in the years after 2004 are part of the potentially affected cohort. For apprenticeships, I consider individuals who are 15–16 years old. Figures 1.16 and 1.17 display the average age of individuals in the sample currently enrolled in university and currently doing an apprenticeship. The graph supports the choice of these age groups, with university enrollment typically starting at the earliest at 18 years and apprenticeship typically beginning at 15.

The most basic regression equation considers a pre- and post-reform cohort. The reform can be split into three phases: the pre-reform phase (before 1999), transition phase (1999-2003) and liberalization phase (2004-2010). The transition period starts with the signing of the AFMP and includes the year 2002, when the AFMP was enacted. The post-reform or full liberalization period begins in 2004, with the removal of all restrictions on border regions. Therefore, I focus on individuals who made their education decisions during the period when access to the Swiss labor market was facilitated for CBW to evaluate the impact of the reform. For my analysis, I consider the full liberalization period as the treatment period, and the years before it as the pre-reform or control period. This includes all individuals born between 1975 and 1984 in the pre-reform cohort (control) and individuals born between 1985 and 1992 in the post-reform cohort (treated)[17].

To ensure that I do not aggregate a diminishing impact when grouping all birth-year cohorts after the reform, I split the post-reform cohort into four age groups (two-year cohorts). The baseline or control cohort still comprises individuals born between 1975 and 1984 (1987, in the case of apprenticeships). This division into two-year cohorts enables me to examine whether there were any differential effects based on temporal proximity to the implementation of the reform. This results in the cohorts described in Table 1.1

Finally, to account for any anticipatory effects due to the early signing and the stepwise introduction of the liberalizations, I also conduct an event study analysis to investigate

[17]Respectively, individuals born between 1975-1987 form the control group and those born between 1988-1995 form the treatment group for the apprenticeship outcome.

whether there was an effect during the transition period.

Final Sample and Descriptive Statistics The analytical sample includes all individuals participating in the Structural Surveys born between 1975 and 1995 in Switzerland. This results in a total of 444,989 individuals for the main sample, with 242,717 in one of the two treated regions and 202,272 in one of the two control regions. I report in Table 1.2 the descriptive statistics of the variables used in the regressions. Overall, the majority of individuals in the sample indicate an apprenticeship as the highest level of education (or currently enrolled), accounting for 64 %, while 27 % have pursued the university track. It is possible for an individual to receive a value of 1 for both dummies, in the case where they have done first an apprenticeship and later completed a university degree (or are currently enrolled in). The age of individuals in the sample ranges from 15 to 41 years, and the majority are born with Swiss citizenship (as opposed to foreign citizenship or naturalization). In the sample, 1,304 municipalities are represented, 61 % of which are located in the BR. On average, a municipality is situated 35 minutes from a border crossing, with the variable ranging from 1 to 105 minutes. Finally, the majority of municipalities in the sample are German-speaking, with only 20 % located in French-speaking regions. Table 1.3 presents the summary statistics for the four regions separately. The two treatment regions and the two control regions are quite similar in terms of average age, proportion of women, and occupation in STEM jobs. There are marginally fewer individuals with Swiss citizenship in the treatment regions, which are also more urban and closer to universities. The treatment regions that are closer to the border tend to be more attractive to non-native people from neighboring countries. The share of university-educated individuals is higher in the strong treatment region, while the share of individuals with an apprenticeship increases with the distance from the border. To address some of these differences, I include the distance from the nearest university as a control variable in my analysis. In summary, it appears that both control regions are reasonably comparable to the treatment regions, with *Control 1* being somewhat more similar in terms of citizenship, degree of urbanization, and the proportion of individuals following either the university or apprenticeship track. Therefore, *Control 1* is used for the baseline regressions, whereas *Control 2* (NBR) is employed as

a robustness check. This choice allows for a more robust evaluation of the impact of the reform, while ensuring that the control group is well-matched to the treatment group in terms of key characteristics.

1.3.2 Empirical Strategy

To elaborate on the impact of increased competition from CBW on educational choices, the empirical strategy relies on two sources of variation: regional and temporal variation. Leveraging the unequal impact of the reform across municipalities allows me to employ a difference-in-differences framework. I compare the differences within the treatment group before and after the reform with the difference in the control group before and after the reform, thus enabling me to identify the causal effects of opening the borders and the subsequent influx of CBW into border regions on the education outcomes of young residents.

The baseline specification of the estimating equation aims to capture the overall impact of the reform on an individual's education in both treatment regions compared with region *Control 1*:

$$\begin{aligned} \text{P(Educ)}_{iysr} &= \beta_0 + \beta_1 \text{Strong treatment}_r + \beta_2 \text{Weak treatment}_r \\ &+ \beta_3(\text{Strong treatment}_r \times \text{Post2004}_y) + \beta_4(\text{Weak treatment}_r \times \text{Post2004}_y) \\ &+ \lambda_1 X_i + \lambda_2 X_r + \phi_s + \phi_y + \phi_{ys} + \gamma_{ny} + \epsilon_{iysr} \end{aligned} \tag{1.1}$$

where P(Educ)_{iysr} denotes the probability for an individual i, born in year y, observed in survey wave s and born in municipality r to choose a particular educational track. I analyze two education tracks: university and apprenticeship. The primary focus is on the impact of the reform, denoted by $Post2004_y$, on education outcomes. This variable distinguishes between individuals who made their educational choices after the reform and those who made them before. I use this definition based on birth years: individuals born after 1984 (18-19 years old after 2004) are considered as choosing after the reform for the university track and individuals born after 1987 (15-16 years old after 2004) for the apprenticeship track. The variable is set to 0 for individuals born before these years, implying that they chose their educational path before the reform. Coefficients

β_1 and β_2 capture the effect of the reform on strongly and weakly treated individuals relative to the control group. I also include individual-level controls X_i, such as gender, Swiss citizenship at birth, and multilingualism, as defined by speaking more than one language. At the municipality level (X_r), I control for urbanization and the distance from the municipality to the nearest university. In addition, to account for other unobserved factors, I control for the following fixed effects: ϕ_s represents survey wave fixed effects to account for the different survey waves in the SSS, and ϕ_y are year of birth fixed effects, controlling for changes over time that simultaneously affect all regions. I further control for year of birth-by-survey fixed effects ϕ_{ys} because I have individuals from different years of birth appearing in different survey waves.

In line with prior research (for example Bächli and Tsankova, 2023), I include linear time trends for the NUTS-II regions to consider region-specific shocks over time. The authors point out that institutional policies are expected to impact commuting zones uniformly. This is due to the decentralized nature of the Swiss education system, operating at the cantonal level and tertiary institutions often spanning multiple cantons within their catchment areas. To take this geographical overlap into account, I include linear time trends γ_{ny} in the regressions.

These equations are estimated using a linear probability model. In the robustness checks, Tables 1.14 and 1.15, the equations are estimated using a logit specification.

To investigate whether the impact of the reform changed over time, I split the post-reform cohort into four two-year groups and include them individually in the regressions. Depending on the duration of CBW exposure, the reaction to the reform could be very different. For instance, if the reform was not immediately perceptible, aggregating the effect on individuals from different birth years would underestimate or hide the true effect. The following equation is used:

$$\begin{aligned} \mathrm{P(Educ)}_{icsr} &= \beta_0 + \beta_1 \text{Strong treatment}_r + \beta_2 \text{Weak treatment}_r \\ &+ \sum_{c=1}^{4} \beta_{1c}(\text{Strong treatment}_r \times Cohort_c) + \sum_{c=1}^{4} \beta_{2c}(\text{Weak treatment}_r \times Cohort_c) \\ &+ \lambda_1 X_i + \lambda_2 X_r + \phi_s + \phi_c + \phi_{cs} + \gamma_{ny} + \epsilon_{icsr} \end{aligned} \tag{1.2}$$

where $\mathrm{P(Educ)}_{icsr}$ denotes the probability of an individual i belonging to birth cohort

c observed in survey wave s and born in region r choosing a particular educational track. This variable is regressed on the interaction between the strong treatment region and the four cohorts, and the weak treatment region interacted with the four cohorts. I include the same individual-level controls X_i and municipality-level controls X_r. Instead of birth year fixed effects, I include cohort fixed effects ϕ_c and cohort-by-survey wave fixed effects ϕ_{cs} because I observe individuals from different cohorts in different survey waves.

Concerning inference, I cluster standard errors at the municipality of birth level in all specifications. In the robustness checks, I also present results with two-way clustering by Cameron et al. (2011), reporting standard errors clustered by municipality and birth year (Table 1.16).

Event Study Graph I also conduct an event study analysis to investigate whether there were any anticipatory effects of the reform. The reform was announced and officially enacted before 2004, and individuals could have expected an increase in competition from CBW. If this is the case, then an effect should be observed for older cohorts.

The event study includes all two-year cohorts from 1975-1992 (or 1976-1995), while the coefficient of the cohort that was aged 18 or 19 just before the year 2004 (1983-1984 or 1986-1987) is normalized to zero. Therefore, the coefficients of interest β_{1c} and β_{2c} (where $c = 1975-1976, 1977-1978, ...1991-1992$ for university and $c = 1976-1977, 1978-1979, ...1994-1995$ for apprenticeship) represent the yearly differences in the average probability of pursuing a certain education track between the treated and control regions. The control variables and fixed effects are defined as before. I expect the effects of the reform to be around zero before 2004, assuming no anticipatory trends. If these coefficients are significantly different from zero in the transition period, this suggests the presence of anticipation regarding future changes due to the reform.

Assumptions The key assumption for the DiD estimation to provide convincing results is that the choice of university or vocational tracks would have followed parallel trends without the reform. The event study graphs, Figure 1.5 and 1.6 presented in

Section 3.4, show that the difference in outcomes in the treatment and control regions is statistically insignificant before the reform.

Limitations While the dataset used in this study provides a comprehensive view of the Swiss population, it has several limitations that merit further discussion.

First, the SSS data were collected starting in 2010. Prior to this, the population census was only conducted every ten years and did not cover the period of the reform [18]. Consequently, the study lacks the ability to observe educational choices immediately before and after the implementation of the reform. While I have information on all education tracks an individual completed, I do not observe their initial choice made before or after 2004. However, observing education as a completed outcome rather than the decision to enroll can be seen as an advantage in this study. This is because it eliminates concerns about disentangling supply and demand effects, as well as about dropouts influenced by the reform itself, which may affect the motivation of marginal students who enroll but do not finish the chosen education track. Another concern related to the education variables is that they are self-reported. Individuals are asked to report all their completed education degrees, and these data may be susceptible to various biases. Nevertheless, it's important to note that certain sources of bias can be ruled out. In particular, the risk of recall bias, which occurs when participants inaccurately remember past events, is likely minimal in this context. This is because educational degrees are relatively recent in the sample (individuals are between 15 and 42 years old) and are often referenced in the context of job searches, making them more readily accessible to participants' memories. Additionally, I do not expect cultural or language biases, because the sample includes only individuals born in Switzerland. The main concerns for potential data bias are sample bias, meaning that certain groups might be over- or under-represented owing to the optional nature of participation and response bias, where people might provide inaccurate information to make themselves look better. However, because the survey is anonymous, response bias is less likely. Regarding sample bias, the descriptive statistics showed a balanced sample across the treatment groups.

[18] 2000 is the latest available wave before the yearly population census and the SSS started in 2010.

Second, given the data limitations, I observe the municipality of residence several years after the reform. This raises uncertainty about whether individuals lived in the same municipality when they made their educational choices years earlier. This is crucial because if residential choice was influenced by the reform, selection bias could be introduced into the sample. To mitigate this, this study uses the municipality of birth, assuming that young adults did not relocate from their birth municipality before completing secondary education, which seems more plausible than assuming that they remained in the same municipality years after their studies. [19]. In the robustness checks, I present the results using a subsample of individuals who have not moved municipalities in the last 10 years (Tables 1.8 and 1.9) to confirm the findings.

Third, the study assumes that educational choices are only influenced by the policy reform related to the free movement of persons. However, there may have been other concurrent policy changes omitted from the analysis, which could have impacted educational choices. If other policy reforms differentially affected the treated and control regions, this could violate the common trend assumption. To my knowledge, the only other relevant reform that took place during the period of analysis was the Bologna reform that started in 1999. The reform aimed to equalize the standards and quality of higher education institutions. If any, this would bias the estimate downward, because natives would rather enroll in a foreign institution from the treatment region, as pointed out by Bächli and Tsankova (2023).

1.4 Results

In this section, the regression results are presented. I focus on the effects of increased exposure to CBW in the Swiss labour market on the educational outcomes of natives. I start by exploring the impact of the reform on university and apprenticeship choice for the whole cohort, which turned 18 after 2004. Next, I examine two-year cohorts separately to see the heterogeneous effects depending on how close to the reform implementation, the education track was chosen.

[19]For about 67% of the individuals in the sample, the birth municipality and the current residence municipality belong to the same treatment or control region. Considering the aggregate definition of the treatment and control regions (strong and weak treatments together and both control groups together), this share increases to approximately 80 %.

1.4.1 University

Baseline Results Panel A of Table 1.4 presents the DiD estimation results, which assess the impact of the reform on the probability of choosing university education, as outlined in Equation (1.1). I find a positive and significant impact in the strong treatment group, indicating that individuals residing in this region are more likely to pursue university education post-reform than those in the control region. By contrast, the weak treatment group shows a positive effect that is not statistically significant, suggesting the absence of an impact on individuals farther from the border. The effect magnitude ranges from 1.58 to 2 percentage points, depending on the inclusion of fixed effects and control variables. The most comprehensive and therefore preferred specification in column (3) yields the largest effect, with an increase of 2 percentage points.

Moving to Panel A of Table 1.5, the DiD analysis extends to distinct two-year cohorts, maintaining the same outcome variable as in the previous section and estimated through Equation (1.2). I do not expect all cohorts to react in the same way, particularly those making education decisions soon after liberalization, without full awareness of its impact on the labor market. Therefore, the effect is predicted to strengthen over time as awareness of the implications of the reform increases. Those who made their education decisions soon after the liberalizations were possibly unaware of their impact on the labor market and wages.

Column (3) illustrates that, in the strong treatment region, the effect intensifies until Cohort 3, with a slight decrease in the last cohort. However, the effect is only significantly different from zero in Cohort 3, suggesting a delayed reaction to the reform. The discernible effects of improved access to the Swiss labor market take time to manifest. In subsequent years, heightened competition from cross-border workers encouraged students to opt for more university education in the strong treatment region compared to the control region. Cohort 3 corresponds to individuals aged 18-19 in 2008/2009, indicating that the effect becomes measurable 4–5 years post-reform implementation. Concerning the last cohort, I cannot be completely confident that the absence of an effect is because the impact is short lasting. The data are available between 2010 and 2017, and individuals in Cohort 4 choose university after 2010, implying that some indi-

viduals might have been observed prematurely, potentially biasing the effects downward as their education journey had not yet been concluded. In the weak treatment region, none of the cohorts shows a statistically significant reform effect.

Event Study To explore the timing and assess the potential anticipatory effects, I present the results of an event study approach. Figure 1.5 plots the regression results using the event study specification. As expected, there is no effect on cohorts that made their educational decisions prior to the period of free movement of persons, suggesting the absence of anticipatory effects. However, in the liberalization period, consistent with the earlier discussion, a positive and statistically significant effect of the reform is observed in the strong treatment region for the cohort born between 1989-1990.

1.4.2 Apprenticeship

Baseline Results In Panel B of Table 1.4, the results of the DiD analysis are presented, with the probability of choosing an apprenticeship as the outcome variable, estimated using Equation (1.1). These findings contrast with observations of university education. Across all cohorts, the probability of pursuing an apprenticeship in the strong treatment region is lower after the reform compared to the control region, with no significant effect in the weak treatment region. The effect size ranges from 1.81 to 2.19 percentage points, with the largest effect in the preferred specification in Column (3). This outcome aligns with expectations because individuals impacted by the reform, who have a higher likelihood of choosing university education, would be expected to have a reduced demand for apprenticeships if the two paths are substitutes. However, it remains unclear whether this effect stems from individuals who would have chosen an apprenticeship in the absence of the reform, or from those who might not have pursued either educational path.

Panel B in Table 1.5 displays the results of the DiD analysis, focusing on the impact of liberalization on the probability of opting for apprenticeship for every two-year cohort, as estimated by Equation (1.2). In column (3), including all individual controls and fixed effects, a significant negative effect is observed only for Cohort 2 in the strong treatment region. This indicates that individuals most affected by the reform have a

lower probability of choosing an apprenticeship after the reform compared to individuals who were not directly affected, with the effect being noticeable only for individuals born in 1990-1991. Surprisingly, in the weak treatment region, I find a similar result for Cohort 2. This implies that the effect on the choice of apprenticeship is not limited to the strong treatment region; some individuals in the weak treatment region also reacted to the reform. However, the effect in the weak treatment group is smaller than that in the strong treatment group, confirming that individuals closer to the border were indeed more affected.

Event Study The following graph provides a visual representation of the effects of the reform on apprenticeship take-up. The cohort before the liberalization period serves as the reference point and is normalized to zero.
As expected, there is no significant effect on the apprenticeship choice before the reform. During the period of liberalization, the graph aligns with the previously discussed results, demonstrating a significantly negative effect for Cohort 2 in both treatment regions.

1.4.3 Mechanism

The constraints imposed by data availability limit the depth of the analysis of the labor market mechanisms that potentially influence the outcomes presented in this paper. Nevertheless, several researchers have already delved into labor markets, employment opportunities, and wage dynamics, particularly in response to the reform under study. Conventional labor market models would predict downward pressure on wages and negative employment effects of natives in sectors experiencing increased labor availability due to immigration or the influx of cross-border commuters. Conversely, wages in other sectors may witness increases. In the context of Switzerland, where CBW are relatively highly skilled, and the reform resulted in an influx of highly skilled labor into border regions, one might expect a decline in wages for skilled labor and an increase for non-skilled labor, leading to a reduced incentive for investment in university education. However, my findings suggest the opposite. Swiss residents in direct competition with CBW are motivated to pursue university degrees, while being less inclined to complete professional training. These findings challenge conventional labor market models and

indicate that the mechanisms influencing the outcomes presented in this paper may deviate from traditional expectations.

Wage and Employment Channel

A potential explanation for this positive effect has been proposed by Beerli et al. (2021). They analyze wage and employment data of Swiss natives to explore the impact of the rise in available foreign skilled labor on wages and employment opportunities. While the aggregate-level analysis does not reveal any discernible effects, examination by education group yields intriguing results relevant to my findings. Contrary to expectations, the authors observe an increase in real wages for highly educated individuals in the strong treatment region despite the inflow of highly educated CBW. This positive wage effect, absent in regions farther from the border, may explain the absence of an effect on university choice in these regions. This aligns with the results of my analysis, indicating a positive effect on university completion in regions with increased competition with CBW. The unexpected wage effect may serve as a potential mechanism driving individuals to pursue higher education in these regions. The authors propose possible explanations, highlighting that highly educated natives tend to transition into managerial positions after the reform. Similar conclusions are drawn by Basten and Siegenthaler (2019), who analyze occupational upgrading and find that natives move toward more demanding and higher-paying positions, particularly among younger individuals below the age of 40 years. Bächli and Tsankova (2023) also explore potential mechanisms and assess the labor market conditions for young natives. Consistent with earlier findings, they observe a decrease in wages for those with upper secondary education and an increase for those with tertiary education. This study's positive impact on university degrees is coherent with these conclusions.

When considering apprenticeships, clarifying the mechanism through the wage dynamics becomes less straightforward. The study by Beerli et al. (2021) reported negative but statistically insignificant effects on the wages of less-educated natives. However, due to the low precision of the estimates, a zero-effect could not be ruled out. Another possible mechanism refers to the supply-side dynamics within the apprenticeship market. Aepli and Kuhn (2021) explore the possibility for Swiss firms to replace native trainees with

CBW. Substitution can occur because firms face significant costs in both; training apprentices and hiring CBW, firms face important costs. These costs, however, decrease with the liberalization of the labor market for CBW and the simultaneous removal of bureaucratic hurdles. Indeed, the authors find such a substitution between the training of apprentices and the hiring of CBW, decreasing the total number of apprenticeship positions by 2 %. Recent research by Oswald-Egg and Siegenthaler (2023) challenges this finding. Using more detailed data and employing a DiD design, the authors find no evidence supporting the substitution effect. They conclude that the availability of skilled CBW does not have an effect on the provision of apprenticeships. Furthermore, they observed that the scale effect mitigated the negative cost effect on apprenticeship provision, with strongly exposed firms opting to create new positions for CBW instead of merely displacing apprentices. Additionally, Beerli et al. (2021) do not find negative employment effects for either education group, further confirming the imperfect substitutability between Swiss workers and CBW.

When examining both outcomes jointly, the increase in university education can be a combination of two groups of individuals: first, individuals now opting for the university track instead of pursuing apprenticeships, and second, those who have completed apprenticeships and seek to increase their human capital in response to the prospect of higher wages for highly-skilled workers. The latter rationale finds support in the study of Bächli and Tsankova (2023), who document a surge in enrollment at Universities of Applied Sciences (UAS) among individuals with vocational training backgrounds. This suggests that individuals with apprenticeship qualifications accurately perceive labor market dynamics and respond to these changes by pursuing further education. While this provides an explanation for the increase in university education, it cannot shed light on the decrease for apprenticeships. For younger cohorts yet to embark on their career trajectories, there might still be a direct substitution of apprenticeship with university education. This phenomenon could potentially account for the observed negative effect on the apprenticeship track.

In conclusion, while the mechanism driving the outcomes regarding apprenticeships appear to be more closely linked to the wage channel, a clear identification is challenging due to limitations in available data sources.

Unemployment Channel

As discussed in the previous subsection, prior research ruled out any statistically significant effect of the reform on employment opportunities of natives. This subsection aims to investigate whether the risk of unemployment contributes to the observed education outcomes. If the risk of unemployment for any of these education groups is impacted by the reform and its subsequent labor market consequences, it could potentially explain the decisions made by individuals regarding their education pursuits. To address this question, I augment my dataset with information on unemployment episodes sourced from the *Placement et statistique du marché du travail* (PLASTA) dataset provided by the State Secretariat for Economic Affairs (SECO). This dataset comprises records for each individual with at least one unemployment episode and the corresponding year, spanning from 1998 to 2015. Unfortunately, the data extends no further than 2015, constraining the analysis to a smaller subsample. I include individuals holding a tertiary degree from 26 years onward and those with Secondary II (including apprenticeship) from 21 years onward, ensuring their entry into the labor market. I drop the last cohorts for both education levels, due to their limited time on the labor market and their absence from the unemployment data before 2015. I also exclude individuals currently in education, leveraging this variable in my main dataset. Finally, I define the dependent variable as a binary dummy variable, taking the value of one if an individual has encountered at least one episode of unemployment in their professional life. Table 1.28 presents these supplementary findings. For individuals with Secondary II as their highest education level, the reform has amplified the risk of experiencing unemployment on the aggregate in the strong treatment region. Examining the cohorts, this effect is particularly pronounced for Cohort 1 across both treatment regions. Cohort 1 is considered the most representative due to a more extended period of exposure to the labor market. For the other cohorts, the results would likely achieve greater representativeness with the availability of additional years of unemployment data. Concerning individuals with tertiary education, there is no discernible effect of the reform on the unemployment risk of treated individuals in the aggregate. However, surprisingly, there is an increased probability of experiencing unemployment for Cohort 2 in the weak treatment region.

These additional results furnish evidence for another potential mechanism driving the negative effect on apprenticeship choices. Alongside diminished earnings, an augmented risk of experiencing unemployment with a Secondary II education after the reform in the treatment regions may dissuade young natives from opting for the apprenticeship track.

1.4.4 Robustness Checks

Several potential threats to the identification strategy merit further discussion. The Difference-in-Differences approach identifies the causal effects of the reform that liberalized access to the Swiss labor market for CBW on the educational outcomes of young natives, provided certain identifying assumptions hold.

The primary assumption hinges on parallel trends in education track choices in both the treated and control regions in the absence of the reform. This assumption can be assessed through an examination of the event study results, illustrated in Graphs 1.5 and 1.6. The coefficients in the pre-reform phase are consistently equal to zero, indicating no differential trend in the regions before the policy changes. This observation supports the parallel trends assumption, reinforcing the validity of the DiD approach in identifying the causal effects of the reform on education choices.

To address the concern about the definition of treated individuals, the analysis relies on the municipality of birth to determine treatment status. To validate this approach, regressions are performed on a subsample of individuals who had resided in the same municipality for a minimum of 10 years. Detailed results are presented in Tables 1.8 and 1.9. The coefficients are hardly affected by the change in the sample, but they are less precisely estimated. Improved precision could be achieved if information on the municipalities individuals moved to was available, particularly to include individuals who relocated to neighboring municipalities belonging to the same treatment or control group. However, the data only provide information on individuals' residence municipalities over the past 5 years, which does not cover the analysis period for most cases.

In another robustness check, the control group, initially comprising individuals living

in border region municipalities beyond a 30-minute travel distance from the nearest border crossing, was replaced with the non-border region as the control. The difference with respect to the control region in the previous specifications is that the non-border region was inaccessible to CBW until 2007. Notably, individuals in this region were not exposed to CBW before 2007 and exposure remained limited thereafter (see Figures 1.1 and 1.3). I do not find any statistically significant effects in this alternative setup. Tables 1.10 and 1.11 show the detailed findings.

The discussion in Section 1.3 highlights one value within the variable describing education outcomes, specifically "higher technical college" [20]. This value, categorized as "Higher technical and vocational training with federal diploma" in the aggregate variable, poses definitional challenges. Therefore, this value is excluded from the definitions of university and apprenticeship in the baseline analysis. However, in a robustness check, regressions are run with an alternative definition of apprenticeship education encompassing this category (see Tables 1.12 and 1.13). Importantly, the conclusions remain consistent with this alternative definition.

Given the binary nature of the dependent variable, I also include a robustness check using a logit model to estimate the equations. The results are presented in Tables 1.14 and 1.15, demonstrating that the findings remain robust to this alternative model.

Lastly, I verify the robustness of my results to an alternative method of calculating the standard errors. Specifically, I apply two-way clustering, as proposed by Cameron et al. (2011). Table 1.16 presents the results, reporting standard errors clustered at the municipality level and the birth year level. It is observed that the standard errors are somewhat smaller, leading to increased statistical significance for some cohorts.

In conclusion, these extensive robustness checks enhance the confidence in the reliability and validity of the study's key findings.

1.4.5 Heterogeneous Effects

In this section, I analyze the heterogeneous effects of the reform on education outcomes. First, I analyze the reaction to the reform separately for individuals residing in munici-

[20] Full description: Higher technical college (predecessor of universities of applied sciences (for example, HTL, HWV, HFG, HFS) incl. Postgraduate diplomas (3 years full-time or 4 years part-time studies).

palities that voted in favor of the Bilaterals I and those that voted against it. Following this, I examine the outcomes for men and women separately to discern any potential gender effects. Additionally, I explore the differences between linguistic regions and investigate the effects in both the German- and French-speaking parts. Finally, I split the sample into individuals born with Swiss citizenship and those born with another citizenship, who either still do not possess a Swiss passport or have undergone naturalization. This comprehensive approach allows for a nuanced understanding of how the reform's impact varies across demographic and geographic dimensions.

Voting Outcomes

The bilateral contracts, which eventually led to the opening of borders for CBW, were subject to a popular vote on May 21, 2000. This raises an intriguing question: Were the reactions to the reform different in municipalities that voted in favor compared to those that voted against it? To address this question, I use data on voting outcomes at the municipality level from the Federal Statistical Office. The vote was accepted with 67.2% of the votes, and 78 % of the municipalities in the sample voted in favor of the bilateral contracts.

The results of the analysis are presented in Figure 1.10 and detailed in Tables 1.20 and 1.21. While there is no differential effect on university choice when considering the aggregate cohort, the negative effect on apprenticeship appears to be driven by municipalities that voted in favor of the agreement. When examining the two-year cohorts, as in the baseline results, the effect is positive and significant on university choice for Cohort 3 but only in municipalities that accepted the contracts. No effect is observed in municipalities that rejected them. This suggests that individuals in regions that accepted the referendum might have been better informed about labor market effects, leading them to choose to invest in their human capital. For apprenticeship, in Cohort 2, there is a negative and significant effect in both subsamples, but the effect in municipalities that voted in favor is almost twice as large.

Gender

Figure 1.11 and Tables 1.22 and 1.23 present the results of separate regressions for women and men. Women and men might experience competition from CBW differently, depending on the profession they want to exercise, and hence differ in their educational responses.

Indeed, the results reveal gender-based differences in the effects of the reform. No significant effect of the reform is observed for women. However, for men, a positive and significant effect is evident for Cohort 3 in the strong treatment and Cohort 2 in the weak treatment for university outcomes. Similarly, for apprenticeship, the negative effect is only apparent in Cohort 2 for women in the strong treatment group, but men in both Cohort 1 and Cohort 2 exhibit reactions to the influx of Cross-Border Workers (CBW).

A plausible explanation for this discrepancy could be the types of occupations that CBW fill when commuting to Switzerland and the resulting wage incentives. As highlighted by Beerli et al. (2021), CBW are predominantly employed in Research and Development, IT analytics, and consultancy. The descriptive evidence in Figure 1.14 illustrates that these occupations are largely dominated by men, with nearly 90% of IT specialists and analysts being male. This implies that more men would benefit from positive wage effects by working in these sectors where productivity gains are achieved. This occupational gender imbalance may contribute to the observed variations in the impact of the reform on educational choices between men and women.

Linguistic Regions

Switzerland consists of four linguistic regions: German-, French-, Italian-, and Romansh-speaking cantons. Given that these regions differ not only in language but also in other cultural dimensions, it is plausible that the culture plays a role in the educational response to the reform. Figure 1.15 illustrates that, on average, more people in German-speaking cantons have an apprenticeship than in other regions, whereas in French- and Italian-speaking regions, the proportion of individuals with university degrees is higher than in the German-speaking region.

The results of the analysis for the German- and French-speaking regions [21] are presented in Figure 1.12 detailed in Tables 1.24 and 1.25. Looking at the average across cohorts, there is no significant effect on university choice for either region in the split sample. However, for apprenticeship, the effect is negative and significant in the German-speaking region for the strong treatment. Examining the two-year cohorts, again, there is no effect on university education, and the negative effect on apprenticeship choice is driven by individuals born in German-speaking cantons between 1990 and 1995 in the strong treatment. A similar effect is also observed for Cohort 2 in the weak treatment group.

These findings underscore the importance of considering linguistic and cultural dimensions when examining the impact of the reform on educational choices.

Citizenship

Finally, I conduct the same regression analysis on two subsamples of individuals: those born with Swiss citizenship and those born with another citizenship in Switzerland. The results are presented in Tables 1.26 and 1.27, and the visual representation is provided in Figure 1.13.

Interestingly, both, the positive effect on university choice and the negative effect on apprenticeship appear to be driven by individuals born with Swiss citizenship. The results are consistent with baseline findings. Individuals born without a Swiss passport do not appear to react to the reform.

It's important to acknowledge that the observed changes in precision could partly be attributed to the reduced sample size, especially for those without Swiss citizenship at birth. The subsample of non-Swiss citizenship is only 13%-14% of the original sample size.

[21] The Romansh-speaking and Italian-speaking regions are excluded from the analysis here due to the limited number of observations in the control region.

1.4.6 Additional Results

Length of College Education

In this section, I extend the results on the choice of the university track. As I have previously demonstrated, not all cohorts reacted to the reform by opting for the university track; another margin of adaptation could be the length of education. The available data provide information about the level of a university degree, specifying whether it is a bachelor's, master's, or PhD degree. To analyze whether individuals who chose the university track stayed longer in education after the reform, I employ an ordered logit model. Additionally, I explore the total length of education using a variable ranging from 1 to 13, with a value of 1 for no education and 13 for a PhD.

Table 1.17 presents the regression results, indicating the odds ratios. Interestingly, I do not find an effect of the reform on the length of education, either for the total length or for tertiary education. These results suggest that while the reform influenced the choice of university track for some individuals, it did not significantly impact the duration of tertiary education among individuals who pursued this path.

Learned and Current Occupation

To further explore the chosen education path, I examine two additional variables in the data: learned and current occupation. This information allows me to analyze a crucial aspect of the border opening - specifically, the increasing employment of CBW in science, technology, engineering, and mathematics (STEM) occupations in Switzerland. In general, skills in STEM-related fields are generally less country-specific and more easily transferable. Bächli and Tsankova (2023) find that earnings in STEM occupations increased for upper secondary educated, while there were no changes for tertiary educated in Switzerland. This analysis aims to assess whether individuals in treated regions were more or less inclined to learn and work in STEM occupations. My results complement the findings by Bächli and Tsankova (2023), who look at enrollment into STEM fields. The regression model is consistent with that used at baseline, with the addition of education controls. I then use the education variable in a second step to run the regressions by education level to explore potential heterogeneity. Occupations are defined according

to the "Swiss Standard Classification of Occupations 2000" (SSCO 2000). Similar to the classification in a study commissioned by the State Secretariat for Education, Research and Innovation (SERI) (Gehrig et al., 2010), I define the three SSCO 3-digit entries "311 Engineering", "361 Computer Science" and "853 Natural Sciences" as STEM professions. Additionally, I include the group "321 Technicians" and selected health sector professions in line with the OECD definition. Table 1.7 outlines the 5-digit occupations falling within these categories.

On average, across all cohorts and education groups, Table 1.18 shows that there is no significant effect of the reform on learned and current occupations in either treatment region. This suggests that on average, individuals did not alter their choices in terms of STEM degrees in response to the reform. However, when analyzing the two-year cohorts separately, a positive and significant effect on current occupation is observed in Cohort 3 in both treatment regions.

These results align with the findings of Bächli and Tsankova (2023), who do not observe a significant change in STEM enrollment for any institution type, but noted an increase in enrollment in non-STEM fields in universities of applied sciences after 2007. Unfortunately, the data do not allow me to distinguish between types of institutions.

Further analysis involves breaking down the results by educational level. I run the regression for three subsamples of individuals with Secondary I, Secondary II, or Tertiary degrees. This is particularly interesting, as Bächli and Tsankova (2023) analyzed wage effects of the reform by education and occupation and found an increase in wages at the upper-secondary level for STEM occupations. The results in Table 1.19 indicate an increase in STEM fields for occupations learned by individuals with Secondary II education, aligning with the observed positive wage effects.

1.5 Conclusion

In this paper I analyze the impact of a policy reform that eased access to the labour market for CBW on the educational outcomes of native individuals. It examines whether natives, particularly those facing increased competition from CBW, choose to pursue higher education or pivot towards apprenticeships to mitigate competition and learn

country-specific skills.

When investigating the impact on tertiary education, I find a significant positive effect across all cohorts. However, a closer look at specific cohorts reveals that this effect is mainly driven by those who entered university tracks around 2008/2009, about 4-5 years after the policy change. Conversely, a significant decrease in apprenticeship completion is noted overall, with the 1990-1991 birth cohort primarily affected.

These findings suggest that heightened competition from CBW in Switzerland encouraged young natives to pursue higher education, albeit with a delay. However, the results do not allow to conclude the duration of this effect. For the latest cohort, it is possible that the true effect is underestimated due to the data only extending up to 2018, with some individuals still in the midst of their education. Therefore, obtaining additional years of data and extending the analysis would be beneficial.

Both empirical evidence from related studies and my own analysis indicate that two factors - wages and unemployment risk - play a role in these effects. Wages for highly educated individuals increased in regions near the borders, which may explain why individuals in these regions increasingly pursued tertiary education. Additionally, an analysis of unemployment risk across different education levels suggests that individuals with Secondary II education face a higher risk, potentially discouraging them from choosing apprenticeships at a young age.

Tables and Figures

Table 1.1: Cohorts

Year	**Birth Cohort University**	**Birth Cohort Apprenticeship**
Pre-reform phase		
Pre-reform cohort	1975-1978	1976-1981
Transition phase		
Pre-reform cohort	1979-1984	1982-1987
Liberalization phase		
Cohort 1	1985-1986	1988-1989
Cohort 2	1987-1988	1990-1991
Cohort 3	1989-1990	1992-1993
Cohort 4	1991-1992	1994-1995

Table 1.2: Descriptive statistics

	Mean	Std.Dev.	Min	Max	Obs
Education choice					
University	0.27	0.45	0	1	444989
Apprenticeship	0.64	0.48	0	1	444989
Individual characteristics					
Age	27.56	6.22	15	41	444989
Swiss since birth	0.88	0.33	0	1	444989
Female	0.50	0.50	0	1	444989
Lives in birth municipality	0.26	0.44	0	1	444989
Multilingual (1+ languages)	0.11	0.31	0	1	444989
Km to nearest university	18.75	17.83	0	105	444989
Learned occupation: STEM	0.13	0.34	0	1	373100
Current occupation: STEM	0.12	0.32	0	1	340837
Municipality characteristics					
Border region	0.61	0.49	0	1	1304
Distance border (Minutes)	34.98	21.61	1	105	1304
Distance border (Km)	42.46	29.71	0	145	1304
Accepted Bilaterals	0.78	0.41	0	1	1304
German speaking	0.70	0.46	0	1	1304
French speaking	0.20	0.40	0	1	1304
Urban	0.44	0.50	0	1	1304

Table 1.3: Descriptive statistics for the four regions

	(1) Strong treatment	(2) Weak treatment	(3) Control 1	(4) Control 2
Education choice				
University	0.32	0.27	0.28	0.24
	(0.47)	(0.44)	(0.45)	(0.43)
Apprenticeship	0.55	0.66	0.65	0.69
	(0.50)	(0.47)	(0.48)	(0.46)
Individual characteristics				
Age	27.39	27.38	27.97	27.69
	(6.27)	(6.24)	(6.20)	(6.18)
Female	0.50	0.50	0.51	0.50
	(0.50)	(0.50)	(0.50)	(0.50)
Swiss since birth	0.82	0.87	0.88	0.92
	(0.38)	(0.34)	(0.33)	(0.27)
Multilingual (1+ languages)	0.13	0.11	0.11	0.09
	(0.33)	(0.31)	(0.31)	(0.28)
Km to nearest university	13.32	19.27	28.32	18.10
	(14.95)	(15.26)	(25.27)	(16.40)
Learned occupation: STEM	0.14	0.13	0.14	0.13
	(0.35)	(0.34)	(0.34)	(0.33)
Current occupation: STEM	0.12	0.12	0.12	0.11
	(0.32)	(0.32)	(0.33)	(0.32)
Municipality characteristics				
Number of municipalities	279.00	323.00	199.00	503.00
Distance border (Minutes)	8.21	22.78	41.25	55.17
	(4.01)	(4.35)	(10.94)	(15.01)
Distance border (Km)	7.59	25.13	47.31	71.02
	(4.35)	(7.52)	(12.64)	(22.02)
Urban	0.57	0.58	0.41	0.30
	(0.50)	(0.49)	(0.49)	(0.46)
Accepted Bilaterals	0.76	0.87	0.75	0.76
	(0.43)	(0.34)	(0.43)	(0.43)
Observations	104474	138243	61550	140722

Standard deviations in parentheses.

Table 1.4: Baseline regression

	(1)	(2)	(3)
Panel A: University			
Free X Strong treatment	0.0158	0.0181	0.0200**
	(0.0130)	(0.0131)	(0.00924)
Free X Weak treatment	0.00555	0.00687	0.0118
	(0.0120)	(0.0121)	(0.00885)
Observations	269700	269700	269700
Panel B: Apprenticeship			
Free X Strong treatment	-0.0210***	-0.0181	-0.0219**
	(0.00518)	(0.0218)	(0.0110)
Free X Weak treatment	0.00433	0.00519	-0.00965
	(0.00487)	(0.0193)	(0.00761)
Observations	304267	304267	304267
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

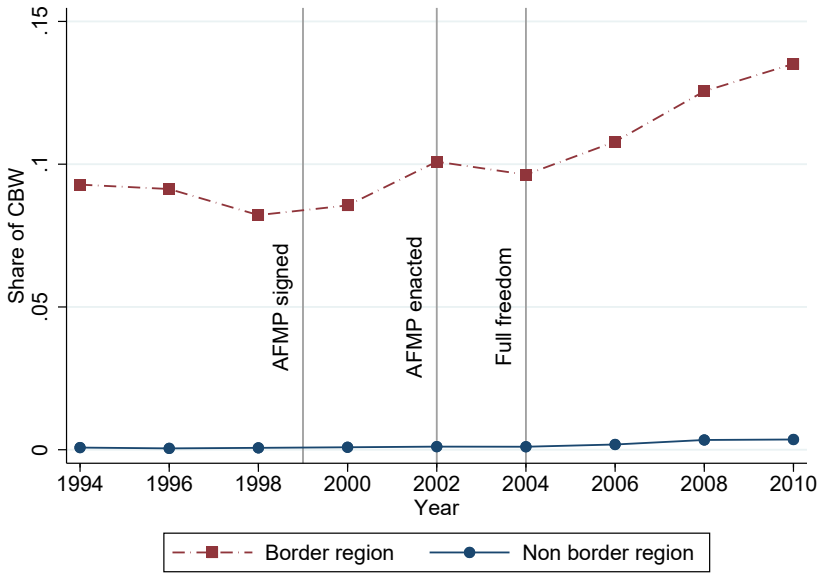
Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.5: Baseline regression - Two-year cohorts

	(1)	(2)	(3)
Panel A: University			
Cohort 1 (1985,1986) X Strong treatment	0.0210*	0.0137	0.0138
	(0.0123)	(0.0119)	(0.0111)
Cohort 2 (1987,1988) X Strong treatment	0.0401***	0.0212*	0.0191
	(0.0134)	(0.0118)	(0.0121)
Cohort 3 (1989,1990) X Strong treatment	0.0303**	0.0248	0.0267**
	(0.0138)	(0.0159)	(0.0106)
Cohort 4 (1991,1992) X Strong treatment	-0.0242	0.0120	0.0165
	(0.0162)	(0.0222)	(0.0138)
Cohort 1 (1985,1986) X Weak treatment	0.0191*	0.0114	0.0122
	(0.0112)	(0.0109)	(0.0102)
Cohort 2 (1987,1988) X Weak treatment	0.0327***	0.0137	0.0151
	(0.0119)	(0.00988)	(0.0106)
Cohort 3 (1989,1990) X Weak treatment	0.0178	0.0118	0.0183*
	(0.0129)	(0.0151)	(0.0111)
Cohort 4 (1991,1992) X Weak treatment	-0.0427***	-0.00835	0.00222
	(0.0151)	(0.0213)	(0.0138)
Observations	269700	269700	269700
Panel B: Apprenticeship			
Cohort 1 (1988,1989) X Strong treatment	0.0315	-0.0134	-0.0142
	(0.0210)	(0.0136)	(0.0102)
Cohort 2 (1990,1991) X Strong treatment	0.00604	-0.0337	-0.0404***
	(0.0216)	(0.0257)	(0.0122)
Cohort 3 (1992,1993) X Strong treatment	-0.0251	-0.0221	-0.0254
	(0.0241)	(0.0280)	(0.0163)
Cohort 4 (1994,1995) X Strong treatment	-0.0925***	-0.00367	-0.00839
	(0.0233)	(0.0257)	(0.0165)
Cohort 1 (1988,1989) X Weak treatment	0.0462**	0.00126	-0.00440
	(0.0195)	(0.0110)	(0.00797)
Cohort 2 (1990,1991) X Weak treatment	0.0317	-0.00837	-0.0248**
	(0.0197)	(0.0241)	(0.0121)
Cohort 3 (1992,1993) X Weak treatment	0.0105	0.0134	-0.00370
	(0.0196)	(0.0243)	(0.0113)
Cohort 4 (1994,1995) X Weak treatment	-0.0701***	0.0142	-0.00618
	(0.0201)	(0.0229)	(0.0112)
Observations	304267	304267	304267
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing, the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1.1: Share of CBW in total employment (1998)



Note: The graph shows the share of CBW over time in total employment (1998), in the border and non-border region.
Source: Swiss Earnings Structure Survey

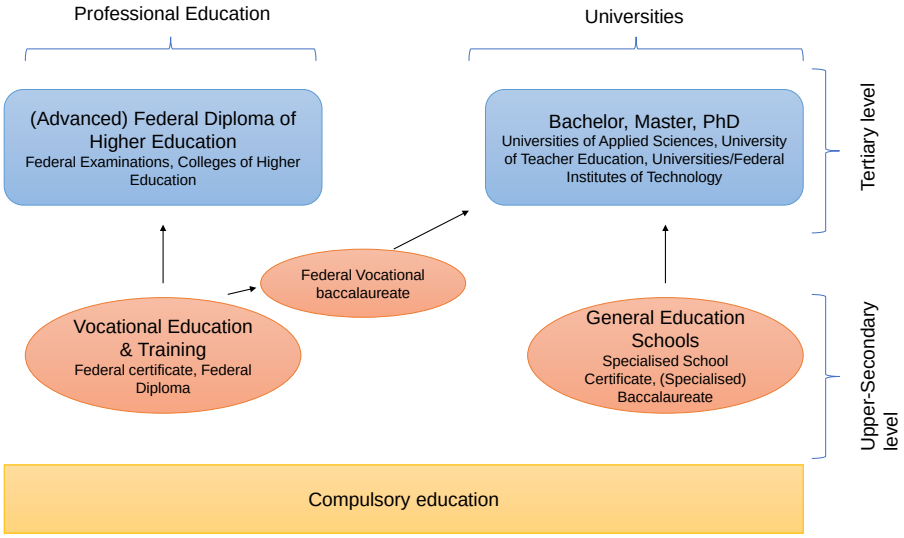
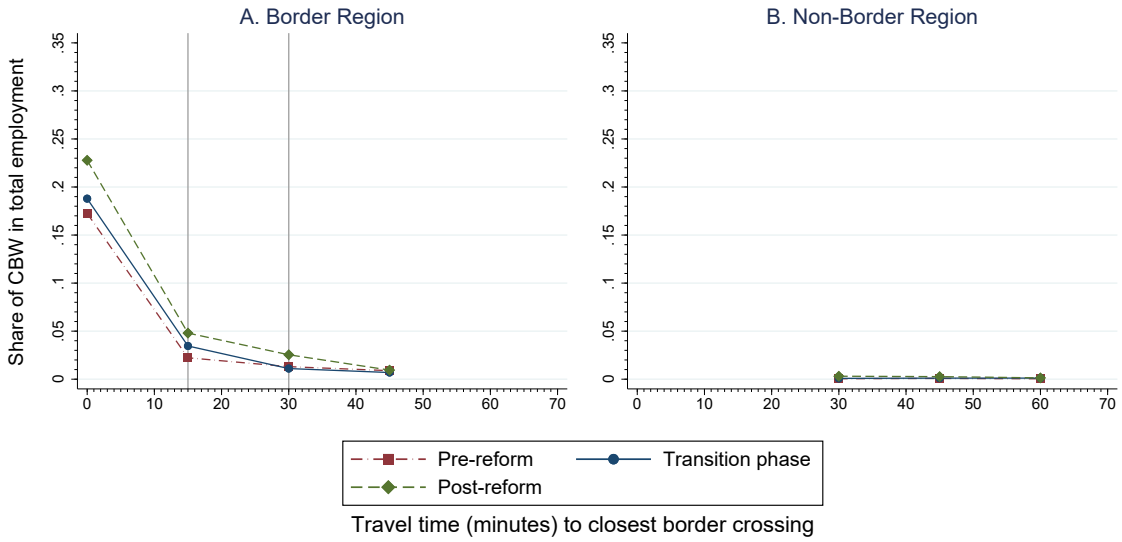


Figure 1.2: Dual Swiss education system. The graph illustrates the two larger tracks that can be chosen, professional education and university.

Figure 1.3: Share of CBW in total employment (1998) by travel distance



Note: The graph shows the share of CBW in total employment (1998) in the different regions defined by the travel distance in minutes from the closest border crossing (15-minute groups). The lines show the share of CBW during the three phases of the reform (before the signing of the AFMP in the transition and liberalization phases).
Source: Swiss Earnings Structure Survey

Figure 1.4: Border and non-border regions

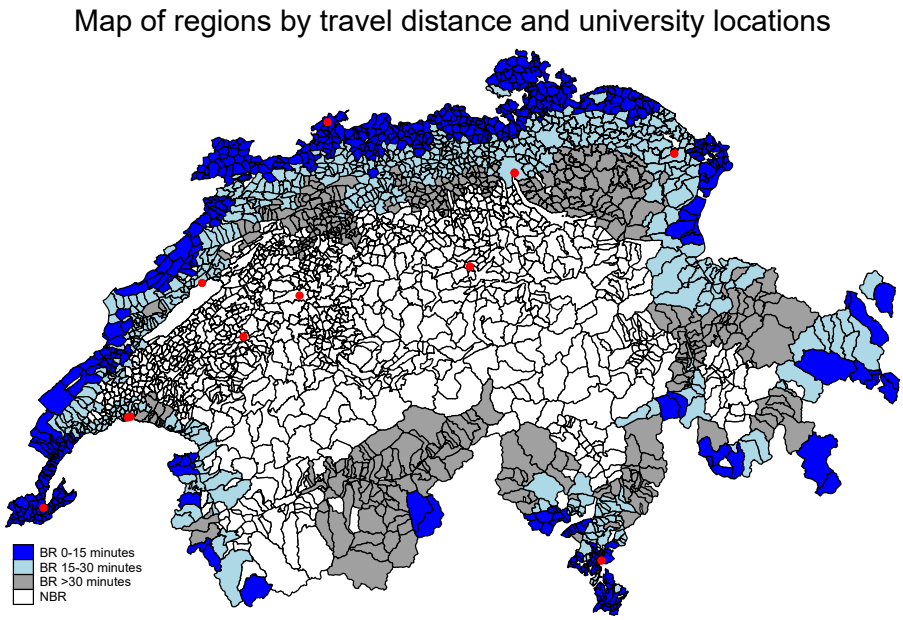
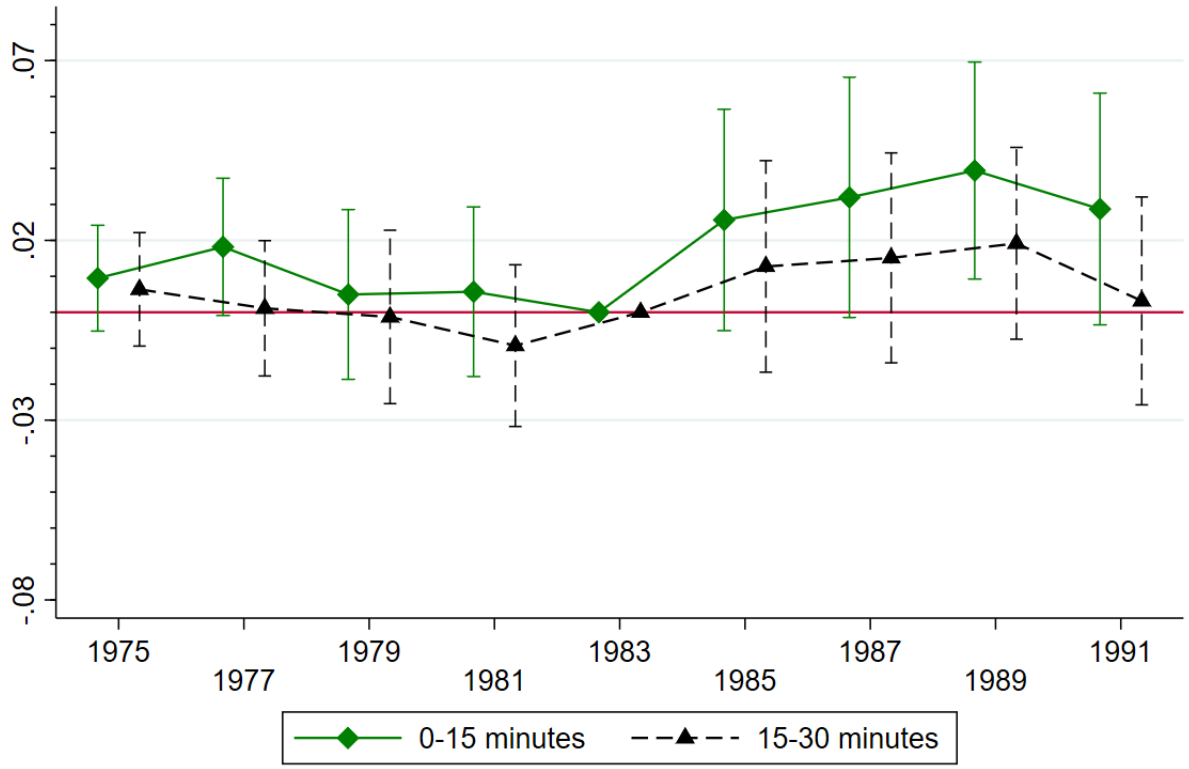
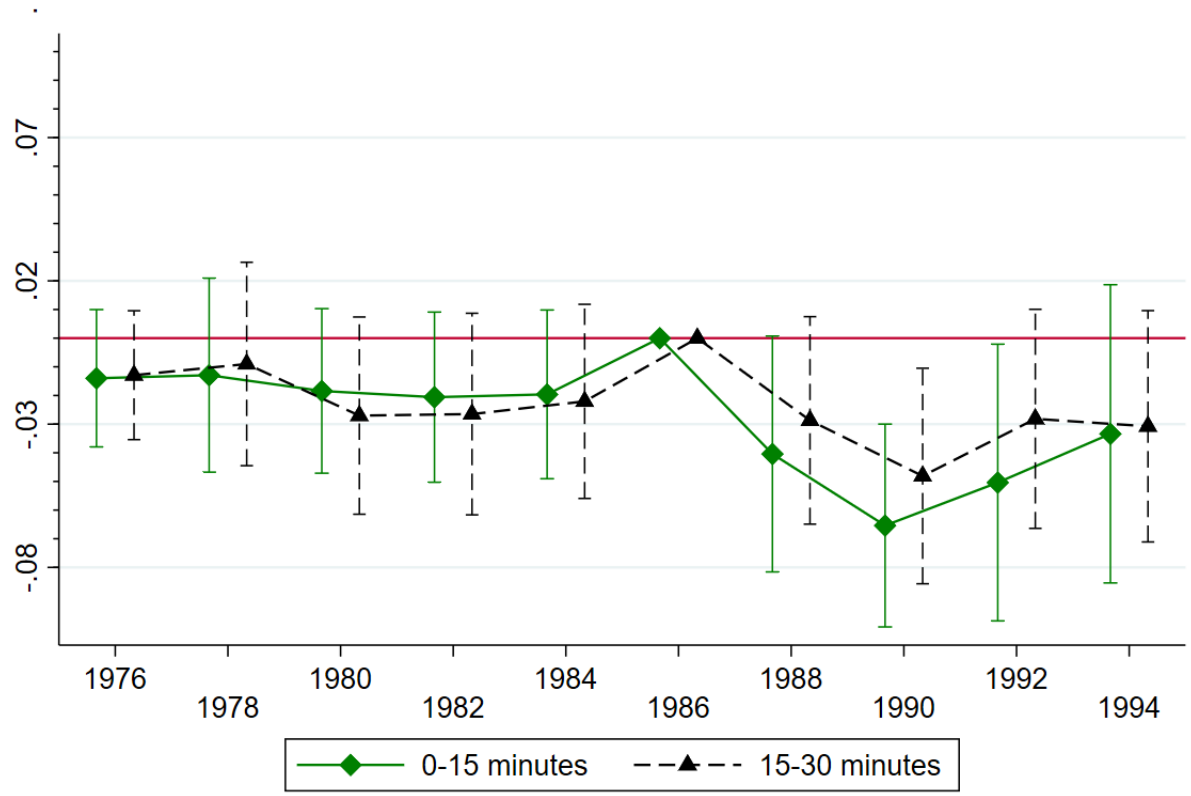


Figure 1.5: Event study with university as outcome



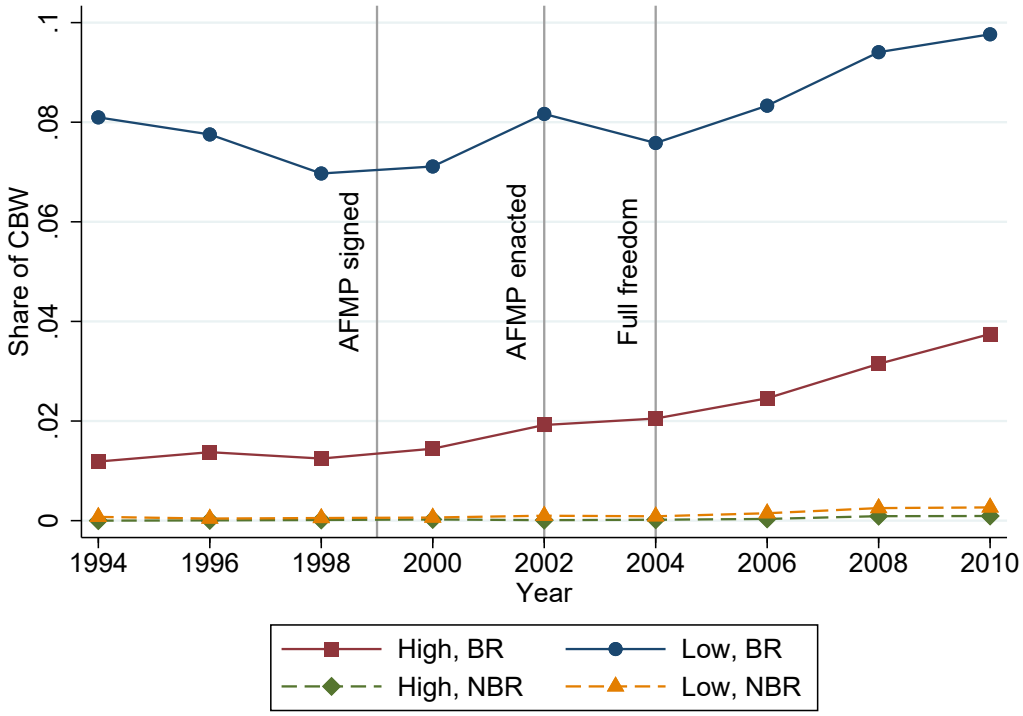
Note: The figures show the coefficients of the event study analysis and the 95% confidence intervals for university as the dependent variable. The coefficient for the baseline cohort 1983/1984 is set to zero. The regression includes cohort fixed effects, survey year fixed effects and their interaction. Standard errors are clustered at the municipality level.

Figure 1.6: Event study with apprenticeship as outcome



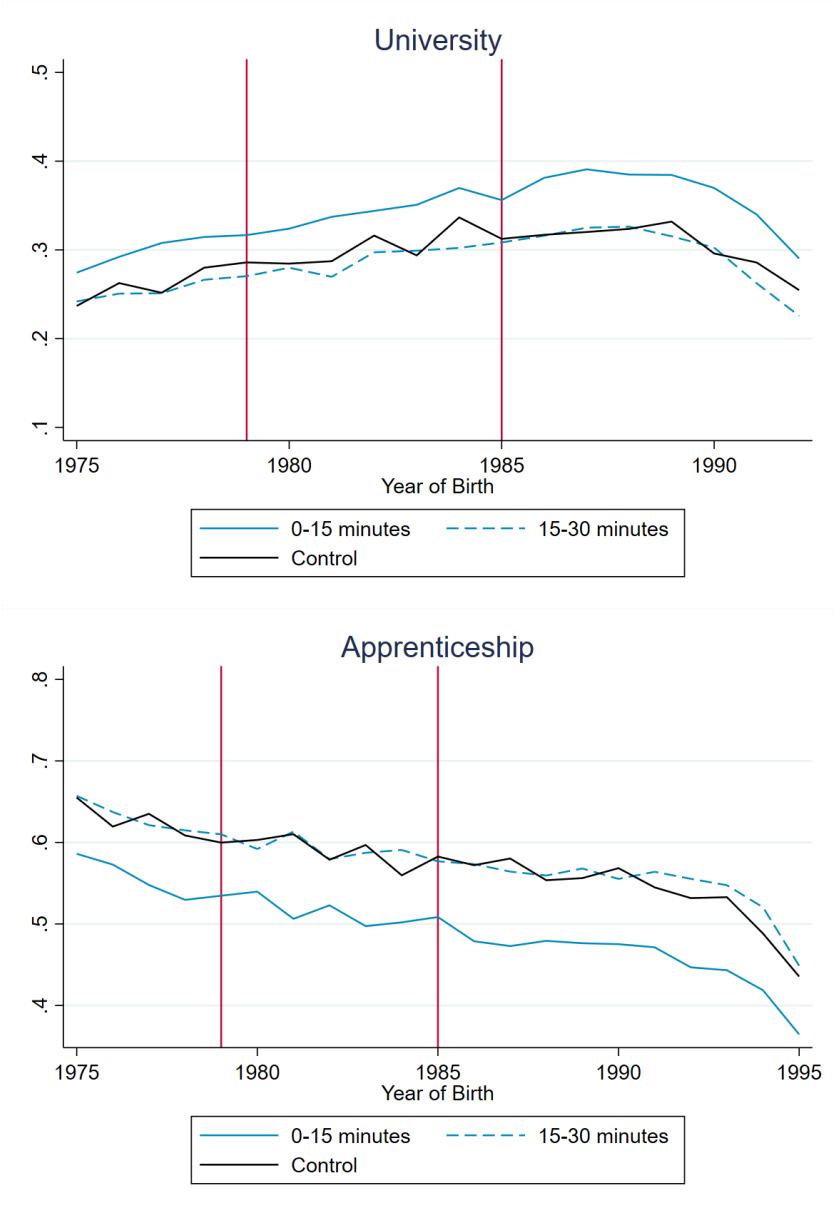
Note: The figures show the coefficients of the event study analysis and the 95% confidence intervals for apprenticeship as the dependent variable. The coefficient for the baseline cohort 1986/1987 is set to zero. The regression includes cohort fixed effects, survey year fixed effects and their interaction. Standard errors are clustered at the municipality level.

Figure 1.7: Share of CBW in total employment (1998) by education level



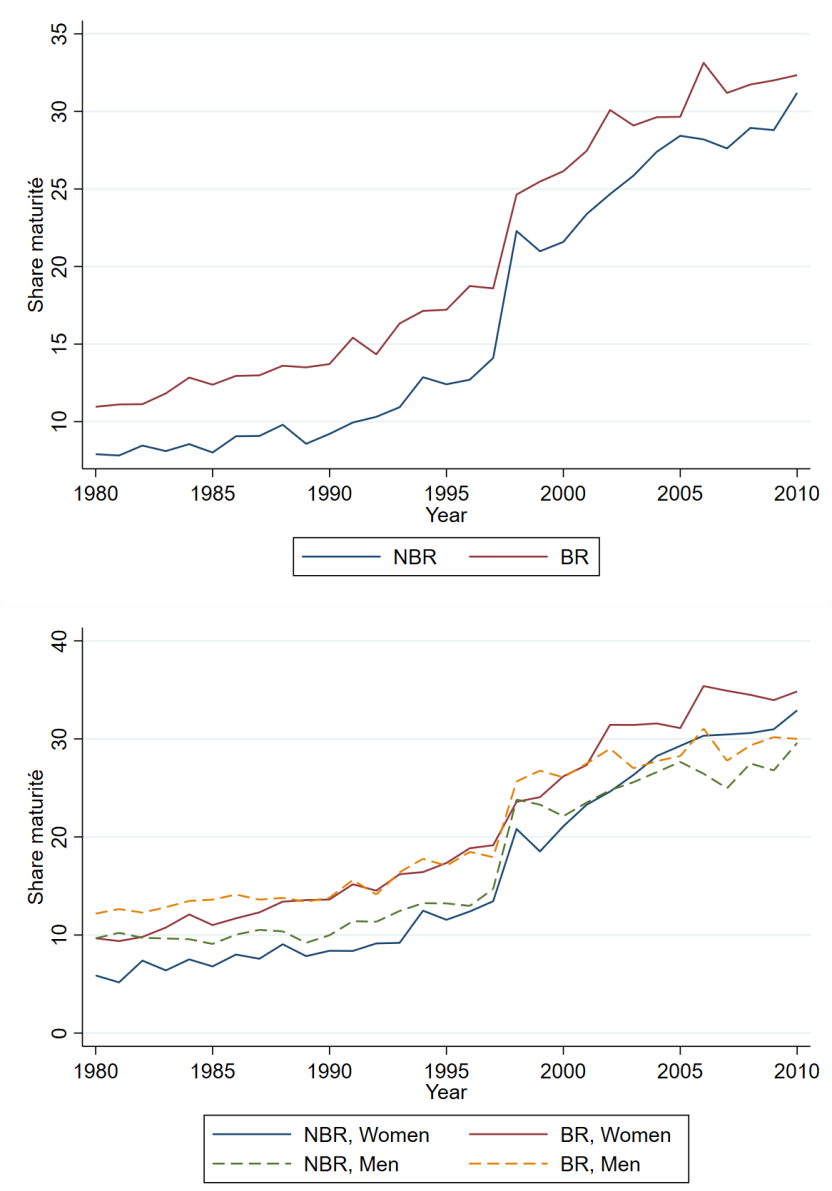
Note: The graph shows the share of CBW over time in total employment(1998), in the border and non border region and by education level. Low education level includes: teaching qualification, Matura, vocational training and no vocational training. High education level includes: University degree (UNI, ETH), University of Applied Sciences and Arts, advanced vocational training
Source: Swiss Earnings Structure Survey

Figure 1.8: Trends in the outcome variables



Note: The figures show the evolution of the two outcome variables over time (by year of birth) for the two treatment regions and the main control region. the lines show the share of individual in a birth year cohort with a certain education level (completed or enrolled in). The vertical lines mark the beginning of the transition and the reform period.

Figure 1.9: Trends in the share of students with a maturité



Note: The figures show the evolution of the share of students finishing secondary education with a maturité in the border and non-border region and by gender. This is defined as the gross rate, as a % of the resident population of typical school-leaving age (19, 20 and 21). It is important to note that the professional maturité is only included since 1998 in the cantonal statistics, which explains the jump.

Figure 1.10: Additional results: By voting outcomes

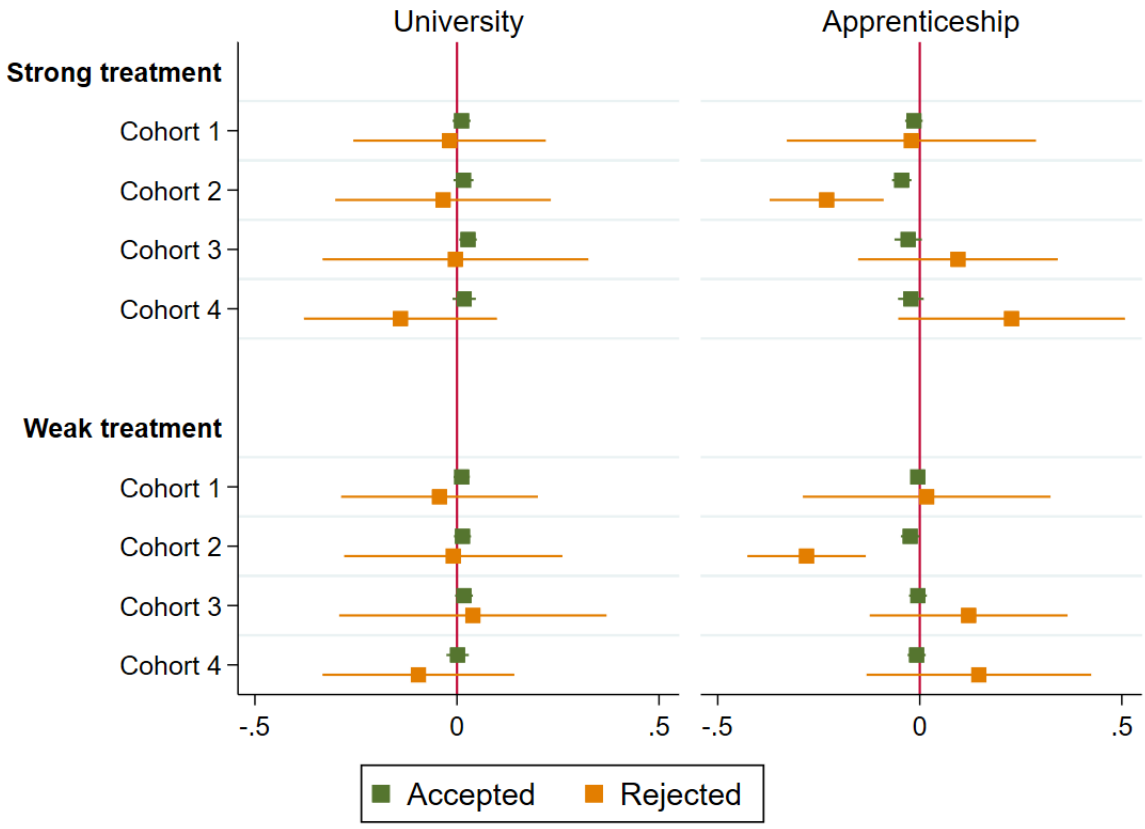


Figure 1.11: Additional results: By gender

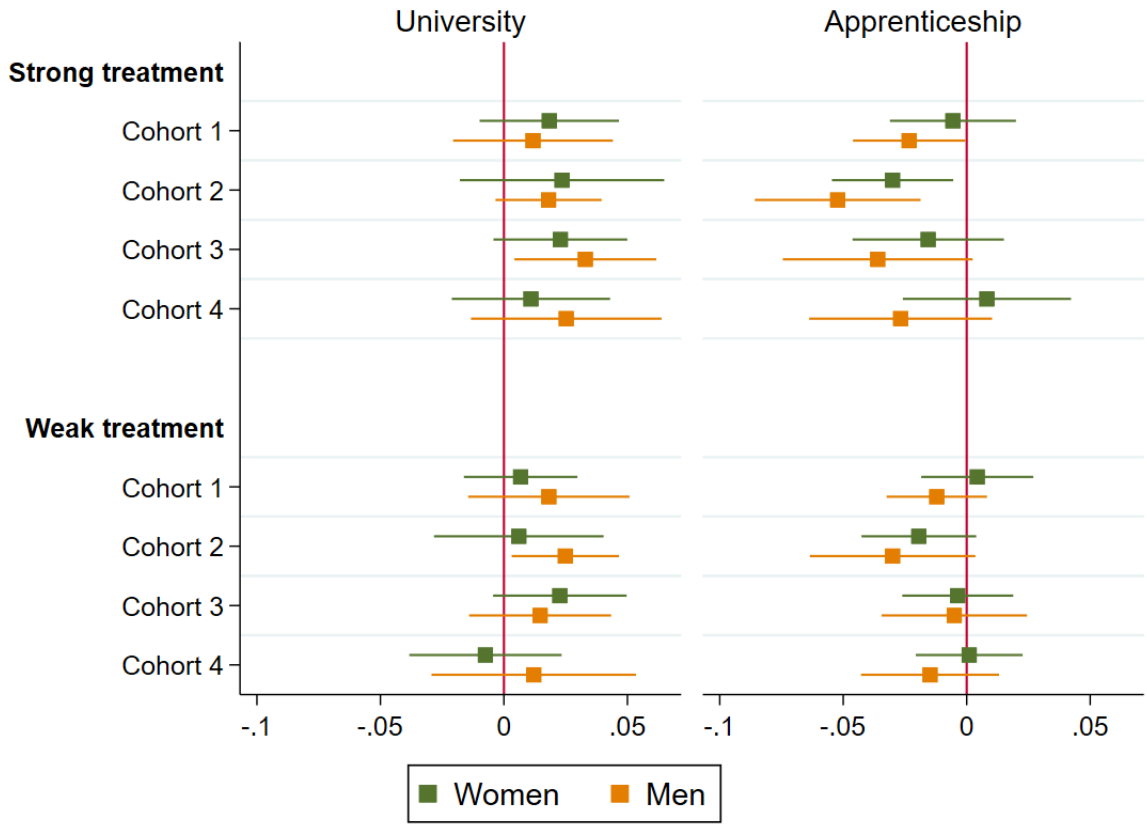


Figure 1.12: Additional results: By language region

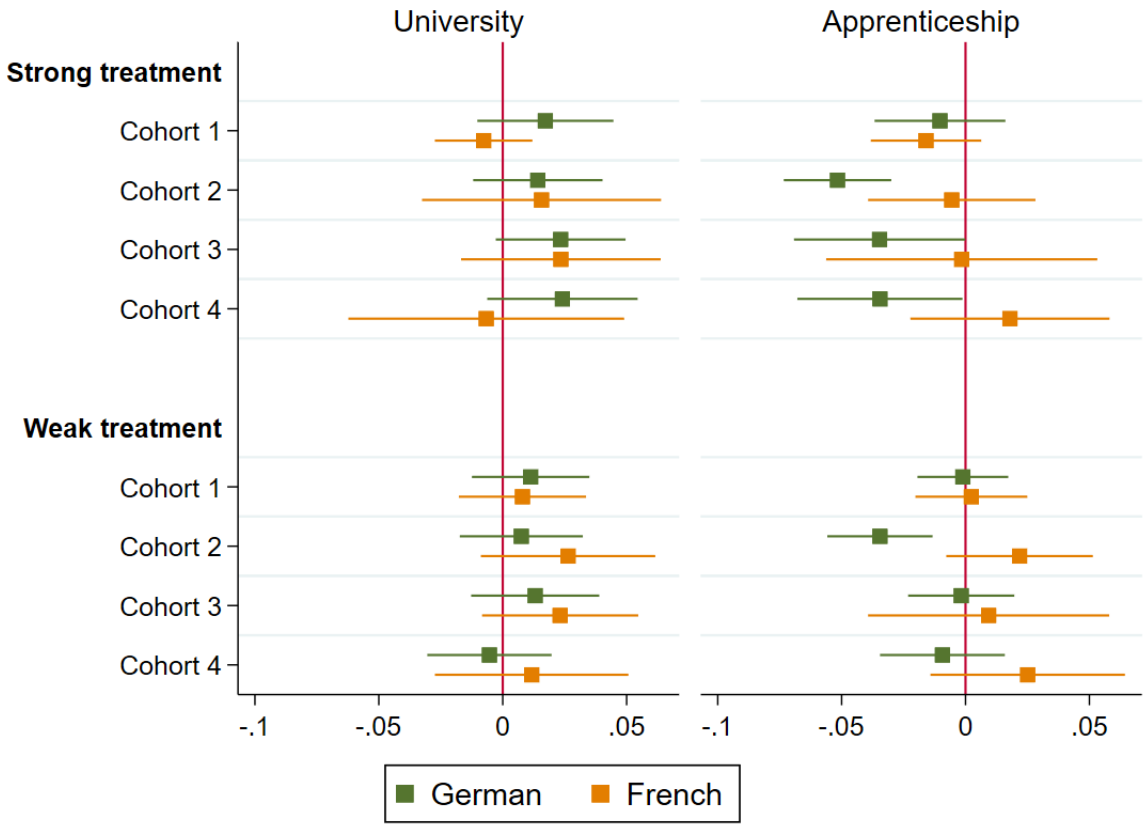


Figure 1.13: Additional results: Native vs. Non-Native

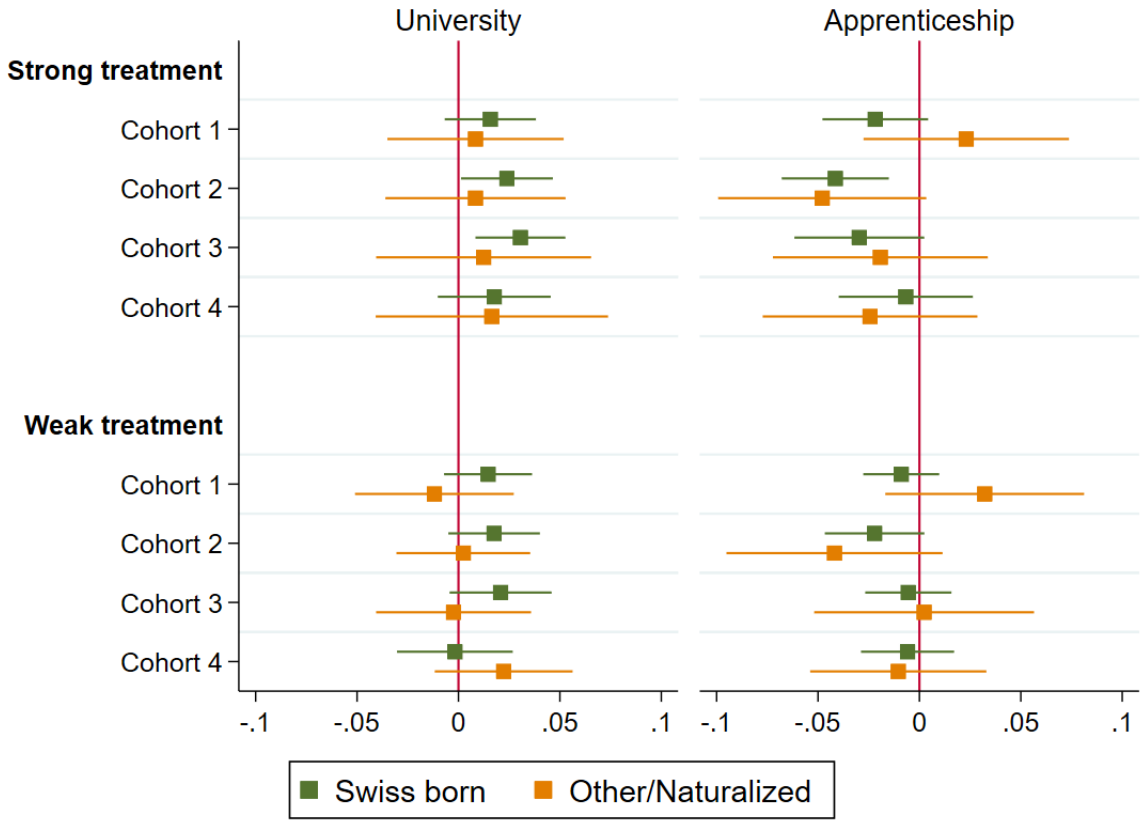


Figure 1.14: Proportion of women and men in selected occupations

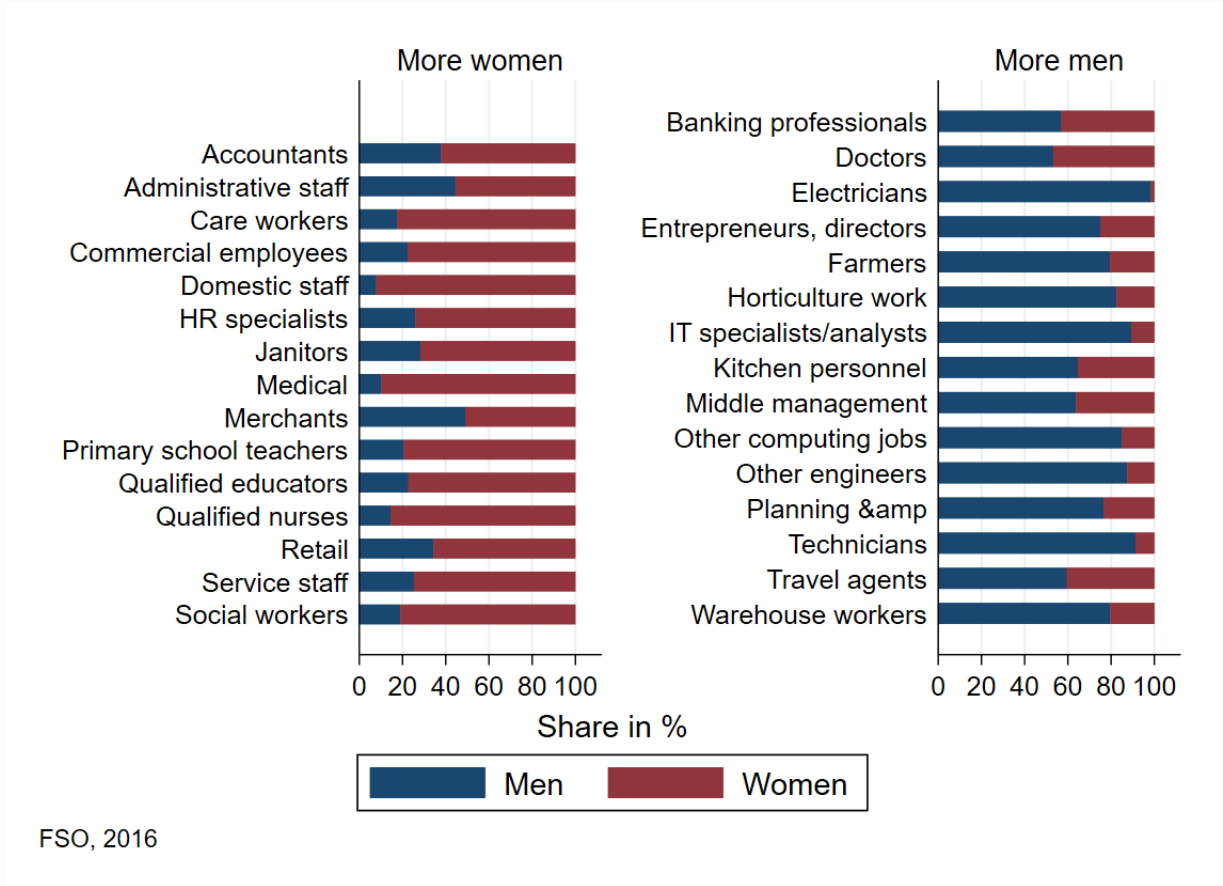
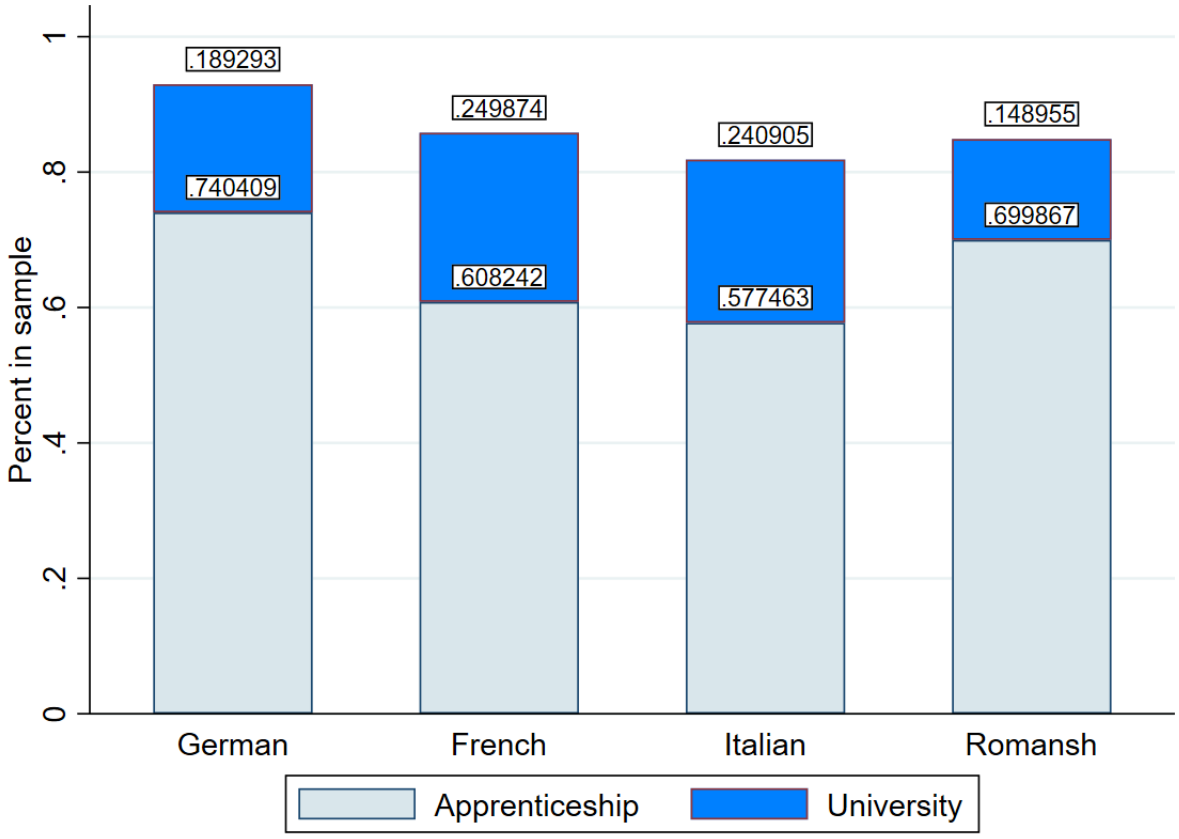


Figure 1.15: Share of individuals with university degree or apprenticeship by linguistic region



Appendix

A. Descriptive Tables and Figures

A.1 Location of Swiss Universities

The table below shows the location of all Swiss universities and the travel duration in minutes to the next border crossing (rounded to the next minute). The objective is to show that universities are located in the treatment regions and the control region. None of the universities is situated in the first control region (BR and >30 minutes travel time) but many situated in the weak treatment region are very close to that threshold and hence very close to the control region. Especially, if all universities were located in the strong treatment region and we suppose individuals moved there to attend universities and stayed in the region afterwards, the effect we observe would be biased.

University	**Region**	**Distance**
University of Basel	Strong treatment	4
University of Bern	Control (NBR)	53
University of Fribourg	Control (NBR)	65
University of Geneva	Strong treatment	8
University of Neuchâtel	Weak treatment	20
University of Lausanne	Weak treatment	27-30
University of Lucerne	Control (NBR)	53
University of Lugano	Strong treatment	9
University of St.Gallen	Weak treatment	18
University of Zurich	Weak treatment	26
Swiss Federal Institute of Technology Lausanne	Weak treatment	28
Swiss Federal Institute of Technology Zurich	Weak treatment	26

Table 1.6: Location of Swiss universities

A.2 Age when Entering Education

The following figures show a histogram visualizing the age when enrolled in university and doing an apprenticeship respectively for those that are observed when still in education.

Figure 1.16: Age of individuals enrolled in college

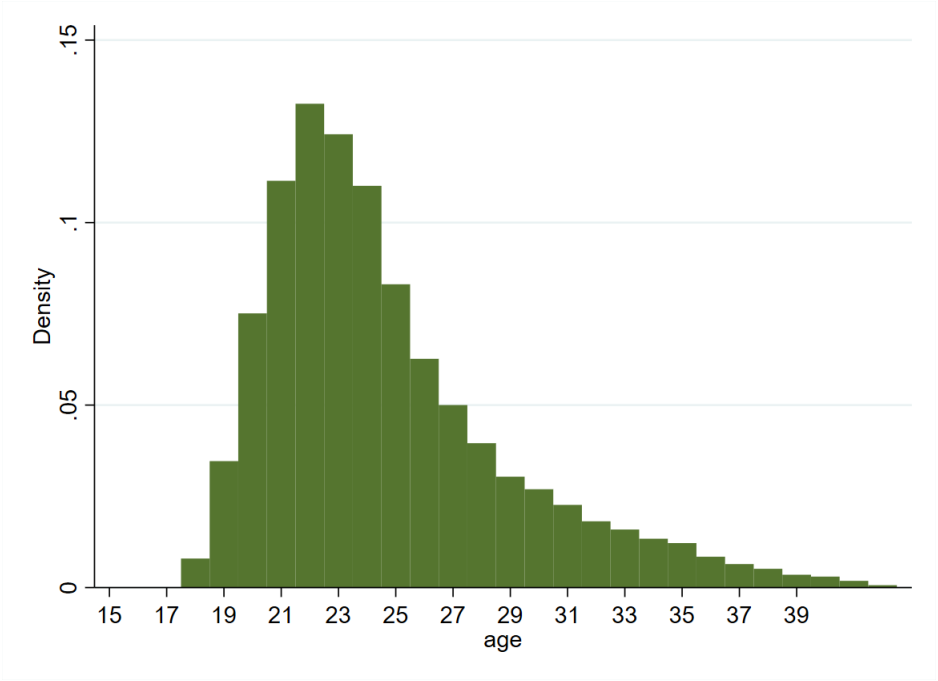
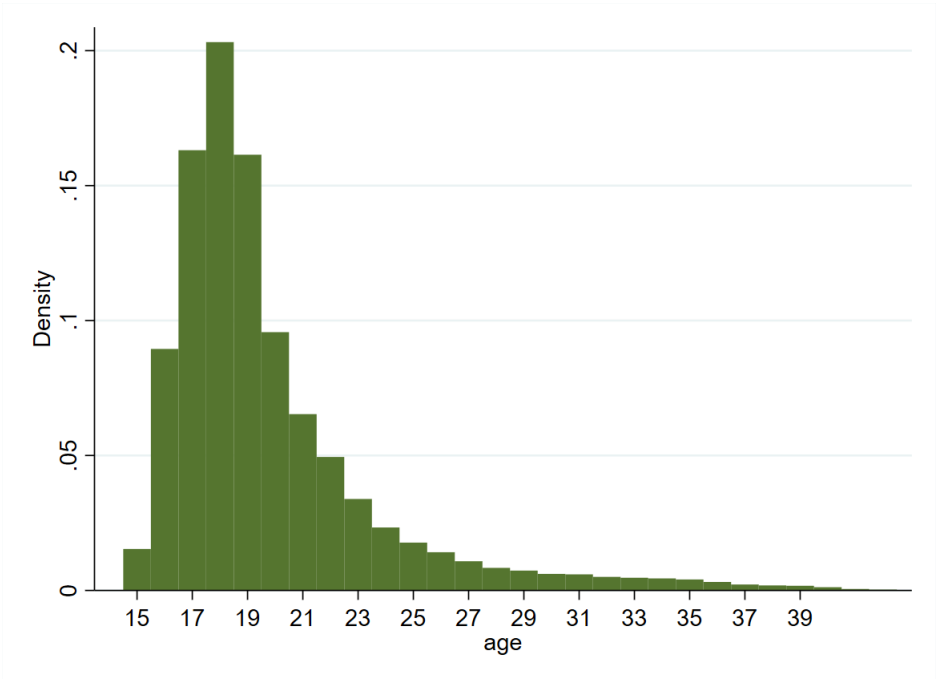


Figure 1.17: Age of individuals being in apprenticeship



A.3 Mobility of Individuals

One issue with the data is that I only observe the individuals' education outcome from 2010 on, so some years after the reform. Hence, individuals could have chosen to move in or out of treatment regions for reasons related to education. The table below gives an overview of the mobility of individuals in the sample.

Years of residence in the municipality	No.	%
Missing	25	0.0
Since birth	116,776	26.2
Less than 1 month	3,097	0.7
Between 1 and 3 months	6,073	1.4
Between 4 and 12 months	38,143	8.6
Between 1 and 5 years	146,595	32.9
Between 6 and 10 years	57,213	12.9
More than 10 years	77,067	17.3
Total	444,989	100.0

The tabulation shows that 56% of the individuals have been residents of the same municipalities for the last 6 years at least.

A.4 STEM Occupations in the SSCO 2000

SSCO 2000 code	Occupation
	311 Engineering
31101	Architect
31102	Civil engineer
31103	Computer scientist
31104	Mechanical engineer
31105	Engineer in heating, ventilation and air conditioning systems
31106	Electrical engineer
31107	Engineer in electronic and microtechnology
31108	Forestengineer
31109	Agronomist
31110	Agricultural engineer, surveyor
31111	Urban planner, landscapist
31112	Chemical and food engineer
31113	Other engineers
	321 Technicians
32101	Electrical engineering technician
32101	Electronics engineering technician
32101	Civil engineering technician
32101	Mechanical engineering technician
32101	Textile engineer/technician
32101	Telecommunications engineer/technician
32101	Technician in heating, ventilation and air conditioning systems
32101	Aircraft technician
32101	Other technicians
	361 Computer sciences
36101	Computer specialist, analyst

36102	Programmer
36103	Computer machinist
36104	Webmaster
36105	Other occupations in computer science

853 Natural sciences

85301	Biologist
85302	Geographer, meteorologist
85303	Chemist
85304	Mathematician, statistician
85305	Physicist
85306	Experts in environmental protection
85307	Other occupations in natural sciences

861 Human medicine and pharmacy

86101	Medical doctor
86103	Pharmacist
86104	Pharmaceutical assistant

862 Therapy and medical technology

86201	Physiotherapist, ergotherapist

863 Dental hygiene

86301	Dentist
86302	Dental technician

864 Veterinary medicine

86401	Veterinarian

865 Health and caring

86501	Midwife
86502	Pediatric nurse
86503	Psychiatric nurse
86504	Nursing professional

B. Robustness Checks

Table 1.8: Robustness: At Least 10 Years in Municipality

	(1)	(2)	(3)
Panel A: University			
Free X Strong treatment	0.0177	0.0184	0.0213
	(0.0194)	(0.0194)	(0.0132)
Free X Weak treatment	-0.0117	-0.0108	-0.00169
	(0.0210)	(0.0209)	(0.0167)
Observations	101568	101568	101568
Panel B: Apprenticeship			
Free X Strong treatment	-0.0163**	-0.0157	-0.0233
	(0.00796)	(0.0239)	(0.0142)
Free X Weak treatment	0.00797	0.00987	-0.00838
	(0.00754)	(0.0211)	(0.00999)
Observations	132674	132674	132674
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.9: Robustness: At Least 10 Years in Municipality - Two-year cohorts

	(1)	(2)	(3)
Panel A: University			
Cohort 1 (1985,1986) X Strong treatment	0.0208	0.0141	0.0149
	(0.0204)	(0.0217)	(0.0198)
Cohort 2 (1987,1988) X Strong treatment	0.0663***	0.0239	0.0201
	(0.0192)	(0.0168)	(0.0145)
Cohort 3 (1989,1990) X Strong treatment	0.0454**	0.0320	0.0337*
	(0.0193)	(0.0245)	(0.0173)
Cohort 4 (1991,1992) X Strong treatment	-0.0343	0.00605	0.0136
	(0.0223)	(0.0236)	(0.0153)
Cohort 1 (1985,1986) X Weak treatment	0.00103	-0.00692	-0.00281
	(0.0183)	(0.0193)	(0.0183)
Cohort 2 (1987,1988) X Weak treatment	0.0390*	-0.00448	-0.0000204
	(0.0206)	(0.0182)	(0.0170)
Cohort 3 (1989,1990) X Weak treatment	0.0145	0.00169	0.0107
	(0.0215)	(0.0260)	(0.0200)
Cohort 4 (1991,1992) X Weak treatment	-0.0689***	-0.0256	-0.0110
	(0.0255)	(0.0266)	(0.0208)
Observations	101568	101568	101568
Panel B: Apprenticeship			
Cohort 1 (1988,1989) X Strong treatment	0.0217	-0.0207	-0.0219
	(0.0225)	(0.0188)	(0.0147)
Cohort 2 (1990,1991) X Strong treatment	0.00406	-0.0286	-0.0377**
	(0.0224)	(0.0315)	(0.0181)
Cohort 3 (1992,1993) X Strong treatment	-0.0117	-0.0228	-0.0294
	(0.0257)	(0.0270)	(0.0189)
Cohort 4 (1994,1995) X Strong treatment	-0.0610**	0.00229	-0.00934
	(0.0257)	(0.0255)	(0.0195)
Cohort 1 (1988,1989) X Weak treatment	0.0379*	-0.00384	-0.0106
	(0.0213)	(0.0170)	(0.0133)
Cohort 2 (1990,1991) X Weak treatment	0.0369*	0.00522	-0.0162
	(0.0204)	(0.0300)	(0.0177)
Cohort 3 (1992,1993) X Weak treatment	0.0205	0.0114	-0.00745
	(0.0206)	(0.0219)	(0.0123)
Cohort 4 (1994,1995) X Weak treatment	-0.0444**	0.0189	-0.00392
	(0.0223)	(0.0217)	(0.0126)
Observations	132674	132674	132674
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.10: Non-Border Region

	(1)	(2)	(3)
Panel A: University			
Free X Strong treatment	0.00288	0.00345	-0.00511
	(0.00896)	(0.00897)	(0.00905)
Free X Weak treatment	-0.00740	-0.00781	-0.0134
	(0.00752)	(0.00743)	(0.00890)
Observations	339631	339631	339631
Panel B: Apprenticeship			
Free X Strong treatment	-0.0141***	-0.0119	-0.00219
	(0.00418)	(0.0128)	(0.0117)
Free X Weak treatment	0.0112***	0.0114	0.0106
	(0.00379)	(0.00788)	(0.00775)
Observations	383441	383441	383441
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the non-border region. Border region and non-border region are defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.11: Robustness: Non-Border region - Two-year cohorts

	(1)	(2)	(3)
Panel A: University			
Cohort 1 (1985,1986) X Strong treatment	0.00809	0.00477	0.000254
	(0.00792)	(0.00813)	(0.00862)
Cohort 2 (1987,1988) X Strong treatment	0.0272***	0.00778	-0.000580
	(0.00960)	(0.0101)	(0.0108)
Cohort 3 (1989,1990) X Strong treatment	0.0174*	0.00253	-0.00646
	(0.0101)	(0.0106)	(0.00954)
Cohort 4 (1991,1992) X Strong treatment	-0.0371***	-0.000761	-0.0127
	(0.0132)	(0.0141)	(0.0134)
Cohort 1 (1985,1986) X Weak treatment	0.00613	0.00234	-0.00238
	(0.00616)	(0.00658)	(0.00730)
Cohort 2 (1987,1988) X Weak treatment	0.0197***	0.000220	-0.00597
	(0.00731)	(0.00772)	(0.00898)
Cohort 3 (1989,1990) X Weak treatment	0.00489	-0.0105	-0.0158
	(0.00891)	(0.00935)	(0.0108)
Cohort 4 (1991,1992) X Weak treatment	-0.0557***	-0.0212*	-0.0278*
	(0.0118)	(0.0127)	(0.0145)
Observations	339631	339631	339631
Panel B: Apprenticeship			
Cohort 1 (1988,1989) X Strong treatment	0.0384***	-0.00271	0.00194
	(0.0114)	(0.0118)	(0.0110)
Cohort 2 (1990,1991) X Strong treatment	0.0129	-0.00921	-0.00152
	(0.0126)	(0.0127)	(0.00921)
Cohort 3 (1992,1993) X Strong treatment	-0.0183	-0.0220	-0.00992
	(0.0165)	(0.0172)	(0.0163)
Cohort 4 (1994,1995) X Strong treatment	-0.0856***	-0.0139	-0.000227
	(0.0153)	(0.0153)	(0.0162)
Cohort 1 (1988,1989) X Weak treatment	0.0530***	0.0121	0.0128
	(0.00823)	(0.00872)	(0.00854)
Cohort 2 (1990,1991) X Weak treatment	0.0386***	0.0161*	0.0150*
	(0.00881)	(0.00903)	(0.00891)
Cohort 3 (1992,1993) X Weak treatment	0.0173**	0.0135	0.0122
	(0.00857)	(0.00997)	(0.0103)
Cohort 4 (1994,1995) X Weak treatment	-0.0633***	0.00363	0.00204
	(0.00967)	(0.00991)	(0.00978)
Observations	383441	383441	383441
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region and the control group includes all municipalities in the non-border region. Border region and non-border region are defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university.. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.12: Robustness: Apprenticeship Definition

	(1)	(2)	(3)
Free X Strong treatment	-0.0225***	-0.0197	-0.0237**
	(0.00513)	(0.0230)	(0.0120)
Free X Weak treatment	0.00602	0.00677	-0.00784
	(0.00482)	(0.0206)	(0.00877)
Observations	304267	304267	304267
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is Apprenticeship dummy, using an alternative definition described in Section 4.3. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.13: Robustness: Apprenticeship Definition - Two-year cohorts

	(1)	(2)	(3)
Cohort 1 (1988,1989) X Strong treatment	0.0351	-0.0132	-0.0141
	(0.0222)	(0.0142)	(0.00997)
Cohort 2 (1990,1991) X Strong treatment	0.00630	-0.0343	-0.0411***
	(0.0228)	(0.0270)	(0.0136)
Cohort 3 (1992,1993) X Strong treatment	-0.0283	-0.0237	-0.0273
	(0.0255)	(0.0294)	(0.0173)
Cohort 4 (1994,1995) X Strong treatment	-0.0991***	-0.00799	-0.0132
	(0.0245)	(0.0268)	(0.0169)
Cohort 1 (1988,1989) X Weak treatment	0.0502**	0.00196	-0.00375
	(0.0207)	(0.0118)	(0.00787)
Cohort 2 (1990,1991) X Weak treatment	0.0355*	-0.00554	-0.0215
	(0.0210)	(0.0255)	(0.0137)
Cohort 3 (1992,1993) X Weak treatment	0.0109	0.0153	-0.00157
	(0.0209)	(0.0256)	(0.0125)
Cohort 4 (1994,1995) X Weak treatment	-0.0714***	0.0151	-0.00491
	(0.0213)	(0.0240)	(0.0118)
Observations	304267	304267	304267
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is Apprenticeship dummy, using an alternative definition described in Section 4.3. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.14: Robustness: Logit model

	(1)	(2)	(3)
Panel A: University			
Free X Strong treatment	0.0125	0.0156	0.0182**
	(0.0120)	(0.0124)	(0.00915)
Free X Weak treatment	0.00524	0.00665	0.0119
	(0.0120)	(0.0121)	(0.00938)
Observations	269700	269700	269700
Panel B: Apprenticeship			
Free X Strong treatment	-0.0133	-0.0141	-0.0221*
	(0.0184)	(0.0201)	(0.0114)
Free X Weak treatment	0.00497	0.00573	-0.0105
	(0.0167)	(0.0183)	(0.00785)
Observations	304267	304267	304267
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.15: Robustness: Logit - Two-year cohorts

	(1)	(2)	(3)
Panel A: University			
Cohort 1 (1985,1986) X Strong treatment	0.0172	0.00566	0.0105
	(0.0113)	(0.0121)	(0.0107)
Cohort 2 (1987,1988) X Strong treatment	0.0344***	0.0110	0.0148
	(0.0122)	(0.0127)	(0.0127)
Cohort 3 (1989,1990) X Strong treatment	0.0256**	0.0157	0.0238**
	(0.0124)	(0.0144)	(0.0102)
Cohort 4 (1991,1992) X Strong treatment	-0.0252	0.0117	0.0228
	(0.0156)	(0.0241)	(0.0161)
Cohort 1 (1985,1986) X Weak treatment	0.0185*	0.00627	0.0113
	(0.0105)	(0.0109)	(0.00986)
Cohort 2 (1987,1988) X Weak treatment	0.0315***	0.00804	0.0141
	(0.0116)	(0.0120)	(0.0122)
Cohort 3 (1989,1990) X Weak treatment	0.0173	0.00670	0.0185
	(0.0129)	(0.0147)	(0.0119)
Cohort 4 (1991,1992) X Weak treatment	-0.0452***	-0.0128	0.00312
	(0.0156)	(0.0235)	(0.0162)
Observations	269700	352322	269700
Panel B: Apprenticeship			
Cohort 1 (1988,1989) X Strong treatment	0.0356**	-0.0103	-0.0141
	(0.0180)	(0.0127)	(0.0111)
Cohort 2 (1990,1991) X Strong treatment	0.0118	-0.0289	-0.0409***
	(0.0184)	(0.0248)	(0.0127)
Cohort 3 (1992,1993) X Strong treatment	-0.0171	-0.0152	-0.0232
	(0.0206)	(0.0249)	(0.0162)
Cohort 4 (1994,1995) X Strong treatment	-0.0791***	-0.00116	-0.00901
	(0.0196)	(0.0240)	(0.0175)
Cohort 1 (1988,1989) X Weak treatment	0.0475***	0.00158	-0.00541
	(0.0172)	(0.0110)	(0.00924)
Cohort 2 (1990,1991) X Weak treatment	0.0326*	-0.00833	-0.0275**
	(0.0173)	(0.0239)	(0.0126)
Cohort 3 (1992,1993) X Weak treatment	0.0111	0.0140	-0.00426
	(0.0169)	(0.0218)	(0.0110)
Cohort 4 (1994,1995) X Weak treatment	-0.0663***	0.0148	-0.00428
	(0.0171)	(0.0214)	(0.0125)
Observations	304267	304267	304267
FE	No	Yes	Yes
Controls	No	No	Yes
Linear trends	No	No	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.16: Robustness: Two-way clustering

	University	University	Apprenticeship	Apprenticeship
Free X Strong treatment	0.0200***		-0.0219***	
	(0.00520)		(0.00752)	
Free X Weak treatment	0.0118*		-0.00965***	
	(0.00612)		(0.00337)	
Cohort 1 X Strong treatment		0.0138**		-0.0142**
		(0.00643)		(0.00602)
Cohort 2 X Strong treatment		0.0191***		-0.0404***
		(0.00518)		(0.00576)
Cohort 3 X Strong treatment		0.0267***		-0.0254***
		(0.00693)		(0.00841)
Cohort 4 X Strong treatment		0.0165*		-0.00839
		(0.00884)		(0.00922)
Cohort 1 X Weak treatment		0.0122		-0.00440
		(0.00731)		(0.00328)
Cohort 2 X Weak treatment		0.0151**		-0.0248***
		(0.00688)		(0.00672)
Cohort 3 X Weak treatment		0.0183**		-0.00370
		(0.00798)		(0.00314)
Cohort 4 X Weak treatment		0.00222		-0.00618
		(0.00965)		(0.00687)
Observations	269700	269700	304267	304267
FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Linear trends	Yes	Yes	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year or Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality and birthyear level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

C. Additional Results: Tables

Table 1.17: Length of education

	University degree	University degree	Total length	Total length
Free X Strong treatment	1.079		0.995	
	(0.1000)		(0.0602)	
Free X Weak treatment	1.065		1.013	
	(0.0949)		(0.0612)	
Cohort 1 (1985,1986) X Strong treatment		1.100		1.034
		(0.111)		(0.0478)
Cohort 2 (1987,1988) X Strong treatment		1.135		0.987
		(0.104)		(0.0726)
Cohort 3 (1989,1990) X Strong treatment		1.119		0.984
		(0.157)		(0.0660)
Cohort 4 (1991,1992) X Strong treatment		0.807		0.962
		(0.161)		(0.104)
Cohort 1 (1985,1986) X Weak treatment		1.079		1.002
		(0.104)		(0.0427)
Cohort 2 (1987,1988) X Weak treatment		1.185*		0.989
		(0.103)		(0.0730)
Cohort 3 (1989,1990) X Weak treatment		1.011		1.017
		(0.146)		(0.0792)
Cohort 4 (1991,1992) X Weak treatment		0.819		1.054
		(0.167)		(0.0917)
Observations	50977	50977	213315	213315
FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Linear trends	Yes	Yes	Yes	Yes

The coefficient are odds ratios. The dependent variable in column (1) is a variable ranging from 1-3, indicating whether an individual who enrolled in a university obtained a Bachelor, a Master or a PhD diploma. In column (2) the dependend variable is a variable ranging from 1-13 indicating the length of the total education path. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year or cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.18: STEM occupation

	Learned Occupation	Learned Occupation	Current Occupation	Current Occupation
Free X Strong treatment	0.00742		0.00285	
	(0.00482)		(0.00413)	
Free X Weak treatment	0.00594		0.00375	
	(0.00475)		(0.00346)	
Cohort 1 (1985,1986) X Strong treatment		0.00627		0.00126
		(0.00663)		(0.00630)
Cohort 2 (1987,1988) X Strong treatment		0.0104		0.000733
		(0.00718)		(0.00731)
Cohort 3 (1989,1990) X Strong treatment		0.00904		0.0120**
		(0.00682)		(0.00562)
Cohort 4 (1991,1992) X Strong treatment		0.00272		-0.00391
		(0.00804)		(0.00687)
Cohort 1 (1985,1986) X Weak treatment		0.00583		0.00163
		(0.00566)		(0.00608)
Cohort 2 (1987,1988) X Weak treatment		0.00682		-0.000934
		(0.00642)		(0.00659)
Cohort 3 (1989,1990) X Weak treatment		0.00672		0.0130**
		(0.00705)		(0.00505)
Cohort 4 (1991,1992) X Weak treatment		0.00384		0.00150
		(0.00762)		(0.00592)
Observations	201939	201939	184350	184350
FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Linear trends	Yes	Yes	Yes	Yes

Dependent variable is dummy for STEM occupation. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. Columns (1) and (2) report the results for the probability to have learned a STEM occupation and columns (3) and (4) report the result for the probability to currently work in a STEM occupation. All regressions account for individual weights. Fixed effects include: Birth year or cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.19: STEM occupation: By education level

	Learned Occupation	Current Occupation
Panel A: Secondary I		
Free X Strong treatment	-0.00137	-0.0115
	(0.0164)	(0.0139)
Free X Weak treatment	0.0113	0.00190
	(0.0132)	(0.0123)
Observations	6040	7629
Panel B: Secondary II		
Free X Strong treatment	0.0105***	-0.00165
	(0.00387)	(0.00473)
Free X Weak treatment	0.00606*	-0.00406
	(0.00315)	(0.00341)
Observations	110524	97337
Panel C: Tertiary		
Free X Strong treatment	-0.00155	0.00184
	(0.00938)	(0.00747)
Free X Weak treatment	0.00471	0.0117
	(0.0107)	(0.00868)
Observations	85375	79348
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is dummy for STEM occupation. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. Column (1) reports the results for the probability to have learned a STEM occupation and column (2) reports the result for the probability to currently work in a STEM occupation. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.20: Additional Results: Voting Outcomes

	Accepted	Rejected
Panel A: University		
Free X Strong treatment	0.0185*	-0.0419
	(0.00979)	(0.0793)
Free X Weak treatment	0.0109	-0.0182
	(0.00882)	(0.0802)
Observations	254968	14732
Panel B: Apprenticeship		
Free X Strong treatment	-0.0273**	0.0283
	(0.0116)	(0.0765)
Free X Weak treatment	-0.0100	0.0118
	(0.00744)	(0.0764)
Observations	287569	16698
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.21: Additional Results: Voting outcomes

	Accepted	Rejected
Panel A: University		
Cohort 1 (1985,1986) X Strong treatment	0.0115	0.0230
	(0.0113)	(0.112)
Cohort 2 (1987,1988) X Strong treatment	0.0162	-0.0280
	(0.0126)	(0.135)
Cohort 3 (1989,1990) X Strong treatment	0.0273**	0.000777
	(0.0110)	(0.167)
Cohort 4 (1991,1992) X Strong treatment	0.0178	-0.107
	(0.0147)	(0.115)
Cohort 1 (1985,1986) X Weak treatment	0.0118	-0.00127
	(0.0102)	(0.116)
Cohort 2 (1987,1988) X Weak treatment	0.0137	-0.00315
	(0.0107)	(0.136)
Cohort 3 (1989,1990) X Weak treatment	0.0173	0.0433
	(0.0112)	(0.167)
Cohort 4 (1991,1992) X Weak treatment	0.00154	-0.0628
	(0.0141)	(0.114)
Observations	254968	14732
Panel B: Apprenticeship		
Cohort 1 (1988,1989) X Strong treatment	-0.0146	-0.0205
	(0.0110)	(0.156)
Cohort 2 (1990,1991) X Strong treatment	-0.0447***	-0.230***
	(0.0122)	(0.0718)
Cohort 3 (1992,1993) X Strong treatment	-0.0287*	0.0563
	(0.0173)	(0.123)
Cohort 4 (1994,1995) X Strong treatment	-0.0220	0.228
	(0.0161)	(0.142)
Cohort 1 (1988,1989) X Weak treatment	-0.00474	0.0185
	(0.00807)	(0.155)
Cohort 2 (1990,1991) X Weak treatment	-0.0238**	-0.280***
	(0.0117)	(0.0740)
Cohort 3 (1992,1993) X Weak treatment	-0.00466	0.0838
	(0.0112)	(0.122)
Cohort 4 (1994,1995) X Weak treatment	-0.00766	0.148
	(0.0114)	(0.141)
Observations	287569	16698
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.22: Additional Results: Gender

	Women	Men
Panel A: University		
Free X Strong treatment	0.0189	0.0224*
	(0.0132)	(0.0120)
Free X Weak treatment	0.00729	0.0170
	(0.0116)	(0.0121)
Observations	135925	133775
Panel B: Apprenticeship		
Free X Strong treatment	-0.0103	-0.0345***
	(0.0110)	(0.0129)
Free X Weak treatment	-0.00431	-0.0155
	(0.00678)	(0.00994)
Observations	153227	151040
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.23: Additional Results: Gender

	Women	Men
Panel A: University		
Cohort 1 (1985,1986) X Strong treatment	0.0184	0.0117
	(0.0144)	(0.0165)
Cohort 2 (1987,1988) X Strong treatment	0.0235	0.0181*
	(0.0211)	(0.0109)
Cohort 3 (1989,1990) X Strong treatment	0.0230*	0.0328**
	(0.0138)	(0.0146)
Cohort 4 (1991,1992) X Strong treatment	0.0108	0.0253
	(0.0163)	(0.0196)
Cohort 1 (1985,1986) X Weak treatment	0.00678	0.0182
	(0.0117)	(0.0166)
Cohort 2 (1987,1988) X Weak treatment	0.00606	0.0249**
	(0.0175)	(0.0111)
Cohort 3 (1989,1990) X Weak treatment	0.0228*	0.0147
	(0.0137)	(0.0146)
Cohort 4 (1991,1992) X Weak treatment	-0.00749	0.0121
	(0.0157)	(0.0210)
Observations	135925	133775
Panel B: Apprenticeship		
Cohort 1 (1988,1989) X Strong treatment	-0.00562	-0.0233**
	(0.0130)	(0.0116)
Cohort 2 (1990,1991) X Strong treatment	-0.0302**	-0.0522***
	(0.0124)	(0.0171)
Cohort 3 (1992,1993) X Strong treatment	-0.0156	-0.0360*
	(0.0156)	(0.0196)
Cohort 4 (1994,1995) X Strong treatment	0.00814	-0.0266
	(0.0173)	(0.0188)
Cohort 1 (1988,1989) X Weak treatment	0.00422	-0.0121
	(0.0115)	(0.0103)
Cohort 2 (1990,1991) X Weak treatment	-0.0195*	-0.0301*
	(0.0118)	(0.0170)
Cohort 3 (1992,1993) X Weak treatment	-0.00381	-0.00500
	(0.0115)	(0.0150)
Cohort 4 (1994,1995) X Weak treatment	0.00116	-0.0149
	(0.0111)	(0.0142)
Observations	153227	151040
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.24: Additional Results: Language regions

	German	French
Panel A: University		
Free X Strong treatment	0.0199*	0.00705
	(0.0108)	(0.0175)
Free X Weak treatment	0.00646	0.0179*
	(0.0101)	(0.00949)
Observations	165192	85183
Panel B: Apprenticeship		
Free X Strong treatment	-0.0326***	-0.000363
	(0.0111)	(0.0179)
Free X Weak treatment	-0.0116	0.0156
	(0.00753)	(0.0141)
Observations	184540	97874
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.25: Additional Results: Language regions

	German	French
Panel A: University		
Cohort 1 (1985,1986) X Strong treatment	0.0172	-0.00750
	(0.0140)	(0.0100)
Cohort 2 (1987,1988) X Strong treatment	0.0141	0.0158
	(0.0133)	(0.0245)
Cohort 3 (1989,1990) X Strong treatment	0.0234*	0.0235
	(0.0133)	(0.0205)
Cohort 4 (1991,1992) X Strong treatment	0.0240	-0.00659
	(0.0154)	(0.0281)
Cohort 1 (1985,1986) X Weak treatment	0.0113	0.00793
	(0.0121)	(0.0130)
Cohort 2 (1987,1988) X Weak treatment	0.00753	0.0263
	(0.0126)	(0.0179)
Cohort 3 (1989,1990) X Weak treatment	0.0132	0.0233
	(0.0131)	(0.0159)
Cohort 4 (1991,1992) X Weak treatment	-0.00532	0.0116
	(0.0127)	(0.0198)
Observations	165192	85183
Panel B: Apprenticeship		
Cohort 1 (1988,1989) X Strong treatment	-0.0104	-0.0159
	(0.0134)	(0.0113)
Cohort 2 (1990,1991) X Strong treatment	-0.0517***	-0.00553
	(0.0110)	(0.0170)
Cohort 3 (1992,1993) X Strong treatment	-0.0347**	-0.00149
	(0.0176)	(0.0278)
Cohort 4 (1994,1995) X Strong treatment	-0.0345**	0.0180
	(0.0169)	(0.0205)
Cohort 1 (1988,1989) X Weak treatment	-0.00112	0.00244
	(0.00931)	(0.0114)
Cohort 2 (1990,1991) X Weak treatment	-0.0347***	0.0218
	(0.0108)	(0.0149)
Cohort 3 (1992,1993) X Weak treatment	-0.00189	0.00950
	(0.0109)	(0.0247)
Cohort 4 (1994,1995) X Weak treatment	-0.00919	0.0250
	(0.0128)	(0.0200)
Observations	184540	97874
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.26: Additional Results: Citizenship

	Swiss born	Other/Naturalized
Panel A: University		
Free X Strong treatment	0.0223**	0.0104
	(0.00906)	(0.0211)
Free X Weak treatment	0.0128	0.00308
	(0.00961)	(0.0123)
Observations	232526	37174
Panel B: Apprenticeship		
Free X Strong treatment	-0.0248**	-0.0189
	(0.0117)	(0.0196)
Free X Weak treatment	-0.0105	-0.00672
	(0.00766)	(0.0192)
Observations	260205	44062
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.27: Additional Results: Citizenship

	Swiss born	Other/Naturalized
Panel A: University		
Cohort 1 (1985,1986) X Strong treatment	0.0157	0.00840
	(0.0115)	(0.0221)
Cohort 2 (1987,1988) X Strong treatment	0.0239**	0.00838
	(0.0115)	(0.0225)
Cohort 3 (1989,1990) X Strong treatment	0.0305***	0.0124
	(0.0113)	(0.0269)
Cohort 4 (1991,1992) X Strong treatment	0.0176	0.0165
	(0.0142)	(0.0291)
Cohort 1 (1985,1986) X Weak treatment	0.0146	-0.0119
	(0.0111)	(0.0199)
Cohort 2 (1987,1988) X Weak treatment	0.0176	0.00239
	(0.0115)	(0.0167)
Cohort 3 (1989,1990) X Weak treatment	0.0208	-0.00242
	(0.0128)	(0.0194)
Cohort 4 (1991,1992) X Weak treatment	-0.00178	0.0223
	(0.0145)	(0.0172)
Observations	232526	37174
Panel B: Apprenticeship		
Cohort 1 (1988,1989) X Strong treatment	-0.0218	0.0231
	(0.0133)	(0.0257)
Cohort 2 (1990,1991) X Strong treatment	-0.0415***	-0.0479*
	(0.0134)	(0.0260)
Cohort 3 (1992,1993) X Strong treatment	-0.0296*	-0.0193
	(0.0163)	(0.0269)
Cohort 4 (1994,1995) X Strong treatment	-0.00672	-0.0243
	(0.0168)	(0.0269)
Cohort 1 (1988,1989) X Weak treatment	-0.00897	0.0322
	(0.00953)	(0.0249)
Cohort 2 (1990,1991) X Weak treatment	-0.0221*	-0.0419
	(0.0125)	(0.0270)
Cohort 3 (1992,1993) X Weak treatment	-0.00547	0.00232
	(0.0108)	(0.0275)
Cohort 4 (1994,1995) X Weak treatment	-0.00584	-0.0104
	(0.0117)	(0.0220)
Observations	260205	44062
FE	Yes	Yes
Controls	Yes	Yes
Linear trends	Yes	Yes

Dependent variable is University or Apprenticeship dummy. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. All regressions account for individual weights. Fixed effects include: Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.28: Unemployment

	Tertiary	Secondary II	Tertiary	Secondary II
Free X Strong treatment	0.000202	0.0289**		
	(0.0160)	(0.0141)		
Free X Weak treatment	0.0183	0.0246*		
	(0.0162)	(0.0140)		
Cohort 1 X Strong treatment			-0.00850	0.0489***
			(0.0204)	(0.0164)
Cohort 2 X Strong treatment			0.0296	0.0157
			(0.0185)	(0.0138)
Cohort 3 X Strong treatment			-0.0302	0.0262
			(0.0348)	(0.0234)
Cohort 1 X Weak treatment			0.00605	0.0425***
			(0.0205)	(0.0124)
Cohort 2 X Weak treatment			0.0448**	0.0215
			(0.0183)	(0.0198)
Cohort 3 X Weak treatment			0.00256	-0.00858
			(0.0296)	(0.0173)
Observations	78556	113356	78556	110407
FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Linear trends	Yes	Yes	Yes	Yes

Dependent variable is a dummy indicating whether or not an individual ever experienced an episode of unemployment. The treated group includes all municipalities in the border region that are 0-15 (strong treatment) or 15-30 (weak treatment) minutes driving distance from the closest border crossing and the control group includes all municipalities in the border region that are above 30 minutes driving distance. Border region is defined according to bilateral agreements, see Section 2.1. All regressions account for individual weights. Fixed effects include: Birth year or Cohort, survey year and their interaction. Controls include: Gender, urban, native, multilinguality and nearest distance in km to a university. Standard errors are clustered at the municipality level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Chapter 2

Labor Market Integration, Local Conditions and Inequalities: Evidence from Refugees in Switzerland

2.1 Introduction

As a result of the 'Refugees crisis' from Ukraine, which is among the largest refugee crises since the end of the Second World War, the issue of forced displacement is at the core of public discourse in many European countries. Understanding how policy measures and their interaction with local contexts, can help foster integration, reduce inequalities, and promote social cohesion between displaced populations and host communities is of paramount importance. Yet, the process of economic integration of refugees and how it is affected by the interplay between policies and local contexts are still not fully understood.

Switzerland provides a unique setting to examine these questions. It is an important example of a multilingual and multicultural society. Moreover, Switzerland is one of the European countries that hosts the largest number of refugees per capita (World Bank 2023[1]). It also has a long history of receiving asylum seekers. At the end of the

[1] https://data.worldbank.org/indicator/SM.POP.REFG [Data accessed in February 2023].

Second World War, Switzerland started hosting refugees coming from Eastern European countries. It led the international effort to set out the rights of individuals who are granted asylum and the responsibilities of the host nations, which led to the adoption of the 1951 Refugee Convention (Convention de Genève de 1951). Over the years, it has also had one of the most coherent refugees-related policies among European countries, and it never closed its borders to refugees (É. Piguet, 2019).

The aim of this paper is to examine the economic integration of refugees in Switzerland and, in particular, the role of local contexts in affecting the pattern of integration in the Swiss labor market. Advancing our understanding of the factors that facilitate labor market integration of refugees is of fundamental importance. For example, in the Swiss context examined in this study, after 1 or 2 years in Switzerland, refugees' employment rates are almost 80 percentage points lower than natives'. It takes them more than 10 years to reach a native-refugees employment gap reduced to 18 or 20 percentage points. We focus on the effects of initial conditions on the employment of refugees and leverage the quasi-random initial allocation of refugees to cantons over the period 1998–2018. Our analysis accounts for three aspects of initial conditions at the canton level: labor market conditions, co-ethnic network effects and natives' attitudes toward refugees and immigrants.

In the paper, we employ a unique dataset based on Swiss administrative records and social security data provided to us by the Swiss Federal Statistical Office (FSO). Our dataset includes the universe of refugees and migrants in Switzerland over 1998–2018. Our dataset presents the longitudinal dimension, which allows us to follow individuals over time and examine their labor-market outcomes and career trajectories over the life-cycle. To measure attitudes toward migration and asylum, we exploit the particular context of the Swiss (semi-)direct democracy and construct a time-varying indicator of attitudes at the canton level, based on cantonal vote outcomes in all federal votes related to migration and asylum during our period of analysis.

When estimating the effects of initial conditions on refugees' employment, we control for a large set of observed and unobserved factors. Regarding the latter, we include fixed effects to control for time-invariant unobserved factors in the canton of residence during the current year, which enables us to identify the separate effects of initial conditions (in

the assigned canton at the time of arrival). Moreover, we control for unobserved effects at the level of the canton of arrival, which implies that the effects of the variables capturing initial conditions are identified through their variation over time within cantons.

Our baseline results are consistent across samples and specifications, whether we estimate the influence of the initial conditions separately or simultaneously. We find that a change toward more restrictive attitudes over time in a canton (relative to attitudes in other cantons) leads to higher employment rates of the successive refugee cohorts. Our results also show a negative significant impact of cantonal unemployment rates at the time of arrival on employment rates of refugees in the following years, but the effect of co-national networks is not significantly different from zero in the baseline. In more detailed analysis, we find positive effects of networks for female refugees and negative effects for male refugees.

Finally, we pursue the analysis further by distinguishing effects in the cross-section and over time. This is particularly relevant for our indicator of attitudes toward migrants and refugees since cross-section effects involve comparisons between cantons for a given vote, whereas changes over time in our indicator involve referendums or popular initiatives with different content. Our results reveal that there is indeed a crucial difference: in the cross section, there is a negative correlation between (restrictive) attitudes and refugees' employment rates, whereas the effect is of opposite sign for changes in attitudes over time. A comparison of our indicator with items related to migration in the European Social Survey (ESS) reveals that cross-section effects are correlated with cultural beliefs, whereas the change towards more restrictive attitudes in a given canton is associated with the willingness to limit the number of immigrants from ethnically different groups and with a change toward the belief that immigration can be good for the country as a whole. These results seem to reflect the large differences in attitudes between cantons, on the one hand, and the shift in Swiss migration and asylum policy toward free movement of persons with the EU and activation policies in the labor market for migrants and refugees, on the other hand.

Our paper makes three main contributions to the existing literature. First, the specific context of Switzerland where refugees are exogenously allocated across cantons that are different in terms of local economic and social conditions, provides us with a 'natural

experiment'. This allows us to evaluate the effect of these determinants on refugees' labor market outcomes and economic integration. Second, we examine the role and relative importance of fundamental initial local conditions such as natives' attitudes towards refugees at the time of arrival in the host location, and their subsequent effects on the trajectory of economic integration. The few existing studies present limitations. Here we improve in three ways. We use an objective measure of attitudes derived from voting behavior (as opposed to self-reported measures of attitudes from surveys, building on earlier work by Zimmermann and Stutzer (2022). Moreover, we measure attitudes by also including specific attitudes towards refugees instead of focusing only on the more general attitudes towards migrants as done in the existing studies. This is very important given that economic migrants and refugees are two distinct groups of foreign-born, and attitudes towards them may be significantly different as documented in recent surveys carried out in 18 countries (Pew Research Center, 2019).[2] In addition to this, we are the first to consider a time-varying measure of attitudes at the local level. Third, contrary to what has been done in most of the existing literature, we have a much longer time-frame. We are able to follow the same individuals over 20 years. This will allow us to examine the pattern of economic integration and how it changes over time in the short, medium and long-run.

The rest of the paper is organized as follows. Section 2.2 presents the background of the paper, describing the context and the current policy that regulates the asylum process and allocation of refugees across locations. Section 2.3 provides an overview of the existing literature, describes the theoretical contribution of this study and discusses the main hypotheses that will be tested in the analysis. Section 3.3 presents the empirical strategy, including a description of the data, research design and identification strategy. Section 3.4 presents the empirical findings and positions them within the existing literature. Section 2.6 provides concluding remarks.

[2]The Global Attitudes Survey was carried out by the Pew Research Center in Spring 2018 https://www.pewresearch.org/fact-tank/2019/08/09/people-around-the-world-express-more-support-for-taking-in-refugees-than-immigrants/

2.2 Context

2.2.1 Country and Regional Context

As a result of the war in Ukraine, Europe is experiencing the largest refugee crisis since the end of the Second World War. The increase in the total number of refugees has been sharp since 2010. In 2015 the EU-28 countries, Norway and Switzerland reached 1.3 million asylum seekers as a result of the refugee crisis, with asylum seekers fleeing conflict in their home countries and coming mainly from Syria, Afghanistan and Iraq (Pew Research Center, 2016). It is estimated that about 8 million refugees have fled Ukraine since February 2022.[3]

In this context, Switzerland has been at the forefront in hosting refugees. Figure 2.1 shows the evolution in the total number of refugees from 1960. The number of refugees has steadily increased over time reaching a peak in the 1990s as a result of the Balkan Wars, and then again starting from 2010s, with the number of sheltered refugees that more than doubled from 45,622 to 118,829 over 1991-2021.

The Swiss Confederation can be regarded as the ultimate example of a multicultural society. Switzerland is a multilingual society which includes four official languages, there is no official state religion but more than 10 religious communities are present and more than 190 nationalities are represented (Swiss Federal Statistics Office, 2022). Moreover, Switzerland is one of the three countries in the world with the largest share of foreign-born population: about 30.2 percent of the total population is foreign-born (OECD, 2022) and about 39.5 percent of its permanent residents aged 15 or older have a migrant background (Swiss Labor Force Survey, 2023).

The multicultural context in Switzerland goes along with a long humanitarian tradition. Table 2.1 shows the share of refugees in the EU-15 and Switzerland in 1960 and 2021. The following stylized facts emerge. First, all the countries are hosting refugees as of 2021 and the share of refugees has increased over time in all the countries (with the exception of the United Kingdom). Second, Switzerland has experienced more than a three-fold increase in the share of refugees shifting from 0.38 percent in 1960 to 1.37 percent in 2021. Third, the prominent role that Switzerland plays in hosting refugees has well

[3]UNHCR Statistics 2023

rooted historical origins that date from before the formation of the Swiss Confederation (Kohler, 2012; É. Piguet, 2019), and position Switzerland among the leading receiving countries in Europe.

2.2.2 The Allocation Process of Refugees

In general, two channels of applications for asylum seekers exist in the case of Switzerland: direct applications to Switzerland and referrals by agencies like the United Nations Agency, United Nations High Commissioner for Refugees (UNHCR) (É. Piguet, 2019; UNHCR, 2011). The direct application is the main channel whereas the referral by agencies channel commonly works when there is a large-scale refugee crisis due to civil war or other events, and the UNHCR sends an agreed-upon number of refugees to Switzerland, among other resettlement countries, commonly from the temporary refugee camps set up in response to those crises.

In 2008, the Dublin Regulation came into full force. It aims to prevent multiple asylum applications across member states, and Switzerland also joined the Dublin Regulation in the same year (State Secretariat for Migration SEM, 2019). The Dublin Regulation states that the first country where the asylum seeker is registered is the one responsible for processing the asylum application, with only a few exceptions (Aiyar et al., 2016). Thus, prior to 2008, an asylum seeker could potentially make multiple applications to different European countries. However, even after the full implementation of the Dublin Regulation, only a few member countries fully respected it, and the 2015 refugee crisis made the situation even worse. Following on from this crisis, the EU also relocated asylum seekers among member states under the new framework (Aiyar et al., 2016). This new framework only applies to member states. Non-member states associated with the Dublin Regulation, namely Switzerland along with Iceland, Norway and Liechtenstein, are not required to participate in the new framework either (European Commission, 2016). Nevertheless, Switzerland subsequently decided to take up to 1500 asylum seekers (921 from Italy and 579 from Greece) through the relocation framework (State Secretariat for Migration SEM, 2020).

The Swiss State Secretary of Migration (SEM) is responsible for the determination of

the refugee status and resettlement process. There are two fundamental aspects of the asylum process that are central to our empirical analysis: the geographic dispersal policy and the spatial restrictions to mobility. Here we provide a concise summary of these aspects, more detailed information is available in the Federal Act on Asylum of 1998 that regulates the asylum process over the time period covered in this study (1998-2018), and in the revised Federal Act of 2019, which regulates the current asylum process.

Upon arrival in Switzerland, asylum seekers from all channels are required to complete an asylum application, which is then assessed by the federal authorities. At this initial stage, asylum seekers are hosted in one of the federal reception centers. They are subsequently assigned to cantons. The assignment of the registered asylum seekers to the cantons is carried out by SEM and is exogenous with respect to asylum seekers characteristics and preferences. The exogenous assignment of asylum seekers to cantons is based on quotas. These quotas are defined in proportion to the cantons' permanent resident population (Ahrens et al., 2023a; Coutonnier et al., 2019)[4].

The outcome of the asylum application leads to a change in status which entails access to different rights, obligations and welfare benefits. Mobility across cantons is limited. Both asylum seekers who are waiting for the refugee status decision and the temporarily admitted refugees (i.e., N and F permit holders respectively) face significant restrictions to mobility across cantons; because of this, the large majority of refugees do not move from the initially assigned canton. Even among the recognized refugees (i.e., permit B holders) mobility across cantons is low even many years after reaching the status of recognized refugees.

Over the time period studied (1998-2018) the overall asylum process lasted approximately two years (Hainmueller et al., 2016) and the 1998 Federal Act on Asylum restricted any employment possibility during the first three months upon arrival in Switzerland [5]. More recently, the revised Federal Act on Asylum of 2019 aimed at shortening the overall asylum process, and facilitating an earlier entry into the labor market.

[4]There are some exceptions like for example for family reunification and health-related reasons that require specific treatment, which are relatively rare (Ahrens et al., 2023a; Martén et al., 2019a)

[5]Art. 75 of the 1998 Federal Act on Asylum (FAA-142.31 1998)

2.3 Theoretical Motivation

2.3.1 Literature Review

This review focuses on the labor market integration of refugees in advanced economies, and on the role of the initial local conditions. For a general overview of the literature on the economic integration of refugees in high-income countries, refer to Brell et al. (2020a) and for a comprehensive review of the existing studies on the impact on the labor market of the host countries see Becker and Ferrara (2019) and Verme and Schuettler (2021). Among the general facts that have been established in the literature is that refugees have worse integration outcomes such as employment probabilities and wages in high-income host countries than economic migrants. In the medium and long run (10 to 20 years), even if employment probabilities of these two groups of migrants converge, wage gaps are still persistent (Bevelander, 2020; Brell et al., 2020a; Demirci and Kirdar, 2023; Fasani et al., 2021). Existing studies have also shown heterogeneity of the effects by gender, age at arrival and level of educational attainment and skills. However, these explanatory factors do not explain a significant share of the variation in the observed migrant-refugee gap in labor-market outcomes (Brell et al., 2020a).

The literature has mainly examined separately a limited number of initial conditions: primarily the role of labor market conditions (i.e., unemployment), the role of networks and asylum policies (e.g., waiting time, language training programs, employment bans). The country-specific studies discussed in what follows rely on exogenous government placement policies allocating refugees across locations, which allows exploiting the exogenous variation in local labor market conditions.

Access to the labor market of the host country after arrival is important, and limitations[6]

[6]For example, a few studies have examined the role of employment bans. Fasani et al. (2022a) investigate the medium to long-term effect of temporary employment bans on labor market outcomes for refugees in 19 European Countries, and find that bans at arrival reduces employment probability for refugees by 15 percent once the ban is lifted. This negative impact is mainly explained by the reduced labor force participation. The authors also document that these bans have long-run effects on labor force participation even ten years after arrival in the host country and negatively affect social integration. Similarly, Marbach et al. (2018) rely on a policy reform in Germany to examine the impact of labor market entry bans at arrival on future employment rates. The authors find that employment rates 5 years after entering the labor market are 20 percent lower for refugees who had to wait seven months longer upon arrival. Moreover, the gap is closed after 10 years in the labor market. Together these findings suggest that long bans on labor market entry of refugees have a significant effect on the patterns of socio-economic integration.

or exposure to high levels of local unemployment may have long-term consequences. The evidence in the case of refugees has consistently found that less favorable initial conditions in the labor market may have long-term effects on refugees' employment probabilities and earnings.

Åslund and Rooth (2007a) show the effects of the initial conditions in terms of unemployment rates, encountered by refugees at arrival on long-term earnings and employment in Sweden by relying on longitudinal data. In comparing refugees entering Sweden during an economic boom and during severe and unexpected recession, the authors show that high unemployment rates at arrival have negative effects for at least ten years.

Aksoy et al. (2021) focus on refugees who arrived in Germany between 2013 and 2016 and were subsequently interviewed in the framework of the IAB-BAMF-SOEP survey. The authors examine the role of labor market conditions and attitudes towards migrants at the time of refugees' arrival. Their identification relies on the quasi-random allocation of refugees across counties. They find that high unemployment rates at arrival predict future lower employment rates, lower earnings, and lower human capital investment. Conversely, positive attitudes towards migrants promote economic and social integration.

Another stream of the literature has examined the role of spatial concentration of co-ethnics, and how this affects refugees' pattern of integration in society. Specifically, existing studies have examined residential integration by focusing on the size of the ethnic enclaves.

In the economics literature, Edin et al. (2003a) look at the impacts of living in ethnic enclaves on the labor market outcome for refugees in Sweden. They rely on the placement policy adopted by the Swedish government over 1985–1991 which placed refugees to initial hosting municipalities independent of individual characteristics. The authors find that less skilled migrants benefit from living in enclaves. An increase in ethnic concentration leads to an increase in earnings. In addition to this, the quality of the enclave also matters. Evidence suggests that high-income ethnic groups gain more when living in enclaves compared to low-income ethnic groups.

Using a similar methodology, Damm (2009) analyzes the effects of the ethnic enclave size on labor market outcomes of migrants in Denmark. The identification strategy

relies on the spatial dispersal policy adopted by the Danish government over 1986–1998, which consisted of a random allocation of refugees across locations. The author documents strong evidence of self-selection into ethnic enclaves of refugees with unfavorable unobserved characteristics. Compared to Edin et al. (2003a), Damm (2009) finds that an increase in the size of the enclave results in a increase in earnings. These results are independent on the level of skills. In terms of underlying mechanism, evidence suggests that ethnic enclaves improve job-related information sharing, which leads to better labor market outcomes.

Murard (2022) studies the long-term effects of the mass refugee inflow into Greece after the Greek-Turkish war of 1919-1922. The author combines different census and survey data from various source with information at different levels of geographic aggregation. The results show higher inter-generational mobility among refugees than natives, as shown by the "catching-up" of second-generation refugees, who currently have levels of educational attainment, occupations and income similar to natives.

Martén et al. (2019a) make use of the quasi-random assignment policy of refugees across Swiss cantons to examine the role of ethnic networks in affecting refugees' economic and social integration. The authors focus on refugees who obtained subsidiary protection over 2008–2013. They find that larger local ethnic networks of refugees predict higher employment probabilities compared to refugees assigned to smaller ethnic communities. These effects are largest within the first three years since arrival and then they fade afterwards. These findings are consistent with the theory that larger co-ethnic networks improve job information sharing.

On the other hand, Battisti et al. (2022b) find mixed evidence. They examine the role of co-ethnic networks in Germany over 2013–2015. Their identification strategy relies, as in previous studies, on the quasi-random allocation of refugees (and ethnic Germans) across locations. They find that the larger initial ethnic networks are associated with higher employment probabilities for low and medium-level educated refugees in the first three years since arrival. However, in the long-run the effect dissipates and these refugees no longer have an advantage over those with smaller co-ethnic networks. The underlying mechanism they suggest is the lower incentives to invest in human capital among those with a larger initial network.

Another aspect related to initial conditions, which has been understudied, is the role of local attitudes towards refugees. The two existing studies, both focusing on Germany, have used self-reported measures of attitudes extracted from existing surveys, and they have examined the role of general attitudes towards migrants, and used it as a proxy for attitudes towards refugees. Aksoy et al. (2021) measure attitudes with cross-sectional state-level data from the European Social Survey. They find that positive attitudes towards migrants at the time of arrival, have a positive effect on refugees' economic and social integration. On the other hand, Jaschke et al. (2022a) rely on the questions on attitudes towards migrants available in the IAB-BAMF-SOEP-Survey of Refugees. They find that more negative attitudes towards migrants lead to a faster cultural convergence of refugees. In another study focusing on Germany, Albarosa and Elsner (2022) study the 2015 refugee inflow and its impact on social cohesion. The authors find no evidence that the inflow of refugees had an impact on social attitudes towards foreigners. However, they do find evidence of anti-migrant violence, and this effect lasted two years following on from the refugee inflow, and was stronger in counties with higher concentration of right-wing voters and lower employment rates.

Our study builds on this earlier research, and examines the role of different initial local conditions (i.e., labor market conditions, co-ethinc networks, attitudes) and their relative importance in affecting refugees' labor-market integration. It also takes a long-run perspective, and follows refugees over 20 years to examine how the role of different local initial conditions changes over time.

2.3.2 Main Hypotheses

The specific context of Switzerland where refugees are exogenously allocated across cantons that are different in terms of local labor market conditions, natives' attitudes towards refugees and size and nature of ethnic enclaves, allows us to investigate empirically the role of these determinants on refugees' labor market outcomes and economic integration. The literature finds that refugees integrate in the host labor market at a slower pace compared to migrants in general (Brell et al., 2020a). Figure 2.2 presents for Switzerland the employment gaps between refugees and natives by years since ar-

rival. It shows that after 1 or 2 years in Switzerland, refugees' employment rates are almost 80 percentage points lower than natives' and it takes them more than 10 years to reach a level which is 18 to 20 percentage points lower than the employment rate of natives. On average, for those refugees who eventually find employment, it takes 4.3 years. This graph also reminds us that the lower part of the integration profile is defined by refugees who arrived recently (after the year 2010) in Switzerland, whereas the upper part is determined by cohorts who arrived in Switzerland in the 2000s or even earlier.

Our empirical analysis will test the following hypotheses. In the analysis related to the role of the initial local conditions, we expect to find a negative role in the case of unemployment. High unemployment rates at arrival predict future lower employment rates, lower earnings, and lower human capital investment (Aksoy et al., 2021; Åslund and Rooth, 2007a). We expect to find a significant effect related to the size and density of the co-ethnic networks in the host locations, though the sign and magnitude of the estimated coefficient remain an empirical question. Co-ethnic networks can reduce transaction costs and help refugees to gain faster access to the labor market, but on the other hand may reduce the incentives for refugees to further invest in their human capital which could lead to better labor market outcomes in the long run (Battisti et al., 2022b; Damm, 2009; Edin et al., 2003a; Martén et al., 2019a). We also expect to find a significant effect of attitudes towards refugees in affecting their trajectory of economic integration but the expected sign could be either positive or negative depending on the mechanism that prevails (Aksoy et al., 2021; Jaschke et al., 2022a). An open empirical question remains on the relative importance of the three initial conditions (i.e., unemployment, co-ethnic enclaves and attitudes) when examined together. Moreover, we expect the effect of the individual factors to vary in the short, medium and long run over the 20 years examined.

A limited number of studies have investigated the gender difference in the labor market integration of refugees. Existing research has highlighted the relatively low educational qualification of refugee women and the fact that they are more likely to have limited work experience, which could lead to a slower integration into the labor market in the host country (e.g., Albrecht et al. (2021)). Empirical findings across several EU countries suggest that on average the initial refugee-migrant employment gap is lower for women

than for men, and that women converge to employment levels of comparable migrants at a faster pace than men (Fasani et al., 2022a). On the other hand, gender differences for skilled individuals have consistently been found to be smaller (Bratsberg et al., 2014; Lee et al., 2022a). It is an empirical question whether and to what extent the local initial conditions will affect in a different way the pattern of integration for refugee women and men—given that women traditionally have larger employment gaps at arrival and several factors may affect their subsequent participation in the labor market.

In the next section we empirically investigate these issues, and examine whether these assumptions are supported by the empirical evidence.

2.4 Research Design

2.4.1 Data and Descriptive Statistics

In our analysis we construct a unique longitudinal dataset which covers the universe of refugees in Switzerland over 1998-2018. It enables us to follow refugees over the life-cycle for 20 years, and allows us to follow them even after they change residence permit and status.

To construct this longitudinal dataset we are combining three administrative datasets. Asylum seekers are registered in the AUPER (Automatisierte Personen Registratursystem) database which is provided by the State Secretariat for Migration (SEM). The data includes information about the residence permit, year of arrival, country of origin, canton of allocation and socio-demographic characteristics. Once an asylum seeker has obtained a residence permit other than permit N (asylum seekers) or F (temporary admission), that person is registered in ZAR (Zentrales Ausländerregister). This longitudinal dataset is also maintained by the SEM. The ZAR dataset includes all foreigners residing in Switzerland and contains similar information to AUPER. We are combining these two datasets with the yearly population census data that includes ZAR and AUPER starting from 2010. By combining these three datasets we can follow refugees from 1998 to 2018, identify their status changes and importantly, we know to which canton they were allocated upon arrival. From here, we define refugees as all foreign-born

individuals who went through an asylum process.

For refugees' labor market outcomes we are adding Swiss social security data provided by the Federal Compensation Office. This data collects information about every Swiss resident that contributes to old age provision (i.e., the old-age and survivor's insurance OASI or AVS in French). We know the size and nature of the contribution made by all individuals, irrespective of the residence permit (from paid work, independent work, voluntary contribution or other kinds). This data is available for the period 1998–2018 and can be matched to the other datasets using the social security number. Our main outcome variable measuring economic integration is employment. An individual is defined as employed if he or she contributed to old age provision from salaried or independent work. Another outcome variable that we analyze is earnings. The results related to this variable should, however, be interpreted with caution as our dataset only provides yearly earnings, without any indication on hours of work or periods of non-employment.

To obtain information on an individual's education, we are adding the Swiss Structural Surveys from 2010–2018. The Structural Survey is a cross sectional dataset collected by the FSO that includes permanent residents aged 15 and older. Around 200,000 persons are randomly sampled every year to participate with an online questionnaire. The information we are using from the Structural Surveys is the highest completed level of education. Since this data is only available starting in 2010 and only for a subsample of individuals, we are assuming education to be constant over time and we use this subsample as a robustness check.

The analytical sample used in our empirical analysis includes all refugees who arrived after 1998 since we only observe the labor market outcomes from 1998. We are further restricting the sample to the working age population (18-64 years old)[7] and we only consider refugees who arrived after the age of 17, excluding those who would have had access to primary or secondary education in Switzerland.

For our main explanatory variables, the initial local conditions at cantonal level, we are adding unemployment rates, co-ethnic networks and attitudes towards refugees and

[7]We use 64 as the upper age bound given that in Switzerland the ordinary retirement age for women is 64 years.

migrants in the canton of arrival at the time of arrival. The unemployment rate is measured yearly at the cantonal level and comes from the State Secretariat of Economic Affairs (SECO). This measure of the unemployment rate covers the universe of all unemployed individuals who are registered at a regional employment office and can therefore be considered a reliable measure even for small cantons.[8] The second dimension we are looking at is the initial network. This variable is defined as the number of co-nationals residing in the canton of arrival at the time of arrival. There are few zeros for this variable in our sample (2.6% of observations). To avoid losing these observations, we take the logarithm of (1 + the number of co-nationals). In addition, we are not counting the individual itself to its own network. The third aspect we are focusing on are attitudes towards migrants and natives in the canton of arrival, measured by voting outcomes. The voting data comes from the FSO and the construction of our indicator is described in more detail in section 2.4.2.

Finally, we complement the data with time varying control variables at the cantonal level available from the FSO. These variables include the log of population, the real median wage and GDP per capita. GDP per capita is available from the year 2008 onwards and is only used in a robustness check where we restrict the period of analysis to 2009–2018. The real median wage is defined as the median gross wage deflated by the consumer price index. The median gross wage is part of the Swiss Earnings Structure Survey (ESS) maintained by the FSO. This variable is not available at the cantonal level but at the level of 7 greater regions.[9]

The final main sample includes 89,407 refugees and the subsample including the Structural Surveys comprises 13,615 refugees. Table 2.2 presents the summary statistics of the main variables used in the analysis. We present the summary statistics for four different samples: The full sample, the sample of refugees included in the Structural Surveys, a subsample of individuals who held an F-permit at some point in time and a subsample of refugees who arrived after the year 2008. The subsample of F-permit holders is relevant because these individuals could not move away from the canton of

[8] As it includes only permanent residents, asylum seekers (permit N) and temporarily admitted refugees (permit F) are not taken into account in this measure of the unemployment rate.

[9] Lake Geneva Region (VD, VS, GE), Espace Mittelland (BE, FR, SO, NE, JU), Northwestern Switzerland (BS, BL, AG), Zurich (ZH), Eastern Switzerland (GL, SH, AR, AI, SG, GR, TG), Central Switzerland (LU, UR, SZ, OW, NW, ZG) and Ticino (TI).

allocation in the first five years after arrival. We include the subsample of individuals who arrived after 2008 because there was a revision of the federal laws on foreigners and on asylum in 2008 improving refugees legal status in the labor market. Refugees in our full sample are on average 36 years old and at the time of arrival an average individual is 29 years old. Refugees stayed on average for 12 years in Switzerland over our period of analysis. 59% of the individuals in our sample are male and more than half of them are married. Regarding the labor market outcomes, we can see that the average employment rate among refugees in our main sample is 49% and from the restricted sample we can conclude that only few refugees (15%) have a tertiary degree. The subsample of refugees that arrived after the year 2009 is slightly younger and has lower employment rates. [10] Most refugees between 1998 and 2018 in Switzerland came from Eritrea, the second biggest group came from Syria, followed by Afghanistan. The biggest wave of refugees came to Switzerland in the year 2015 (see Figure 2.6 in the appendix).

2.4.2 Attitudes toward migration and asylum

To measure attitudes toward migration and asylum, we construct a time-varying indicator at the canton level, which is based on canton-level results in votes at the federal level. The Swiss (semi-)direct democracy provides an ideal context to measure attitudes over time at a detailed geographical level. Between 1996 and 2020, Swiss voters were asked to vote 21 times at the federal level on issues related to migration and asylum. A complete list of these votes is provided in Table 2.5, which follows Zimmermann and Stutzer (2022). There are three types of votes: popular initiative (a proposal to change the constitution, which can be initiated by a group of citizens with 100'000 signatures), mandatory referendum (the parliament proposes to change a constitutional article or an international treaty, which has to be approved by popular vote) and optional referendum (a law voted by the parliament is challenged by a group of citizens with 50'000 signatures). All these different types of votes have in common that the outcome of the popular vote is binding, since they result in a change in the constitution or the legal framework.

[10] This is expected because many of them have arrived in Switzerland recently and might be looking for work.

For our indicator of attitudes toward migration and asylum, we use the share of votes in each canton that express a preference for a more restrictive regulation of migration and asylum. A first challenge is that each vote concerns a different project. Therefore, it is difficult to carry out comparisons between votes over time. We solve this problem by standardizing each vote outcome: what matters for our indicator is each canton's *relative* position at each moment in time. An important implication of this standardization is that our indicator cannot measure the change over time in average attitudes (at the country level). This is, however, not a problem for our empirical analysis, since we use year fixed effects in all our regressions.[11] We use the voting data to create our yearly indicator in the following way. When there is more than one vote within a year, we take the average of these vote outcomes. Then we use a simple method to fill in the missing values: for each missing value, we take the simple average of the two observations that are closest in time.[12] Figure 2.4 shows the relation between initial attitudes in 1998 and the change over the period 1998–2018. The size of each dot represents the canton's population size (of potential voters) and the colors represent the different language regions[13]. Several patterns are clearly visible. The French-speaking cantons (FR, VD, VS, NE, GE, JU) generally exhibit less restrictive attitudes toward migration and asylum than Italian-speaking (TI) or German-speaking cantons. However, the attitudes in most French-speaking cantons have become more restrictive over time, whereas several German-speaking cantons (especially those with big cities, ZH and BS) have evolved toward more open attitudes. There is also a third group of cantons, including some small conservative cantons and Italian-speaking Ticino (TI), where initially restrictive attitudes have become even more restrictive over time.

[11] We choose to standardize the vote outcomes rather than just centering them. Some vote outcomes are less dispersed across cantons because there is a large majority in favor of the project. Standardizing the vote results attenuates these differences between votes.

[12] In almost all cases of missing data, we simply take the average of the standardized vote outcome in the preceding and the following year. The only exception are the years 2011 and 2012 for which we have no votes. In this case, we use the simple average of the standardized vote outcomes in 2010 and 2013 to fill in these two missing values. Figure 2.7 in the Appendix shows the resulting data for all 26 cantons over the period 1998–2018.

[13] German-speaking cantons are in light blue, French-speaking cantons are in dark blue and the Italian-speaking canton is in light green.

2.4.3 Empirical Strategy

To analyze the impact of initial conditions on the employment of refugees, we leverage the quasi-random initial allocation of refugees to cantons and use the sample for refugees over the period 1998–2018. Our baseline specification of the estimating equation aims at capturing the overall impact of initial conditions on a refugee's employment probability:

$$Y_{ik\kappa t\tau c} = \delta_0 + \delta_1 I_{\kappa\tau} + \delta_2 X_{it} + \delta_3 Z_{\kappa\tau} + \phi_\tau + \phi_c + \phi_\kappa + \phi_{kt} + \varepsilon_{it\tau k\kappa c}, \tag{2.1}$$

where $Y_{ik\kappa t\tau c}$ denotes employment in year t of refugee i living in canton k, who arrived in Switzerland in year τ from origin country c and was assigned by Swiss authorities to canton κ. Our main focus is on the impact of initial conditions $I_{\kappa\tau}$ on the employment of the refugee whose individual characteristics (age, age squared, gender, marital status) are contained in X_{it}. We analyze three aspects of initial conditions, $I_{\kappa\tau}$: labor market conditions, fco-ethnic or co-national network effects and natives' attitudes toward refugees and immigrants. To capture initial labor market conditions, we use the unemployment rate at the canton level during the refugee's year of arrival. To measure a refugee's initial network, we consider the number of co-nationals present in the refugee's canton of arrival during his or her year of arrival (in logarithms). The quasi-random placement of refugees allows us to correctly identify the effect of networks on employment outcomes, given that networks are formed independently of refugees' characteristics and network preferences. Finally, to measure attitudes toward migrants and refugees, we use our measure based on popular vote outcomes (described in detail in section 2.4.2). It is important to note that all three indicators are time-varying. This enables us to control for unobserved factors at the level of the canton of arrival.

We account for a large set of unobserved factors by using the following fixed effects. First, as our measure of initial attitudes is centered on the national average, we use year of arrival fixed effects (ϕ_τ). The latter also control for economic and social circumstances at the national level at the time of arrival. Second, we account for unobserved effects at the level of the current canton of residence, interacted with current year fixed effects (ϕ_{kt}). These fixed effects control for economic and social conditions in the canton during the current year (i.e. when the refugee's employment is observed). They capture

in particular the impact of *current* cantonal unemployment rates, network sizes and attitudes of natives and enable us to identify the separate effects of *initial* conditions (values of these variables at the time of the refugee's arrival in Switzerland). Third, we control for unobserved effects at the level of the canton of arrival (ϕ_κ), which implies that the effects of the variables capturing initial conditions are identified through their variation over time within cantons. To avoid that our estimates of the effects of initial conditions capture spurious correlations with other variables, we also include in some of our estimations time-varying control variables, $Z_{\kappa\tau}$, defined at the level of the canton of arrival (log of real median wages, log of population).[14] Fourth, the heterogeneity of the refugees' backgrounds is taken into account by using country of origin fixed effects (ϕ_c). We also investigate the effects of initial conditions on a refugee's employment probability at different years since migration:

$$Y_{ik\kappa t\tau c} = \gamma_0 + \sum_{j=1}^{5} \gamma_{1j} I_{\kappa\tau}\, YSM_{itj} + \gamma_2 X_{it} + \delta_3 Z_{\kappa\tau} + \phi_{YSM} + \phi_\tau + \phi_c + \phi_\kappa + \phi_{kt} + \varepsilon_{it\tau k\kappa c}, \quad (2.2)$$

where YSM_{itj} are dummy variables indicating for how long refugee i has been in Switzerland in year t. We define five categories j of these dummy variables: 1–2 years ($j = 1$), 3–5 years ($j = 2$), 6–10 years ($j = 3$), 11–15 years ($j = 4$) and more than 15 years ($j = 5$). The coefficients γ_{1j} are the main objects of interest and can be interpreted as the effects of initial condition $I_{\kappa\tau}$ on employment probabilities of refugees, at different durations after their arrival in Switzerland.

As the consistency of the fixed-effect estimator requires strict exogeneity of the explanatory variables, it is worth examining potential problems of endogeneity. Given the rich set of fixed effects and time-varying controls that we use in our regressions, we believe that the risk of omitted variable bias is limited in our estimations. There remains the issue of reverse causality: could the employment rates of refugees in a canton influence natives' attitudes towards refugees and migrants, and thereby bias our results? We cannot exclude this possibility in principle and there is no convincing instrumental variable that would address this problem. Nevertheless, we believe our main conclusions are not

[14] In section 2.5.3 below, we also estimate a version of equation (2.1) that does not include canton of arrival fixed effects, in order to distinguish the cross-section and time-varying effects of initial conditions. In this version of the model, the (time-varying) controls for cantons of arrival play a crucial role.

affected by this issue, for three reasons.

First, if there is reverse causality, the mechanism operates at the aggregate level (i.e., at the level of the canton): attitudes in a canton depend on the aggregate employment rates of refugees. Moreover, due to the presence of canton of arrival fixed effects in our regressions, we only have to worry about reverse causality that may arise between changes over time in the dependent and the explanatory variables; simultaneity between the time-constant component of variables does not affect our estimates. Second, there are long lags between the moment the refugees arrive in Switzerland and the moment their relevant employment rates can be observed. Upon arrival, refugees' employment rates are close to zero and it takes a few years before employment rates rise to meaningful levels and observers are able to judge whether a cohort of refugees can be seen as well integrated in the labor market. In the context of reverse causality, these lags operate on both sides of the causal mechanism. These important lags, combined with the presence of canton of arrival fixed effects leads us to conclude that if there is a problem of reverse causality, we would not expect it to cause a large bias. Third, descriptive evidence reported in Appendix 2.6 tends to indicate that, if there is a simultaneity bias, our estimates of the effect of attitudes on refugees' employment probabilities might actually be a lower bound of the real effect. At the aggregate (canton) level, the partial correlation between natives' restrictive attitudes and refugees' employment rates (conditional on unemployment rates and co-national networks) is either not significant or negative, depending on the measure of employment rates used. This suggests that simultaneity bias, if it exists in our estimates of (2.1), would be negative, thereby reducing the effect of natives' attitudes on refugees' employment probabilities.[15]

[15]In Appendix 2.6 we provide more empirical results that support this argument. If we redefine our indicator of attitudes by excluding all votes related to asylum and refugees, we would expect this redefined indicator to be less subject to reverse causality than the original indicator since attitudes towards migration are expected to be less affected by natives' evaluation of the labor market integration of refugees. When we run the baseline regressions using the redefined indicator of attitudes (see Table 2.18 in Appendix 2.6), it turns out that the coefficients of (restrictive) attitudes have the same (positive) sign and are about 50% larger than the coefficients in our original regressions in Table 2.3 below.

2.4.4 Balancing checks

In our empirical strategy, we are relying on the exogenous allocation of refugees to the 26 cantons. If the placement is not random and some refugees' characteristics correlate with the labor market outcomes this could be a threat to our identifying assumptions. In theory, the assignment of refugees to the canton should be completely random, however in practice, there are some exceptions. Refugees can request placement in a specific canton for reasons of family reunion or health-related reasons that require specific treatment. Except for these special circumstances, officers at the SEM are obliged to follow the allocation rule that ensures that asylum seekers are distributed proportionally to the population size across cantons.[16] As explained by Hangartner and Schmid (2021), the allocation decisions are based on information in the Central Migration Information (ZEMIS) system and officers do not interact with asylum seekers directly. To rule out any threat to our empirical design we conduct a number of balancing tests. We first plot the population size in 1998 against the number of refugees allocated to the cantons over our period of analysis (Figure 2.11 in the Appendix). The graphical analysis confirms that as intended by the allocation rule, cantons with larger populations received larger numbers of refugees. To check whether the allocation is independent from refugees' characteristics, we regress refugees' age, gender and marital status in the year of arrival on an indicator for the arrival canton (Figures 2.12 and 2.13 in the Appendix). In the regressions we control for country of birth and year of arrival fixed effects. The results suggest that most characteristics are fairly balanced across cantons except for some small cantons that host a low share of refugees. To further confirm the validity of our strategy and to test whether the allocation of refugees is exogenous to our three local conditions we check whether refugees' characteristics (age at arrival, gender, marital status) are uncorrelated with unemployment, restrictive attitudes and networks. This test follows Aksoy et al. (2021) and Barsbai et al. (2022). The results are presented in Figure 2.14 in the Appendix. The figure plots the coefficients of separate regressions of each of the three local conditions on refugees' characteristics controlling for canton of arrival, year of arrival and country of birth fixed effects. We run the analysis for

[16] Hangartner and Schmid (2021) analyze the most important appeals against assignment decisions by the SEM, which are decided by the Swiss Federal Administrative Court. They find that the decisions by the SEM are rarely overturned, and exceptions are only granted in very specific circumstances.

the full sample, the F permit subsample and the subsample that includes refugees that arrived after the year 2008. All coefficients for unemployment and restrictive attitudes are close to zero. Some coefficients show a small and statistically significant correlation, but the effect is not economically significant. In the case of F permit holders, who cannot move from the initially assigned canton, none of the coefficients are statistically significant. For the network variable, there seems to be a correlation with refugees' characteristics in the full sample but this effect disappears again when looking at the sample of refugees who cannot move across cantons. Overall, we conclude that socio-demographic characteristics are not systematically correlated with initial conditions. Based on the analysis described in this sub-section, we conclude that we can rely on the quasi-random allocation of refugees to identify effects in our analysis and that any exceptions only have a marginal impact on our conclusions.

2.5 Results

When presenting our results, we focus on the impact of initial conditions on the employment of refugees over the life cycle. We examine the influence of three factors that are measured at the time of arrival of refugees in Switzerland: labor market conditions, co-ethnic (or co-national) networks and natives' attitudes toward migrants and refugees. Our data allows us to consider the simultaneous influence of all three factors on the employment rates of refugees over a long period. The main focus of our analysis lies on the role of natives' attitudes since our paper is the first to consider a time-varying measure of attitudes at the local level. We are also the first to use an objective measure of attitudes derived from voting behavior (as opposed to self-reported measures of attitudes from surveys). In addition, we report some novel results on the effects of networks.

2.5.1 Baseline Results

Table 2.3 shows our baseline results, which are obtained from the estimation of equation (2.1). We analyze the impact of each factor taken separately (in columns (1) to (6)) and together (columns (7) and (8) of Table 2.3). All estimates include a wide range of fixed effects; even and odd columns of Table 2.3 only differ by the inclusion (or

not) of time-varying controls at the level of the canton of arrival.[17] These baseline results are consistent across samples and specifications. We find a negative significant impact of unemployment rates at the time of arrival on employment rates of refugees in the following years and a positive significant impact of restrictive attitudes toward refugees and immigrants upon arrival. By contrast, the effect of co-national networks is not significantly different from zero in the baseline.[18] Note that the result for one variable hardly changes when other variables are introduced into the regression. This seems to indicate that, conditional on the large set of controls, the three variables are close to orthogonal. Finally, results change only marginally when time-varying controls for cantons of arrival are introduced (in even columns, especially when comparing the specifications with the full set of initial conditions (columns (7) and (8)).

The effects of unemployment and attitudes are both economically and statistically significant, but not those of co-national networks. If the unemployment rate increases over time from 1.7% (10^{th} percentile of the distribution of unemployment rates) to 4.8% (90^{th} percentile) a few years later, the employment probability of the refugee who arrives at the later stage will be on average around 7 percentage points lower over the life cycle. Similarly, a refugee who arrives at a moment when attitudes toward immigration and asylum are rather open (-1.7, 10^{th} percentile of the attitudes distribution) has an employment probability which is 7 to 8 percentage points lower over the life cycle than the refugee who arrives a few years later when attitudes have become more restrictive (1.1, 90^{th} percentile).

To gather more insights on the effects of initial conditions over the refugees' life cycle, we estimate equation (2.2), where the initial conditions are interacted with years since migration dummies. The main results are depicted in Figure 2.3.[19] The results reveal that both initial unemployment and initial attitudes of natives have long-lasting effects on the employment probability of refugees. The negative effects of initial unemployment

[17] In our estimates of Table 2.3 we include the following time-varying controls defined at the level of the canton of arrival: log of real median wages, log of population. Unfortunately, data for GDP per capita at the canton level is only available for the period after 2008. We include this variable in one of our robustness checks, where we estimate the model for the subperiod 2009–2018.

[18] Standard errors are clustered at the level of Canton of arrival × Year of arrival.

[19] Detailed results of the regressions are given in Table 2.6 in the appendix. Figure 2.3 depicts the coefficients and their 95% confidence intervals for specifications (3) and (6) in Table 2.6, where the impact on refugees' employment is estimated jointly for all three initial conditions (the "complete" model).

seem to be cumulative over time and the maximum is reached (more than) 15 years after arrival. By contrast, the impact of attitudes seems to be rather weak during the first two years after arrival, reaches a maximum 3–5 years after arrival, and then decreases over time. For co-national networks, we do not obtain significant effects.

How do these results compare to other findings in the literature? Our results on the impact of unemployment are consistent with the evidence for Sweden reported in Åslund and Rooth (2007a) who find that initial unemployment rates have a negative effect on refugees' employment for at least 10 years. We obtain similar quantitative effects and find that the effect is even more long-lasting and cumulative over time.[20] These findings can be explained by the existence of scarring and geographical lock-in effects. Descriptive evidence confirms this interpretation: we find that refugees assigned to cantons with higher unemployment rates are less likely to move out of their assigned canton.[21]

It is less straightforward to compare our main results on the impact of natives' attitudes towards refugees and migrants with those of Aksoy et al. (2021). Our results can be summarized as follows: if, in a given canton, attitudes towards refugees and migrants become more restrictive over time, refugees who arrive in that canton after this shift in attitudes have higher employment probabilities. These results contrast with the findings by Aksoy et al. (2021) who conclude that restrictive attitudes toward immigration are negatively related to the economic integration of refugees in Germany. How can these diverging results be explained? A first possibility is that there might be different mechanisms at work in Germany and Switzerland. On the one hand, if natives have more open attitudes toward migrants and refugees, this could facilitate private and professional contacts between natives and refugees and, potentially, reduce hiring discrimination. On the other hand, when natives' attitudes become more restrictive over time, refugees could feel pressured to increase their integration efforts and search more intensively for a job. Refugees thereby signal their employability, which has been found

[20] Åslund and Rooth (2007a) report that, according to their estimates, the employment probability in Sweden decreases by about 4–5 percentage points (or up to 10 percentage points in another specification) if initial local unemployment doubles. If we consider a similar increase in local unemployment rates in Switzerland from 2% to 4% (the mean is 3.0%), our estimates indicate that refugees' employment rates would increase by 4 to 7 percentage points, depending on the specification and the duration after arrival.

[21] Figure 2.8 in the Appendix shows a negative correlation at the canton level between unemployment rates and the average propensity of refugees to move out of their assigned canton.

to be one of the factors that increase the acceptance of refugees by natives (Bansak et al., 2016). The results of Aksoy et al. (2021) suggest that the former mechanism is stronger in Germany whereas our findings provide support for the preponderance of the second mechanism in Switzerland.

Another possible explanation for the difference in results lies in the empirical approach. In our estimations, the effect of attitudes is identified solely through their variations over time in the different cantons at the time of arrival (since we use canton of arrival fixed effects in all specifications), whereas this is not the case in Aksoy et al. (2021).[22] It is easy to see why this matters in the case of Switzerland. Almost all cantons that had open attitudes toward migrants and refugees in 1998 became more restrictive over the following twenty years (see Figure 2.4). This is the case in particular for all French-speaking cantons. On the other hand, many of the initially restrictive cantons have become less restrictive over time, in particular the most populated German-speaking cantons. Therefore, the change over time of attitudes is negatively correlated with the initial attitudes although there is also a group of small cantons, including the Italian-speaking canton of Ticino, which started from a restrictive position in 1998 and became even more restrictive over time.

This implies that our results should be interpreted with care. We find that a change toward more restrictive attitudes over time in a canton (relative to attitudes in other cantons) leads to higher employment rates of the successive refugee cohorts. These results do *not* imply that a refugee who is assigned to a canton which has more restrictive attitudes would fare better in terms of future employment than a refugee who is assigned to a canton whose citizens are more open toward refugees and migrants.

A highly simplified example might clarify the interpretation of our results. Consider four refugees (A, B, C and D) with identical personal characteristics, arriving in Geneva or Zürich in the year 2000 or 2010. If A is assigned in 2000 to Geneva (where attitudes toward migrants and refugees were open in 2000 but became more restrictive in 2010) and B in 2010 to the same canton, our results imply that B has better chances than A of being employed in the years following their arrival. Conversely, if C and D are

[22] Aksoy et al. (2021) carry out their analysis at the county level but do not use county fixed effects (they use fixed effects at a more aggregate level, NUTS-2 sub-region). This implies that the difference in levels of attitudes within a NUTS-2 subregion contributes to the estimation of the relevant effect.

assigned to Zürich (where attitudes toward migrants and refugees were rather negative in 2000 but became more open in 2010), C (who arrives in 2000) has better chances of having a job after his arrival than D (who arrives in 2010). However, our results do not imply that C has a higher probability of being employed after his arrival than A. The opposite might well be true (since these level effects are absorbed by the canton of arrival fixed effects in our estimations). In section 2.5.3 we pursue this issue further by estimating a version of the model that allows to account both for cross-section and time-varying effects of attitudes.

Our discussion of the attitudes in the different cantons showed clearly the difference between language regions in Switzerland. This raises the question if there might be a cultural dimension involved in the relation between natives' attitudes and employment rates of refugees. In Table 2.8, we report regressions where the initial condition variables are interacted with dummies for the language region. Both for unemployment and attitudes, the effects are very similar across language regions. Overall, the estimation results do not detect any clear cultural differences. The effects seem to be of slightly smaller magnitude for the German-speaking region, especially for attitudes. The latter result might be explained by an asymmetry between the effects of attitudes becoming more restrictive, on the one hand, and attitudes becoming more open, on the other hand. If the latter effect is smaller than the former, this could explain the smaller effect found for the German-speaking region (where attitudes are improving in several cantons). Finally, the network variable has a positive effect in the Italian-speaking canton of Ticino. It is not clear whether this is due to cultural differences or to the particular geographic position of this canton.

We complete our discussion of the role of initial conditions by focusing on the gender dimension (see Tables 2.9, 2.10 and Figure 2.9 in the Appendix). The effect of attitudes seems to be more persistent for female refugees although the average effect over the life-cycle is close to the one for male refugees. For women, the effect tends to increase over time whereas it is strongest for men around 3–5 years after arrival and decreases thereafter. The impact of unemployment also grows stronger over time for female refugees but not for male. Interestingly, the impact of co-national networks becomes significant, but with opposite sign, for male and female refugees. Female refugees seem to benefit

from networks (even in the long run), whereas for male refugees the negative effects dominate, especially in the short run. A possible explanation of the positive effect for women is that they benefit from child care services within their co-national network, enabling them to increase their labor market participation.

We conclude our analysis by considering a second outcome variable: earnings. We estimate equations (2.1) and (2.2) in order to analyze the impact of initial conditions on a refugee's earnings, conditional on being employed. In our baseline specification, the impact of initial conditions on earnings is not significant (at the level of 5%). However, when looking at the interaction between initial conditions and the number of years since arrival, it turns out that a shift towards more restrictive attitudes has a statistically significant positive impact on refugees' earnings during their early years in Switzerland (up to 5 years after arrival, see Figure 2.10). The effect is also economically significant: conditional on being employed, the earnings of a refugee who arrives at a moment when attitudes toward immigration and asylum are rather open (-1.7, 10^{th} percentile of the attitudes distribution) are between 30 percent (1–2 years after arrival) and 14 percent (3–5 years after arrival) lower than the earnings of a refugee who arrives a few years later when attitudes have become more restrictive (1.1, 90^{th} percentile). As discussed in section 2.4.1, our data does not enable us to determine whether this effect is due to an increase in hours worked or an improvement in the hourly wage.

2.5.2 Robustness Checks

Finally, we carry out a number of robustness checks to corroborate our results. First, we address the concern that the lack of data on refugees' education levels in our main sample might influence our results. As mentioned above in Section 2.4.1, we are able to obtain information on education levels by matching a subset of our main dataset with the Structural Surveys. If we add education fixed effects to equation (2.1) and estimate this equation using the restricted sample, we find that the results do not change for unemployment and networks, but the coefficients for attitudes decrease in magnitude (by about one third, see Table 2.11, columns (3)-(6)). It is important to note that this restricted sample is 4–5 times smaller than our main sample, which raises the question

if the difference in results is due to the introduction of education fixed effects or to the fact that the restricted sample may not be an entirely random selection of the universe of refugee (our main sample). To sort out these issues, we estimate the model on the restricted sample with and without education fixed effects, and compare the results to those of the main sample (see columns (1) and (2) in Table 2.11). It turns out that the difference between the coefficients for attitudes is entirely due to the change of sample. Accounting for education (in the restricted sample) does not change the results. These results, which are probably due to the large set of fixed effects, validate our choice to focus on the main sample.

Second, another concern might be that refugees move away from their initially assigned canton in great numbers. On the one hand, we account for this possibility by controlling for the current economic and social conditions in the refugee's canton of residence using fixed effects ϕ_{kt}. On the other hand, if refugees move quickly out of their assigned canton, they might not be influenced in a persistent manner by the initial conditions in this canton. In any case, few refugees change cantons after their arrival: over our sample period 1998–2018, only 12.2% of individuals move from their initially assigned canton to another canton at some point in time. This is mostly due to legal regulations. While waiting for the answer to their asylum request, refugees are not allowed to change cantons. This also holds for individuals who receive temporary admission (F permit): they cannot move to a different canton with this permit and they are only allowed to apply for a regular B permit after 5 years. Moreover, refugees who receive social assistance also remain in the initially assigned canton (whether they hold refugee status or are under temporary protection) because in Switzerland social assistance is provided at the canton level. We carry out two robustness checks to address this concern, by estimating equation (2.1) for (i) a subsample that includes only refugees who stay in the assigned canton over the whole period of analysis, and (ii) the subset of refugees who receive temporary admission and are therefore legally bound to their initially assigned canton.

When we only consider refugees who stay in the assigned canton over the whole period (see Table 2.12, columns (1)-(4)), we find the same qualitative results as in the baseline but slightly stronger effects of initial unemployment and initial attitudes (coefficients are

about one fifth larger in absolute value). This confirms the hypothesis that those who do not move are subjected to a more persistent influence of initial conditions in the canton of arrival. However, when looking at the effects in the subsample of F permit holders (see Table 2.12, columns (5)-(8)), coefficients for initial unemployment and initial attitudes appear slightly smaller (in absolute value) than in the baseline. Moreover, the effect of co-national networks is significantly positive.[23] These results might be explained by the greater difficulty of F permit holders to find a job through formal channels: employers might be reluctant to hire refugees with a precarious legal status, reinforcing thereby the role of informal co-ethnic networks.

Third, there were some changes in the legal and institutional framework during our period of analysis. From the perspective of refugees' labor market integration, the most important change is related to the revision of the federal laws on foreigners and on asylum, which granted refugees a better access to integration programs and improved their legal status in the labor market. This revision was accepted by popular vote in 2006 and entered into force in 2008. To check if these legal changes changed the influence of initial conditions on refugees' employment probabilities, we reestimate equation (2.1) for refugees arriving after the year 2008. Results are qualitatively identical to the baseline but stronger in magnitude (see Table 2.13), which seems to indicate that employment has indeed become more sensitive to initial conditions.

Fourth, we reexamine the role of networks and look at two aspects of network quality.[24] We first consider the argument that co-nationals who are employed might matter more for refugees' employment probabilities. We also look at network members who have been in Switzerland for at least 2 years, following the argument by Lori A. Beaman (2011). He points out that co-nationals who arrive at the same time might be in competition

[23] This result is consistent with the findings of Martén et al. (2019a) who restrict their analysis to F permit holders and find positive network effects.

[24] We also checked how sensitive our results are to using the Inverse Hyperbolic Sine transformation of the network variable (Bellemare and Wichman, 2020). It turns out that the estimates of the marginal effects of networks on refugees' employment probability are very close to (and not significantly different from) our baseline estimates, both for the entire sample and the female and male subsamples (results are available on request from the authors). The distribution of network sizes in our sample (less than 3 percent of zeros and a median size of networks equal to 177) implies that there is little difference between the Inverse Hyperbolic Sine transformation and our simpler specification of (1+number of co-nationals). Moreover, we also estimated another specification where the network is defined as the number of co-nationals residing in the canton of arrival at time $\tau-1$. Our baseline results are unchanged (table available from the authors upon request).

with each other and hence deteriorate labour market outcomes, while other refugees that have been in Switzerland for a while might actually have a positive effect on employment rates, for example by information spill-overs or job referrals. Therefore, we reestimate the baseline model using two new definitions of networks, one that only takes the number of employed co-nationals into account and another definition that only considers co-nationals that have been in the country for at least 2 years. The results of the analysis for the working network members confirm our intuition (see Table 2.14): the effect is positive and significant, suggesting a beneficial effect of networks in the assigned canton at the time of arrival on the employment probability in the following years. This result is consistent with the positive effects of networks that are found in most of the literature. Regarding the tenured network members, we don't find significant effects (at the 5% level). In contrast, only including co-nationals arriving as asylum seekers for the network definition gives some additional insights. Table 2.15 shows the result of the analysis using network of co-nationals that went through an asylum process. The coefficients on the modified network variable imply that a larger number of network members decreases the probability of employment. By contrast to the findings in Lori A. Beaman (2011), this suggests that the competition effect dominates the positive network effects when only considering other asylum seekers in the network.

Finally, we look at two alternative measures of unemployment (see Table 2.16). First, to dissipate any worries about spurious correlation between refugees' employment probabilities and cantonal unemployment rates, we use the unemployment rate of Swiss nationals, which excludes almost all refugees. The effect of the Swiss unemployment rate remains significant and is even stronger in magnitude than the baseline results. Second, to test whether refugees are competing in the labor market predominantly with young workers, we use the youth unemployment rate as second alternative measure.[25] This hypothesis is not borne out by the data: youth unemployment does not have a statistically significant effect on the employment of refugees in our regressions.

[25]Both indicators come from the SECO Unemployment data and youth unemployment is defined as unemployed between 15 and 24 years old.

2.5.3 Additional Results on Attitudes

In our estimates above, we identify the impact of initial conditions on refugees' employment outcomes through changes over time in these local conditions. In this section we focus on our indicator of attitudes towards immigrants and refugees, which is based on the outcomes of popular votes on these issues in the different cantons. Each vote is coded along a single dimension (whether it represents a more restrictive policy or not) but it is important to acknowledge that the referendums and popular initiatives up for vote differ in content along other dimensions. When identifying the impact of natives' attitudes on the employment rate of refugees, it is therefore crucial to distinguish cross-section effects (which involve comparisons between cantons for a given referendum or popular initiative) from effects identified by changes over time (which involve referendums or popular initiatives with different contents). In our estimations of equation (2.1), the cross-section effects of attitudes are entirely absorbed by canton of arrival fixed effects to the extent that they differ from the effects of changes in attitudes over time. The estimates of the last section only inform us about the latter effects; here we aim at estimating also the former.

To estimate both cross-section effects of attitudes and effects of changes over time, we decompose the indicator of attitudes towards refugees and migrants into its mean (over time for each canton) and deviations from the mean. For the sake of completeness, we do the same for the two other variables of initial conditions, unemployment and co-ethnic networks. We drop the canton of arrival fixed effects (which would absorb the means of initial conditions) and report the results of our estimations in columns (2) and (3) of Table 2.4. To avoid omitted variable bias, we include all three initial conditions in our estimations and add other (time-constant) controls at the level of the canton of arrival.[26] For comparison purposes, column (1) shows the results of our estimate of equation (2.1), which are reproduced from column (8) of Table 2.3. The difference between columns (2) and (3) lies in the way we control for current economic conditions (at time t): in column (2) we use interactions between dummies for seven regions of Switzerland and dummies for the current year, whereas in column (3) we use interactions between dummies for the

[26]These controls include the means (over time for each canton) of all three initial conditions, the mean of the log of population and the mean of the log real median wage, as well as dummy variables for the seven "Great Regions" of Switzerland.

current canton of residence and dummies for the current year. These two cases represent different geographic levels of aggregation: the seven regions correspond to NUTS-2 in the European classification of territorial units and the 26 cantons to NUTS-3.

When looking at the estimation results in Table 2.4, it is striking that the estimates of the effects of changes over time in initial conditions are very close in all three specifications. This is reminiscent of the Mundlak estimator: replacing the canton of arrival fixed effects with means of all canton-level variables yields close estimates for these coefficients. In this sense, our decomposition of indicators into a time-varying and a time-constant component is consistent with our initial estimates of the former. If we consider the two initial conditions that turned out to be significant determinants of refugees' employment rates in our analysis above (unemployment and attitudes), it appears that the cross-section effect of the cantonal unemployment rate does not differ significantly from its effect over time. For attitudes towards refugees and migrants we find a very different result: the cross-section effect is of opposite sign and significantly different from the effect of changes in attitudes over time.[27] This result is robust across different specifications and seems to indicate that the evolution over time of our indicator of attitudes should be interpreted differently from differences in the cross-section.

It is worth exploring briefly the implications of our empirical results. Figure 2.5 depicts the effects of attitudes towards migration and asylum on predicted employment rates for five different cantons during two periods (the two halves of our sample period: 1998–2007 and 2008–2017). The predicted employment rates in Figure 2.5 rely on the estimates of the cross-section effects and time-varying effects of attitudes in specification (3) in Table 2.4. According to these estimates, a refugee arriving during the period 1998–2007 in the canton of Geneva could expect to experience a higher employment rate by almost two percentage points than if he arrived in the canton of Zürich. This is the cross-section

[27] Co-national networks were not found to be a significant determinant of refugees' employment rates in our basic regressions in Table 2.3. Results in Table 2.4 confirm that the effect of changes in networks over time are not significant. However, when controlling for current economic conditions by using current canton dummies interacted with current year dummies in specification (3), the cross-section effect of co-national networks appears to be significantly positive. Although this result should be taken with a grain of salt for the reasons indicated in the text, it can be explained by the positive effect of co-national networks on female migrants. More precisely, if specification (3) is run separately for female and male migrants, the time-varying effect is significantly negative for men (and not significantly different from the cross-section effect) and both the time-varying and cross-section effects are positive for women (the latter being larger than the former).

effect, which is negatively related to restrictive attitudes: attitudes were more restrictive in Zürich than in Geneva. Now consider another refugee who would arrive during the period 2008–2017: for her this initial gap in employment rates increases by almost two percentage points. This is the time-varying effect: attitudes became more restrictive over time in Geneva (and more open in Zürich), a change which is positively related to refugees' employment rates in Geneva (and negatively in Zürich). The comparison between Geneva and Basel-City is even more striking: refugees arriving during the first half of the sample period can expect the same employment rates as in Geneva but over time the convergence of attitudes leads to a significant difference in predicted employment rates. To avoid clutter, we do not depict all 26 cantons on this graph but we give two more examples that illustrate the differences in attitudes and employment rates: the cantons of Ticino and Schwyz, which saw their initially restrictive attitudes towards migration and asylum become even more restrictive over time.

These results are a manifestation of Simpson's paradox: the effect of attitudes over time within a canton differs in sign from their cross-section impact.[28] To provide some further interpretation of this phenomenon in our context, we analyze the correlation between our indicator based on cantonal results of popular votes and six items in the European Social Survey (ESS) which were included in the questionnaire of all nine ESS rounds that took place during our sample period (2002-2018). Three items deal with the desirable number of (different types of) immigrants in Switzerland and three other items concern the impact of immigration on the receiving country.[29]

Our findings are described in detail in Appendix 2.6 and can be summarized as follows. In the cross section, our indicator of attitudes is most strongly correlated with the ESS item stating that Switzerland's cultural life is undermined by immigrants. This seems to indicate that the large cantonal differences in attitudes toward migrants and refugees are mostly related to the perception of migrants as a cultural threat. Moreover, the influence of these cultural beliefs on cantonal differences in attitudes and voting

[28]For another example of Simpson's paradox in the area of migration, see Clemens and Mendola (2020) who find that the relationship between income and emigration can be very different in population subgroups and in the aggregate population.

[29]The precise wording of these questions is given in Appendix 2.6. We consider cross-section correlations (by regressing our vote indicator on an ESS item and year fixed effects) and correlations in terms of changes over time (by regressing our vote indicator on an ESS item, as well as year and canton fixed effects).

outcomes is relatively stable over time. On the other hand, in a given canton the change towards more restrictive attitudes is associated with the willingness to limit the number of immigrants from ethnically different groups and with a change towards the belief that immigration is good for the economy or the country as a whole. This seems consistent with a shift in Swiss migration and asylum policy towards activation policies in the labor market and greater conditionality. For example, access to the labor market has been facilitated for asylum seekers but the level of social assistance has been decreased in many cantons for those asylum seekers who do not obtain the refugee status. For naturalization, the residence requirement has been shortened from twelve to ten years but "integration requirements" have been tightened, with the generalized introduction of language tests and the requirement that a candidate does not depend on social assistance.

2.6 Concluding Remarks

In this paper, we analyze the integration of refugees in the Swiss labor market by looking at trajectories of employment rates and by analyzing the impact of initial conditions on these trajectories. We combine data from a longitudinal dataset, which covers the universe of refugees and migrants in Switzerland over 1998-2018, with data on attitudes toward refugees and migrants, which are derived from popular voting outcomes at the canton level.

When we investigate the impact of initial conditions on the employment of refugees over the life cycle, we find significant negative effects of initial unemployment rates on employment probabilities of refugees, and positive effects of initial (restrictive) attitudes toward refugees and immigrants. We also find that a change toward more restrictive attitudes over time in a canton (relative to attitudes in other cantons) leads to a faster labor market integration of the subsequent refugee cohorts. On the other hand, the existence of a co-ethnic network does not consistently lead to faster integration.[30] Our results do not allow to draw conclusions on the role of co-ethnic networks, and provide

[30]The results for co-national networks are inconclusive. We do not find a significant effect in the aggregate, but a significant positive effect of networks on the employment of female refugees and a significant negative effect for male refugees.

evidence as to whether initial access to a larger ethnic enclave may improve access to the labor-market, or on the other hand may discourage human capital investment and reduce access to job opportunities in the long-run (Arendt and Ku, 2022). Both unemployment and attitudes have long-lasting effects on the employment probability of refugees. The negative effects of initial unemployment are cumulative over time and reach a maximum after more than 15 years, whereas the impact of attitudes is small shortly after arrival, reaches a maximum 3–5 years after arrival, and then decreases over time. Our baseline findings on the role of attitudes indicate that when natives' attitudes become more restrictive over time, refugees could feel pressured to increase their integration efforts and search more intensively for a job.

At first sight, these results on the effects of attitudes seem to contradict Aksoy et al. (2021). However, some further analysis reveals that the cross-section effects and the effects of changes over time are of opposite signs. We find that cross-section differences in attitudes between cantons are mostly correlated with cultural beliefs about migration. In cantons where migrants and refugees are perceived as a cultural threat, it is likely that there are fewer private and professional contacts between natives and refugees, reducing the latter's chances to find a job. This is consistent with our empirical finding that a refugee who is assigned to a canton with restrictive attitudes faces lower employment probabilities. By contrast, changes toward more restrictive attitudes over time within a canton (which increase refugees' employment probabilities according to our empirical results) have a different interpretation: they are correlated with the willingness to limit the number of immigrants from ethnically different groups and with a change toward the belief that immigration can be good for the country. This seems to reflect the recent shift in Swiss migration and asylum policy toward free movement of persons with the EU and activation policies in the labor market for migrants from other countries and refugees.

Based on our findings, given the significant variation over time in the way the initial local conditions and other factors affect the pattern of economic integration, we highlight the importance of taking a longer run perspective – and possibly the longitudinal dimension – when examining the effectiveness of policies, given that the effects may vary over time and different complementary interventions may be needed in the short vs. long-run.

Tables and Figures

Table 2.1: Share and Stock of Refugees in EU-15 and Switzerland, 1960 and 2021

Country	**Share of Refugees, 1960**	**Refugee Population, 1960**	**Share of Refugees, 2021**	**Refugee Population, 2021**
Austria	0.55%	39,000	1.70%	152,514
Belgium	0.60%	55,000	0.64%	74,063
Denmark	0.05%	2,300	0.62%	36,023
Germany	0.27%	197,000	1.51%	1,255,694
Finland	0%	0	0.43%	24,078
France	0.53%	245,935	0.74%	499,914
Greece	0.19%	15,500	1.12%	119,650
Ireland	0%	0	0.19%	9,571
Italy	0.03%	15,500	0.25%	144,862
Luxembourg	0.61%	1,900	0.94%	6,011
Netherlands	0.10%	12,000	0.57%	99,585
Portugal	0%	0	0.03%	2,651
Spain	0%	0	0.26%	122,539
United Kingdom	0.32%	167,000	0.20%	137,078
Sweden	0.35%	26,000	2.31%	240,854
Switzerland	0.38%	20,000	1.37%	118,829

Note: “Share of Refugees”: share of refugee population with respect to the total population in the country of asylum (1960, 2021).

“Refugee Population”: total refugee population in the country of asylum (1960, 2021).

Source: the data is extracted from the World Development Indicators 2023

Table 2.2: Descriptive statistics

	Main sample	**Structural Surveys**	**Only F permit**	**Period from 2009**
Cohort size	89407	13615	35404	55705
Observations in sample	606152	134785	241892	212260
Characteristics				
Female	0.41	0.43	0.41	0.37
Age	36.13	37.65	35.03	32.10
	(9.56)	(8.99)	(10.01)	(9.13)
Age at arrival	29.22	29.45	29.30	28.99
	(8.15)	(7.64)	(8.81)	(8.83)
Married	0.53	0.60	0.41	0.37
Length of stay	11.58	13.68	10.09	5.16
	(5.78)	(4.89)	(5.14)	(2.30)
Labour market outcomes				
Employment rate	0.49	0.59	0.41	0.27
Earnings (CHF)	26320.14	29113.40	22776.57	16309.25
	(23774.18)	(24945.91)	(20810.44)	(18064.45)
Education				
Secondary I		0.62		
		(0.48)		
Secondary II		0.23		
		(0.42)		
Tertiary		0.15		
		(0.36)		

Note: The table shows summary statistics for four different samples: The full sample, the subsample from the Structural Surveys, the F permit subsample and the 2009 subsample.

The subsample from the Structural Surveys includes all refugees that were interviewed for the structural surveys.

The F permit subsample includes all refugees that had an F permit at some point in time.

The subsample from 2009 includes all refugees that arrived after the year 2008 in Switzerland.

In addition, all samples are restricted to individuals that are between 18 and 64 years old and that were at least 18 years at arrival.

Table 2.3: The Impact of Initial Conditions on Employment of Refugees: Baseline Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.0252***	-0.0271***					-0.0216***	-0.0225***
	(0.00657)	(0.00648)					(0.00669)	(0.00663)
Network			-0.000518	-0.000577			-0.0000989	-0.000140
			(0.00244)	(0.00243)			(0.00243)	(0.00242)
Restrictive Attitudes					0.0292***	0.0289***	0.0275***	0.0264***
					(0.00623)	(0.00605)	(0.00598)	(0.00572)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	606152	606152	606152	606152	606152	606152	606152	606152

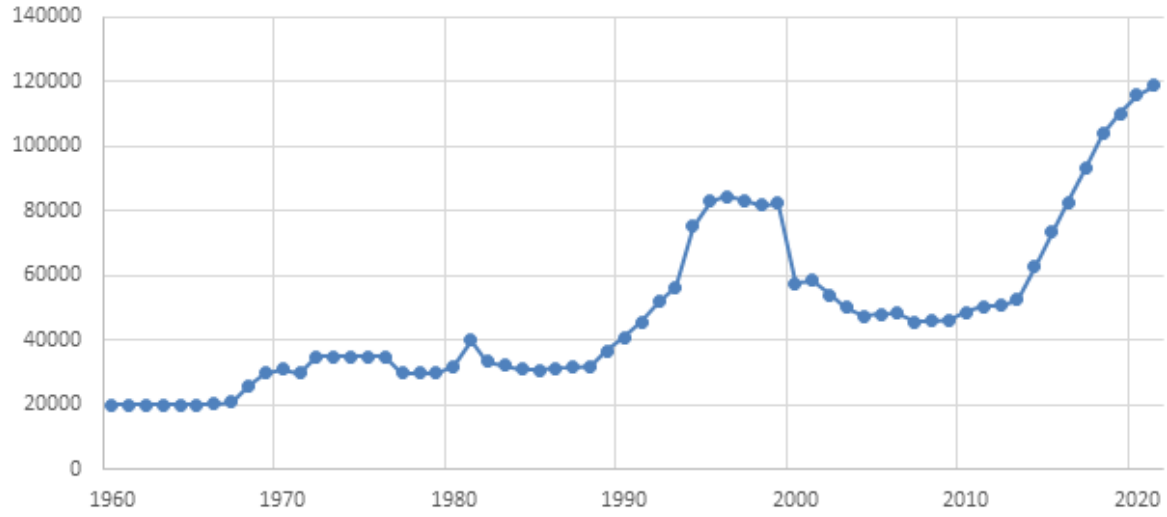
Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.4: The Impact of Initial Conditions on Employment of Refugees: Estimates with Means of Initial Conditions

	(1)	(2)	(3)
Unemployment – Mean(Unemployment)	-0.0225***	-0.0252***	-0.0224***
	(0.00663)	(0.00692)	(0.00664)
Mean(Unemployment)		-0.0221***	-0.0119**
		(0.00510)	(0.00556)
Network – Mean(Network)	-0.000140	0.00133	0.0000146
	(0.00242)	(0.00236)	(0.00243)
Mean(Network)		0.000657	0.0377**
		(0.0119)	(0.0173)
Restrictive Attitudes – Mean(Restrictive Attitudes)	0.0264***	0.0232***	0.0262***
	(0.00572)	(0.00550)	(0.00578)
Mean(Restrictive Attitudes)		-0.0120**	-0.0141**
		(0.00556)	(0.00699)
Country of birth FE	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes
Canton of arrival FE	Yes	No	No
Canton of arrival controls	Yes	Yes	Yes
Current region X Current year FE	No	Yes	No
Current canton X Current year FE	Yes	No	Yes
Observations	606152	606152	606152

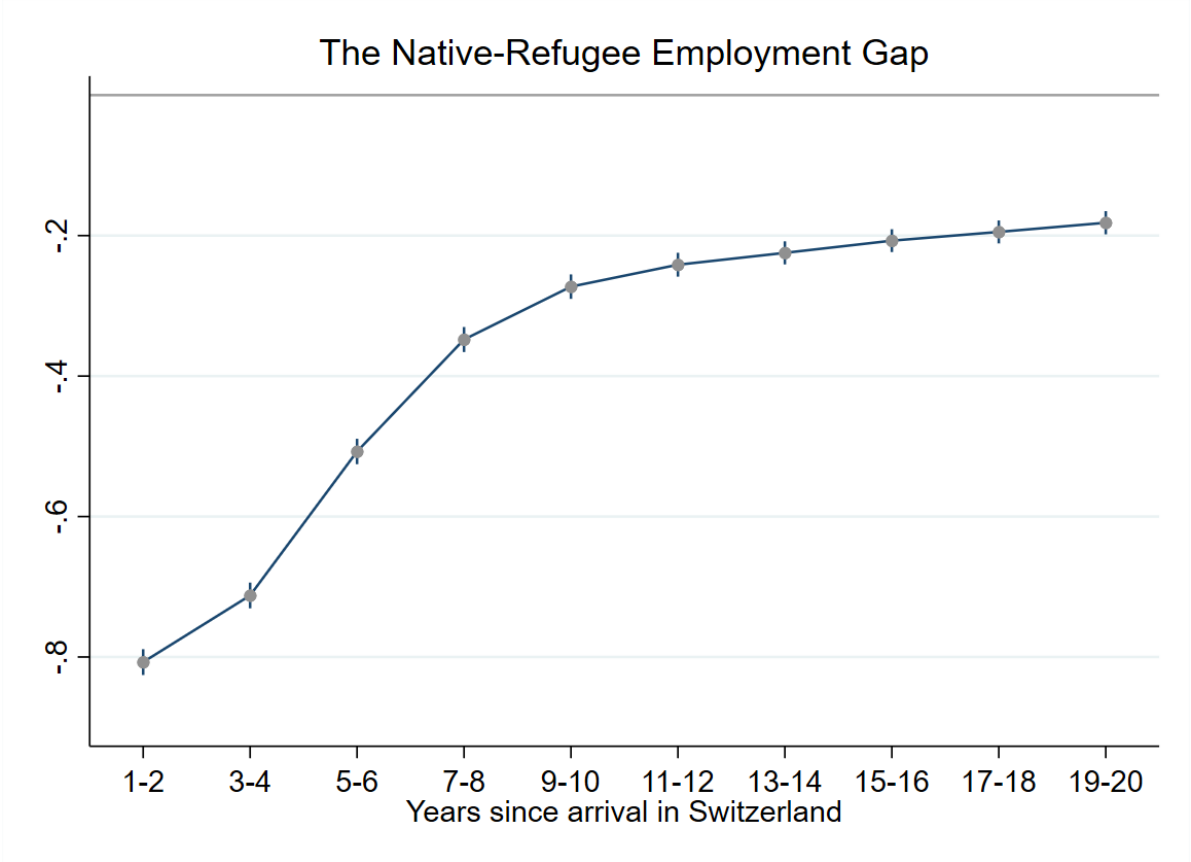
Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). Mean(*Variable*) denotes the mean over time by canton of *Variable*. All regressions also include age, age squared, gender, marital status. Time-varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Regressions (2) and (3) also include as controls the means (over time by canton) of log of population and log of real median wage. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 2.1: Total Number of Refugees in Switzerland, 1960–2021



*Note and source: The figure shows the total refugee population in Switzerland between 1960 and 2021. It is extracted from the World Bank website (as of February 2023): https://data.worldbank.org/indicator/SM.POP.REFG?locations=CH.

Figure 2.2: Trajectory of Employment Probability



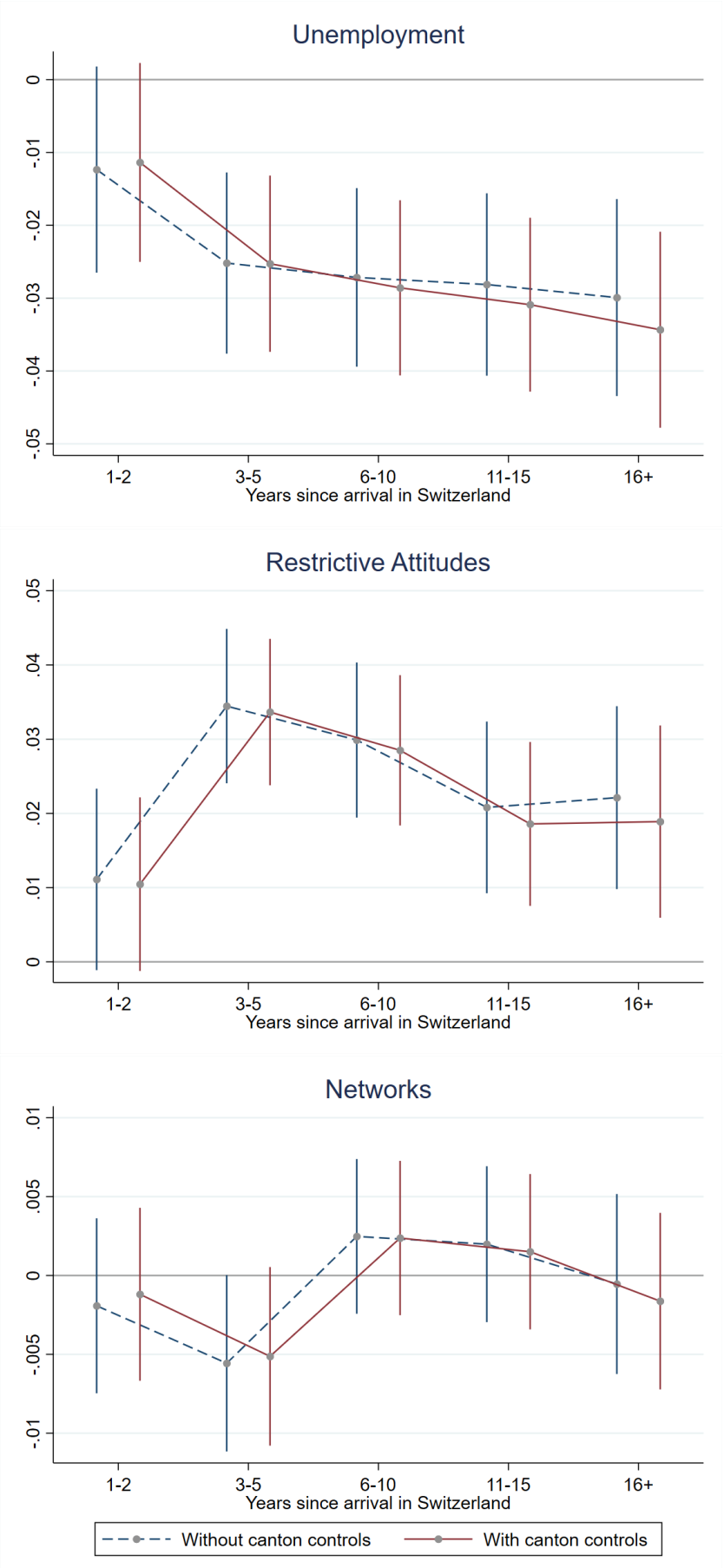


Figure 2.3: The Impact of Initial Local Conditions on Probability of Employment

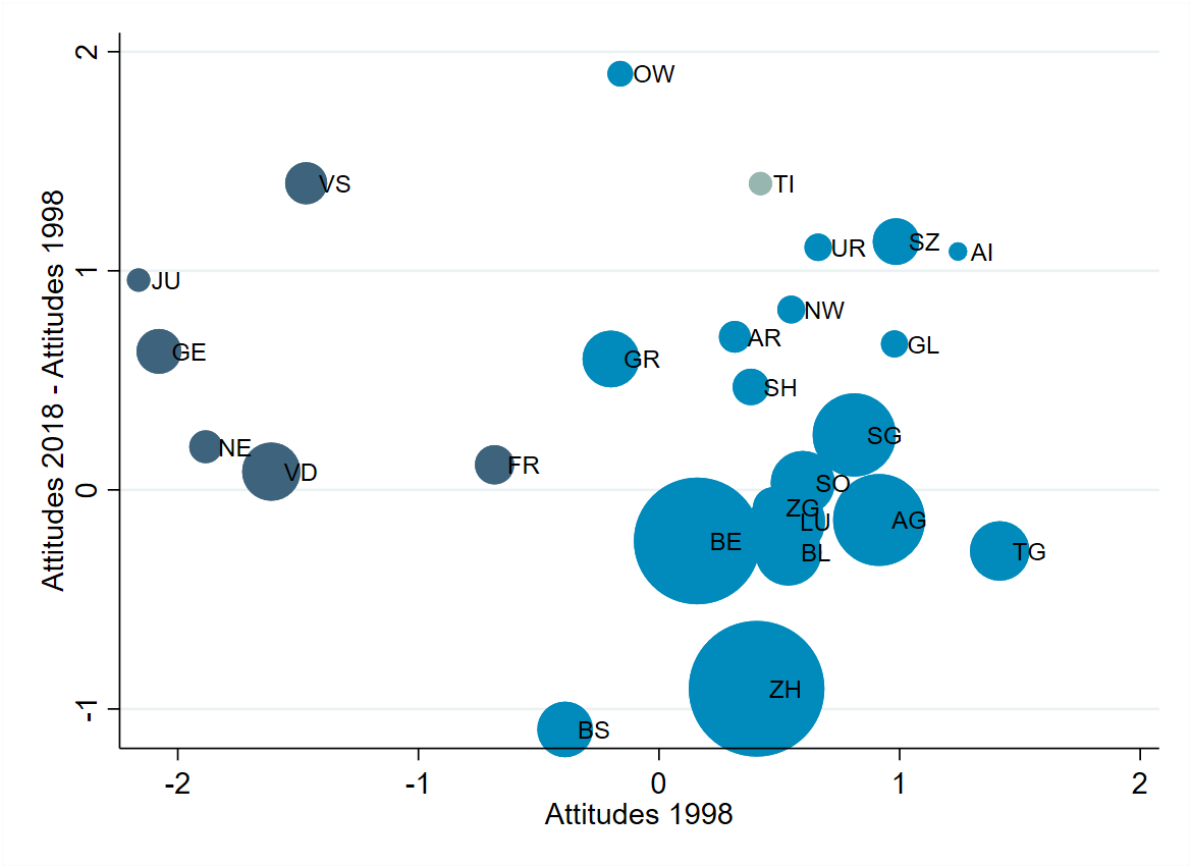


Figure 2.4: Attitudes toward migration and asylum: initial attitudes vs. change over time (by canton)

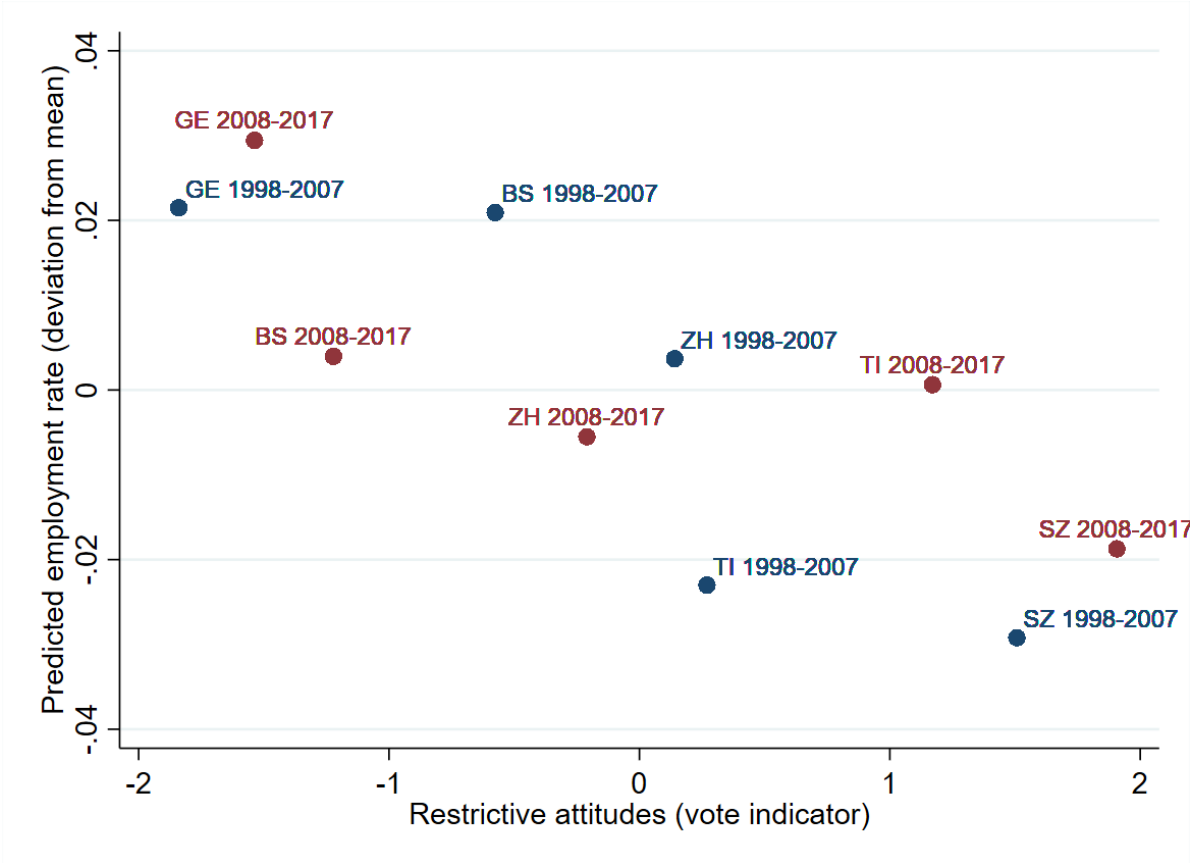


Figure 2.5: Predicted employment rates of refugees and attitudes toward migration and asylum in five cantons and two periods

Appendix

A. Additional Tables and Figures

Table 2.5: Popular votes on migration and asylum in Switzerland, 1996–2020

No.	Date	Label	Type	Orientation	Outcome	Approval	Turnout
432	01.12.1996	Against illegal immigration	PI	Restrictive	Failed	46.3%	46.8%
454	13.06.1999	Federal law on asylum	OR	Restrictive	Passed	70.6%	45.6%
455	13.06.1999	Federal law on emergency measures on asylum and foreigners law	OR	Restrictive	Passed	70.8%	45.6%
467	24.09.2000	For regulating immigration	PI	Restrictive	Failed	36.2%	45.3%
491	24.11.2002	Against abuses in asylum law	PI	Restrictive	Failed	49.9%	48.1%
510	26.09.2004	Federal bill on ordinary and facilitated naturalization (2nd generation)	MR	Expansive	Failed	43.2%	53.8%
511	26.09.2004	Federal bill on ordinary and facilitated naturalization (3rd generation)	MR	Expansive	Failed	48.4%	53.8%
519	25.09.2005	Extension of free mobility to new EU member states (EU-10)	OR	Expansive	Passed	56.0%	54.5%
524	24.09.2006	Federal law on foreigners	OR	Restrictive	Passed	67.8%	48.9%
525	24.09.2006	Federal law on asylum	OR	Restrictive	Passed	68.0%	48.9%
532	01.06.2008	For democratic naturalization	PI	Restrictive	Failed	36.2%	45.2%
540	08.02.2009	Renewal of the EU-Switzerland bilateral agreement on free mobility	MR	Expansive	Passed	59.6%	51.4%
547	29.11.2009	Against the construction of minarets	PI	Restrictive	Passed	57.2%	53.8%
552	28.11.2010	For the deportation of foreign criminals	PI	Restrictive	Passed	52.9%	52.9%
571	09.06.2013	Urgent modification of asylum law	OR	Restrictive	Passed	78.4%	39.4%
580	09.02.2014	Against mass immigration	PI	Restrictive	Passed	50.3%	56.6%
588	30.11.2014	Stop overpopulation (ECOPOP)	PI	Restrictive	Failed	25.9%	50.0%
597	28.02.2016	For the actual deportation of foreign criminals	PI	Restrictive	Failed	41.0%	63.7%
604	05.06.2016	Federal law on asylum	OR	Expansive	Passed	78.4%	46.8%
609	12.02.2017	On the facilitated naturalization of third generation foreign youth	OR	Expansive	Passed	60.1%	46.8%
631	27.09.2020	For moderate immigration (Limitation Initiative)	PI	Restrictive	Failed	38.3%	59.5%

This table lists all popular votes on the issues of migration and asylum in Switzerland between 1996 and 2020.

The list follows Zimmermann and Stutzer (2021), adding the vote No. 631 to their list.

Types of popular votes are: mandatory referendum (MR), optional referendum (OR) and popular initiative (PI)

Table 2.6: The Impact of Initial Conditions on Employment of Refugees by Years Since Migration

	(1)	(2)	(3)	(4)	(5)	(6)
Variable × Years since migration						
Restrictive Attitudes X 1-2 years	0.00503	0.0125**	0.0111*	0.00326	0.0113*	0.0105*
	(0.00620)	(0.00629)	(0.00622)	(0.00605)	(0.00594)	(0.00595)
Restrictive Attitudes X 3-5 years	0.0391***	0.0360***	0.0345***	0.0379***	0.0347***	0.0337***
	(0.00557)	(0.00543)	(0.00529)	(0.00536)	(0.00509)	(0.00502)
Restrictive Attitudes X 6-10 years	0.0348***	0.0303***	0.0299***	0.0342***	0.0284***	0.0285***
	(0.00532)	(0.00538)	(0.00532)	(0.00521)	(0.00516)	(0.00515)
Restrictive Attitudes X 11-15 years	0.0268***	0.0214***	0.0208***	0.0265***	0.0185***	0.0186***
	(0.00577)	(0.00605)	(0.00589)	(0.00567)	(0.00566)	(0.00562)
Restrictive Attitudes X 15+ years	0.0299***	0.0232***	0.0221***	0.0299***	0.0191***	0.0189***
	(0.00624)	(0.00639)	(0.00627)	(0.00641)	(0.00663)	(0.00659)
Unemployment X 1-2 years		-0.0115	-0.0123*		-0.0106	-0.0114
		(0.00728)	(0.00720)		(0.00699)	(0.00695)
Unemployment X 3-5 years		-0.0249***	-0.0252***		-0.0252***	-0.0253***
		(0.00643)	(0.00633)		(0.00622)	(0.00616)
Unemployment X 6-10 years		-0.0266***	-0.0272***		-0.0283***	-0.0286***
		(0.00634)	(0.00624)		(0.00618)	(0.00612)
Unemployment X 11-15 years		-0.0277***	-0.0281***		-0.0309***	-0.0309***
		(0.00646)	(0.00637)		(0.00610)	(0.00608)
Unemployment X 15+ years		-0.0289***	-0.0299***		-0.0337***	-0.0343***
		(0.00693)	(0.00688)		(0.00685)	(0.00685)
Network X 1-2 years			-0.00192			-0.00119
			(0.00282)			(0.00279)
Network X 3-5 years			-0.00556*			-0.00513*
			(0.00285)			(0.00288)
Network X 6-10 years			0.00248			0.00238
			(0.00249)			(0.00249)
Network X 11-15 years			0.00199			0.00151
			(0.00252)			(0.00251)
Network X 15+ years			-0.000540			-0.00163
			(0.00290)			(0.00285)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Years since migration FE	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	No	No	Yes	Yes	Yes
Observations	606152	606152	606152	606152	606152	606152

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Specifications (1) and (4) also include the variables Unemployment and Network, (2) and (5) also include Network. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.7: The Impact of Initial Conditions on Earnings of Refugees: Baseline Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.00855	-0.00509					-0.00568	-0.000449
	(0.0188)	(0.0184)					(0.0189)	(0.0184)
Network			-0.00752	-0.00763			-0.00700	-0.00707
			(0.00691)	(0.00690)			(0.00691)	(0.00690)
Restrictive Attitudes					0.0243	0.0287*	0.0233	0.0281*
					(0.0150)	(0.0148)	(0.0151)	(0.0148)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	298123	298123	298123	298123	298123	298123	298123	298123

Dependent variable is log annual wage based on taxable income. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.8: The Impact of Initial Conditions on Employment of Refugees: Language Regions

	(1)	(2)	(3)	(4)	(5)	(6)
Restrictive Attitudes X German	0.0222***	0.0202***	0.0202***	0.0205***	0.0167**	0.0164**
	(0.00759)	(0.00767)	(0.00763)	(0.00722)	(0.00717)	(0.00715)
Restrictive Attitudes X French	0.0342***	0.0350***	0.0352***	0.0348***	0.0353***	0.0355***
	(0.0111)	(0.00976)	(0.0101)	(0.0111)	(0.00974)	(0.00998)
Restrictive Attitudes X Italian	0.0407***	0.0368***	0.0334***	0.0408***	0.0367***	0.0331***
	(0.0114)	(0.0111)	(0.0118)	(0.0114)	(0.0112)	(0.0119)
Unemployment X German		-0.0202***	-0.0200***		-0.0220***	-0.0220***
		(0.00668)	(0.00675)		(0.00652)	(0.00659)
Unemployment X French		-0.0227***	-0.0225***		-0.0238***	-0.0238***
		(0.00671)	(0.00668)		(0.00660)	(0.00659)
Unemployment X Italian		-0.0205***	-0.0172**		-0.0227***	-0.0194**
		(0.00754)	(0.00870)		(0.00746)	(0.00857)
Network X German			-0.000721			-0.000812
			(0.00247)			(0.00246)
Network X French			-0.00104			-0.00117
			(0.00320)			(0.00333)
Network X Italian			0.00858			0.00913
			(0.00726)			(0.00734)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Years since migration FE	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	No	No	Yes	Yes	Yes
Observations	606152	606152	606152	606152	606152	606152

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Specifications (1) and (4) also include the variables Unemployment and Network, (2) and (5) also include Network. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.9: The Impact of Initial Conditions on Employment of Female Refugees: Baseline Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.0263***	-0.0316***					-0.0242***	-0.0292***
	(0.00892)	(0.00854)					(0.00872)	(0.00837)
Network			0.0116***	0.0115***			0.0119***	0.0118***
			(0.00326)	(0.00324)			(0.00330)	(0.00328)
Restrictive Attitudes					0.0265***	0.0217***	0.0249***	0.0189***
					(0.00600)	(0.00589)	(0.00582)	(0.00555)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	249742	249742	249742	249742	249742	249742	249742	249742

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.10: The Impact of Initial Conditions on Employment of Male Refugees: Baseline Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.0235***	-0.0231***					-0.0195**	-0.0178**
	(0.00772)	(0.00768)					(0.00809)	(0.00810)
Network			-0.00903***	-0.00903***			-0.00849***	-0.00843***
			(0.00301)	(0.00300)			(0.00298)	(0.00297)
Restrictive Attitudes					0.0279***	0.0302***	0.0257***	0.0276***
					(0.00816)	(0.00783)	(0.00801)	(0.00771)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	356399	356399	356399	356399	356399	356399	356399	356399

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.11: The Impact of Initial Conditions on Employment of Refugees: Subsample from structural surveys

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.0225***	-0.0259**	-0.0264**			-0.0247**
	(0.00663)	(0.0106)	(0.0103)			(0.0104)
Network	-0.000140	0.000697		0.000639		0.00112
	(0.00242)	(0.00436)		(0.00435)		(0.00435)
Restrictive Attitudes	0.0264***	0.0166**			0.0184**	0.0165**
	(0.00572)	(0.00772)			(0.00801)	(0.00768)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	Yes	Yes	Yes	Yes
Time varying canton controls	Yes	Yes	Yes	Yes	Yes	Yes
Sample	Main	Restricted	Restricted	Restricted	Restricted	Restricted
Observations	606152	134785	134785	134785	134785	134785

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Specifications (1) and (4) also include the variables Unemployment and Network, (2) and (5) also include Network. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.12: The Impact of Initial Conditions on Employment of Refugees: Never movers and F permit holders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.0325***			-0.0273***	-0.0203**			-0.0170**
	(0.00763)			(0.00773)	(0.00830)			(0.00847)
Network		-0.00133		-0.000784		0.00838**		0.00895**
		(0.00283)		(0.00284)		(0.00397)		(0.00395)
Restrictive Attitudes			0.0350***	0.0322***			0.0211***	0.0200***
			(0.00714)	(0.00661)			(0.00715)	(0.00690)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	507785	507785	507785	507785	241892	241892	241892	241892

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. Columns (1)-(4) use the subset of refugees that never moved cantons and columns (5)-(8) use the subset of F-permit holders. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.13: The Impact of Initial Conditions on Employment of Refugees: Period 2009-2018

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.0396**	-0.0457***					-0.0280*	-0.0345**
	(0.0156)	(0.0161)					(0.0155)	(0.0161)
Network			-0.00378	-0.00274			-0.00259	-0.00120
			(0.00464)	(0.00456)			(0.00451)	(0.00444)
Restrictive Attitudes					0.0362***	0.0364***	0.0337***	0.0334***
					(0.00767)	(0.00797)	(0.00755)	(0.00765)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	212260	212260	212260	212260	212260	212260	212260	212260

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population, log GDP per capita (only available from 2008) and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.14: The Impact of Initial Conditions on Employment of Refugees: Network Quality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate		-0.0213***		-0.0223***		-0.0217***		-0.0226***
		(0.00674)		(0.00667)		(0.00669)		(0.00663)
Restrictive Attitudes		0.0281***		0.0270***		0.0268***		0.0259***
		(0.00600)		(0.00576)		(0.00600)		(0.00574)
Working Network Members	0.00462*	0.00529**	0.00478*	0.00534**				
	(0.00255)	(0.00246)	(0.00255)	(0.00246)				
Tenured Network Members					-0.00370*	-0.00225	-0.00335*	-0.00205
					(0.00191)	(0.00188)	(0.00193)	(0.00189)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	No	Yes	Yes	No	No	Yes	Yes
Observations	606152	606152	606152	606152	606152	606152	606152	606152

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1) (1)-(4) that are employed at time of arrival and (5)-(8) that have been in Switzerland for more than 2 years. All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.15: The Impact of Initial Conditions on Employment of Refugees: Only other Refugees Network

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.0252***	-0.0271***					-0.0212***	-0.0220***
	(0.00657)	(0.00648)					(0.00660)	(0.00652)
Network			-0.0120***	-0.0120***			-0.0114***	-0.0114***
			(0.00245)	(0.00243)			(0.00241)	(0.00240)
Restrictive Attitudes					0.0292***	0.0289***	0.0268***	0.0258***
					(0.00623)	(0.00605)	(0.00598)	(0.00571)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	606152	606152	606152	606152	606152	606152	606152	606152

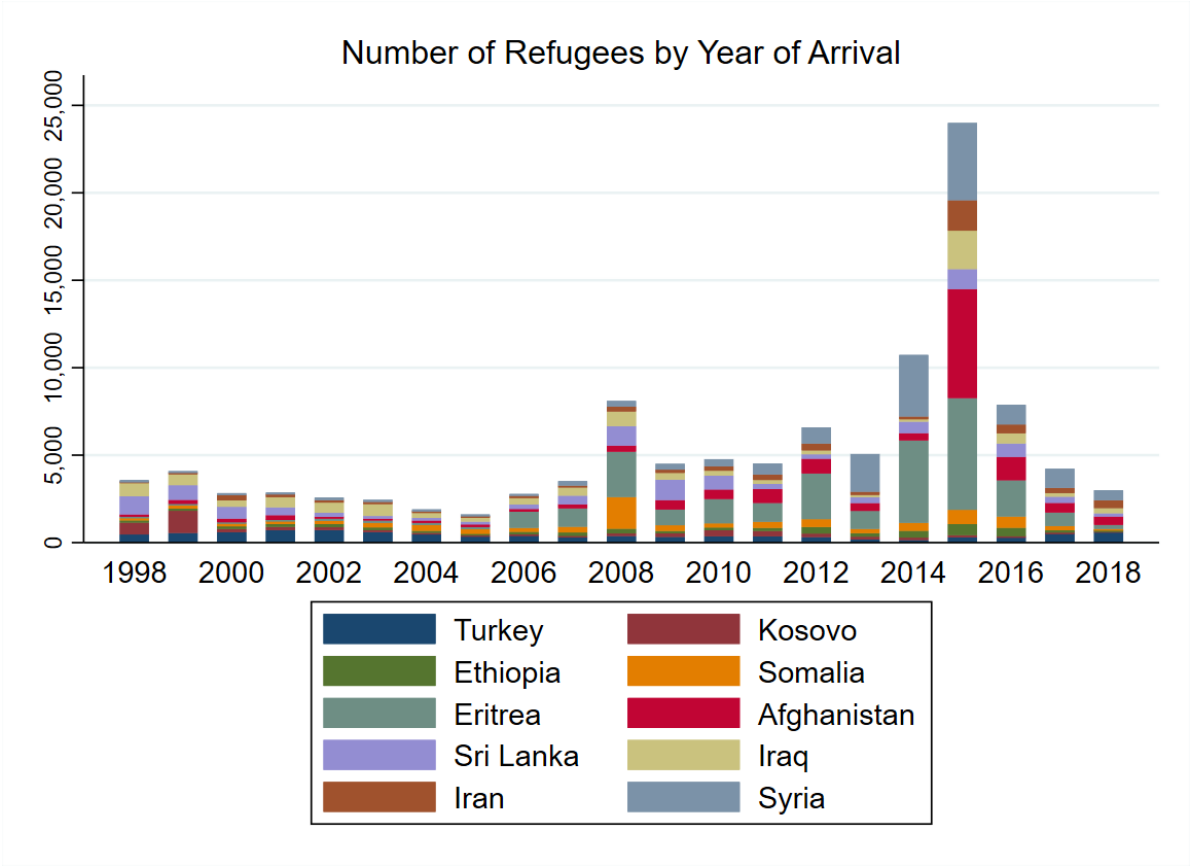
Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1), only counting other refugees. All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.16: The Impact of Initial Conditions on Employment of Refugees: Alternative Unemployment Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate Swiss	-0.0395***	-0.0393***	-0.0318***	-0.0321***				
	(0.00800)	(0.00783)	(0.00812)	(0.00803)				
Unemployment rate Young					-0.00834	-0.00834	-0.00725	-0.00725
					(0.00597)	(0.00597)	(0.00583)	(0.00583)
Network			-0.000136	-0.000159			-0.000260	-0.000260
			(0.00241)	(0.00241)			(0.00241)	(0.00241)
Restrictive Attitudes			0.0250***	0.0246***			0.0289***	0.0289***
			(0.00591)	(0.00564)			(0.00631)	(0.00631)
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes	No	No	No	No
Observations	606152	606152	606152	606152	606152	606152	606152	606152

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). Unemployment rate Young is defined as unemployment rate of individuals between 15 and 24 years old. All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 2.6: Number of refugees arriving from 10 most frequent origin countries



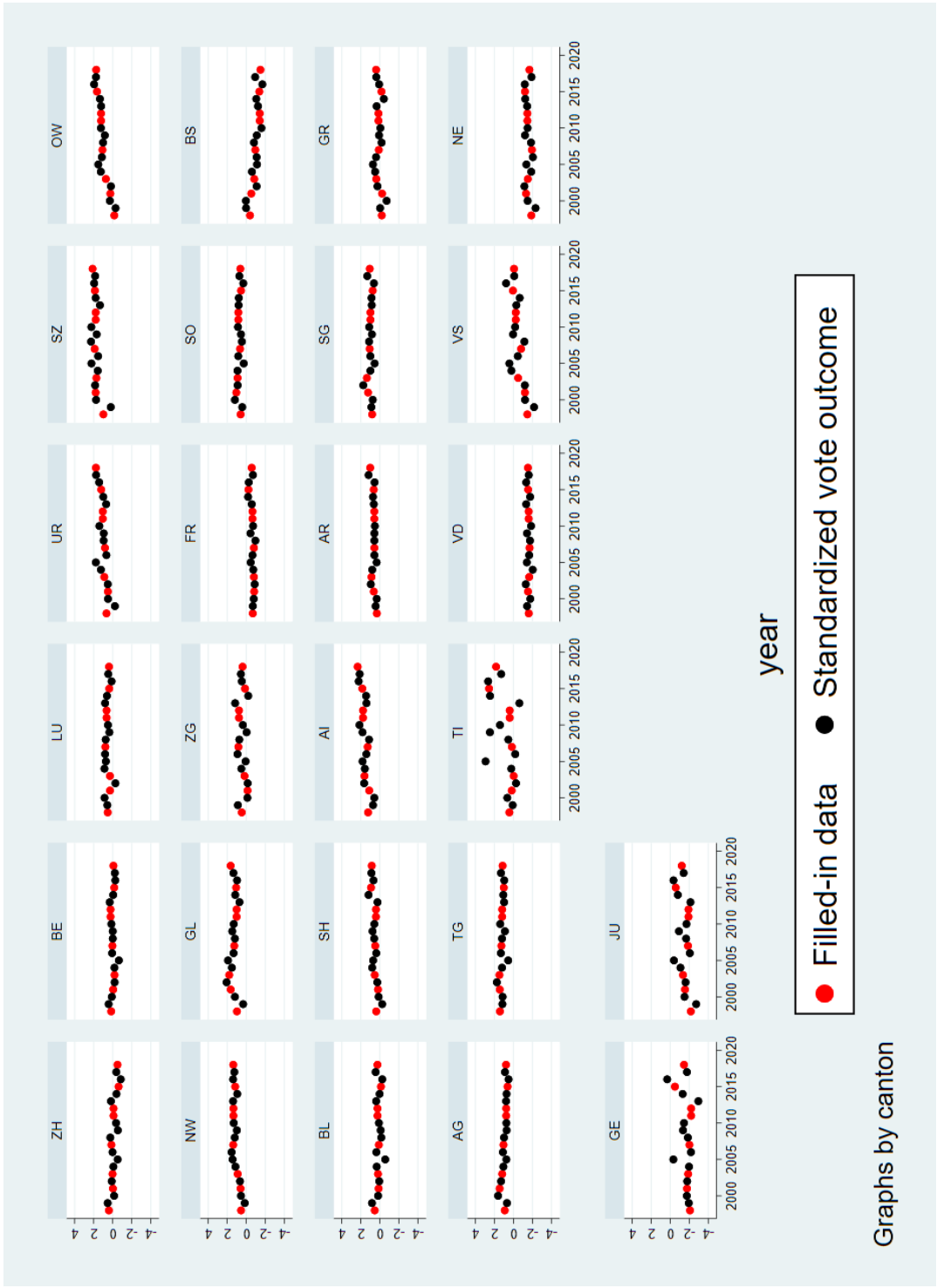
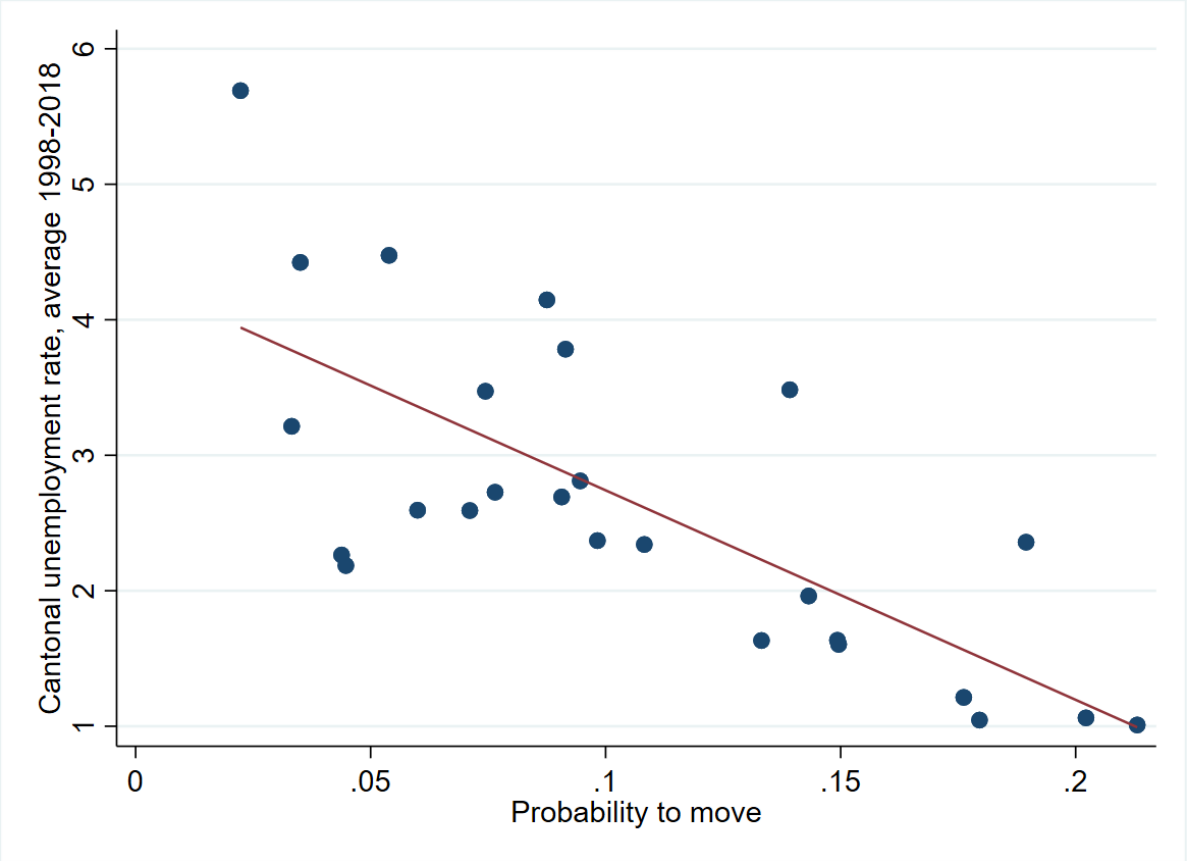


Figure 2.7: Attitudes toward restricting migration and asylum: standardized vote outcomes (black) and filled-in data (red), by canton 1998-2018
**Note: standardized vote outcomes are shown as black dots, whereas the filled-in data appears in red. See main text for explanation.*

Figure 2.8: Descriptive evidence of scarring effects



Note: This figure plots the relationship between the probability to move out of the assigned canton and the unemployment rate in that canton, averaged over 1998-2018. We are using data on cantonal unemployment rates between 1998 and 2018 and calculate the average over this period for every canton. The probability to move is constructed in the following way: we identify each refugee that moves out of the canton of allocation and calculate the probability to move for every canton as the average of people moving out over all refugees allocated to the canton. Finally, every point corresponds to one of the 26 Swiss cantons.

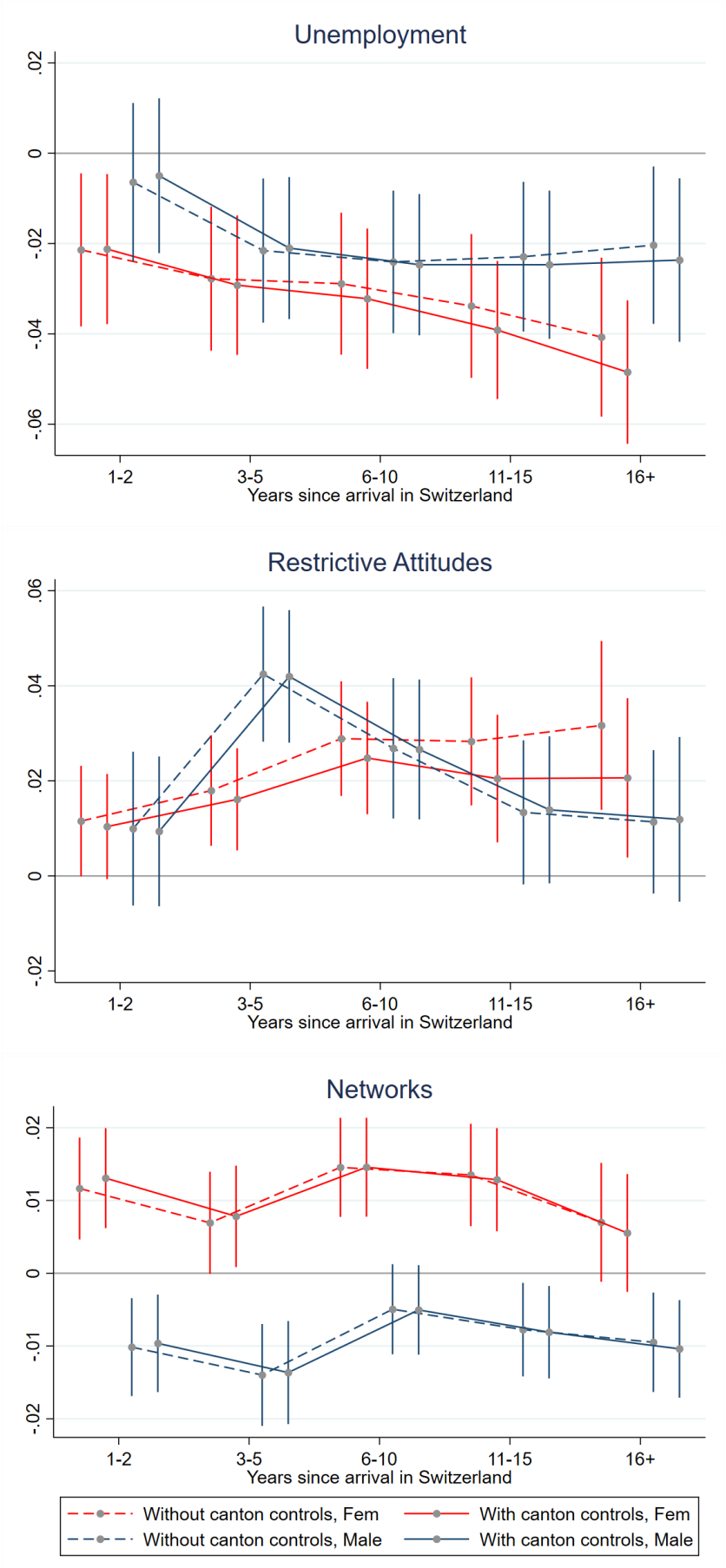


Figure 2.9: The Impact of Initial Local Conditions on Probability of Employment by Gender

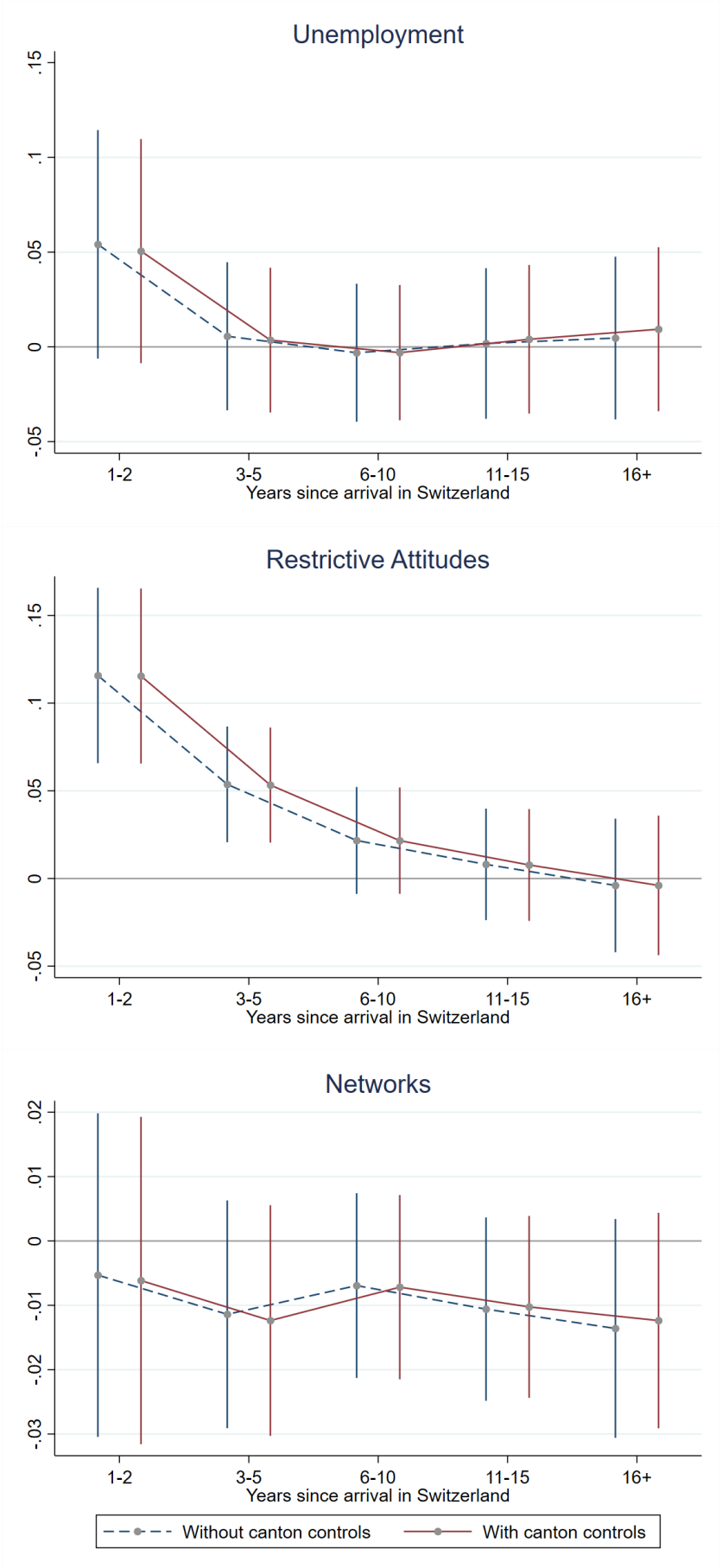


Figure 2.10: The Impact of Initial Local Conditions on Earnings

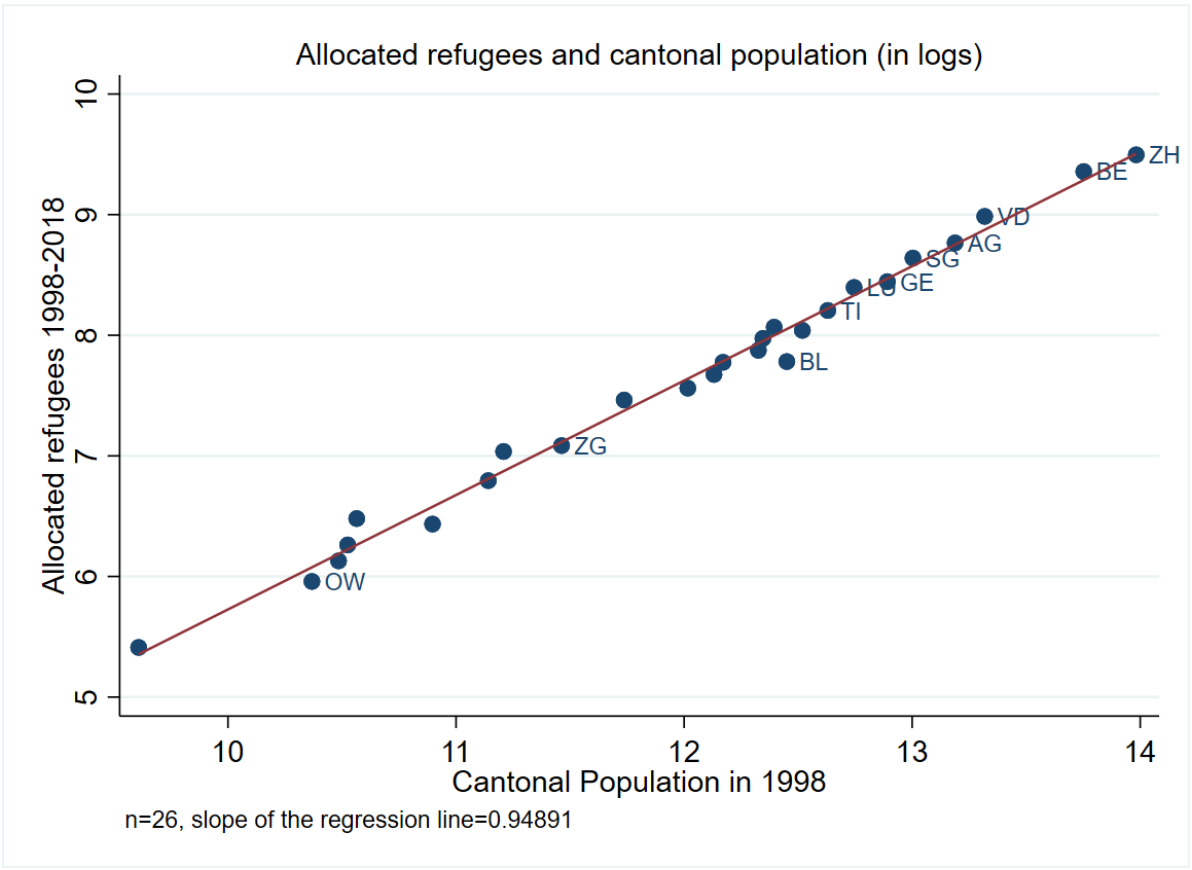


Figure 2.11: Balancing check: Cantonal population against number of allocated refugees

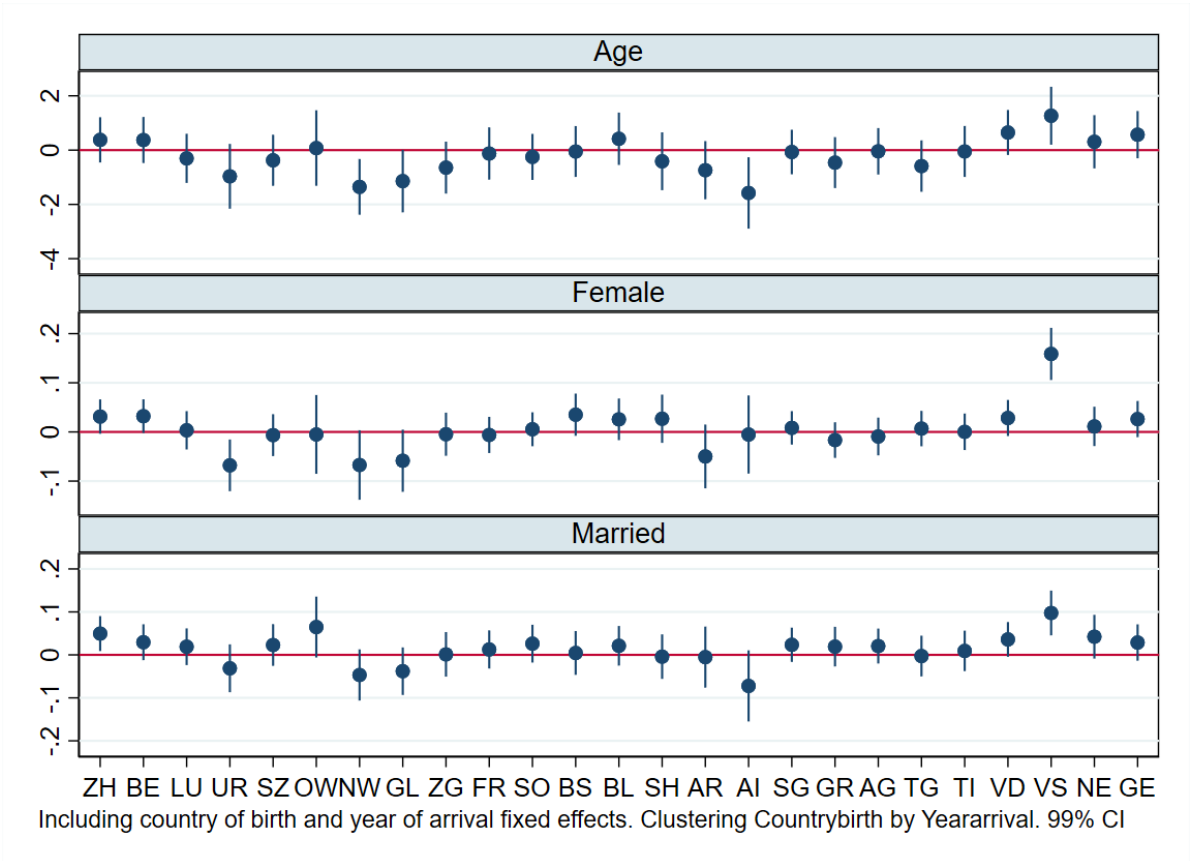


Figure 2.12: Balancing check: Regression of refugee characteristics on assigned cantons

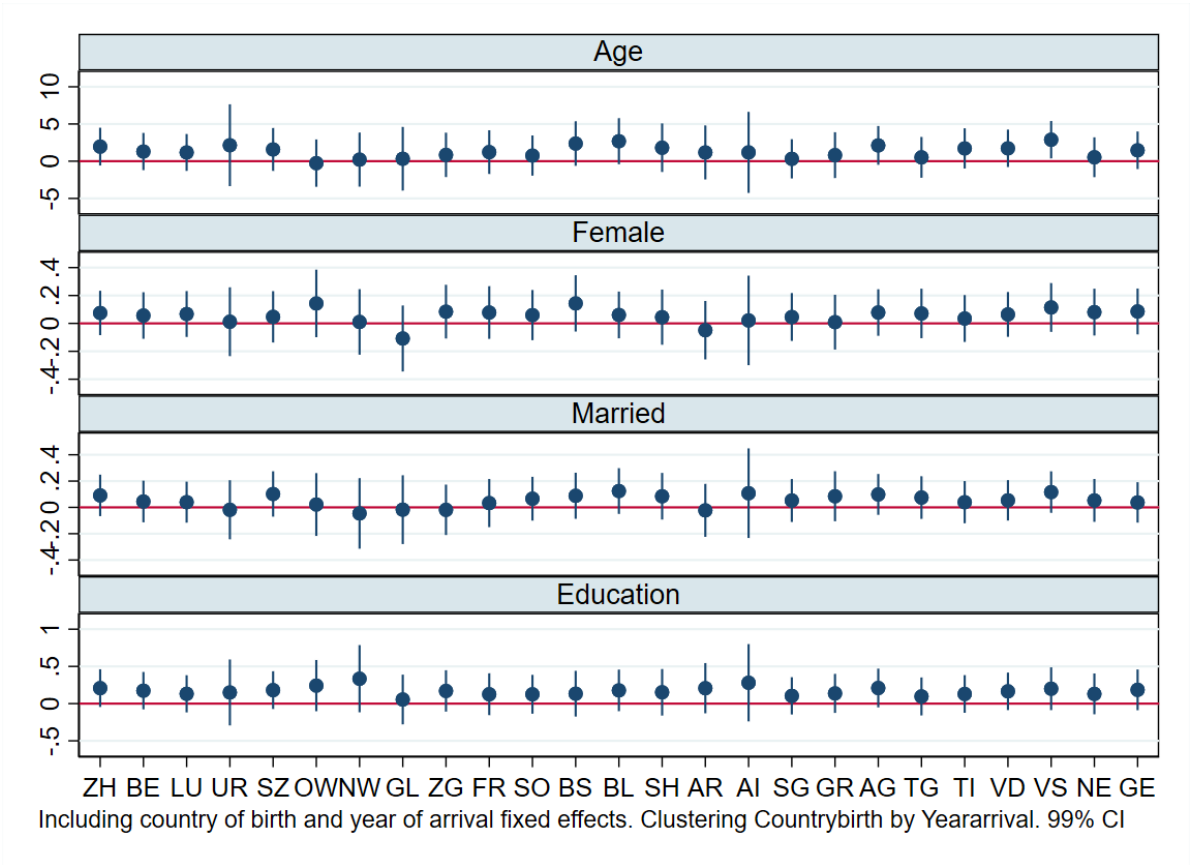


Figure 2.13: Balancing check: Regression of refugee characteristics on assigned cantons, subsample with education

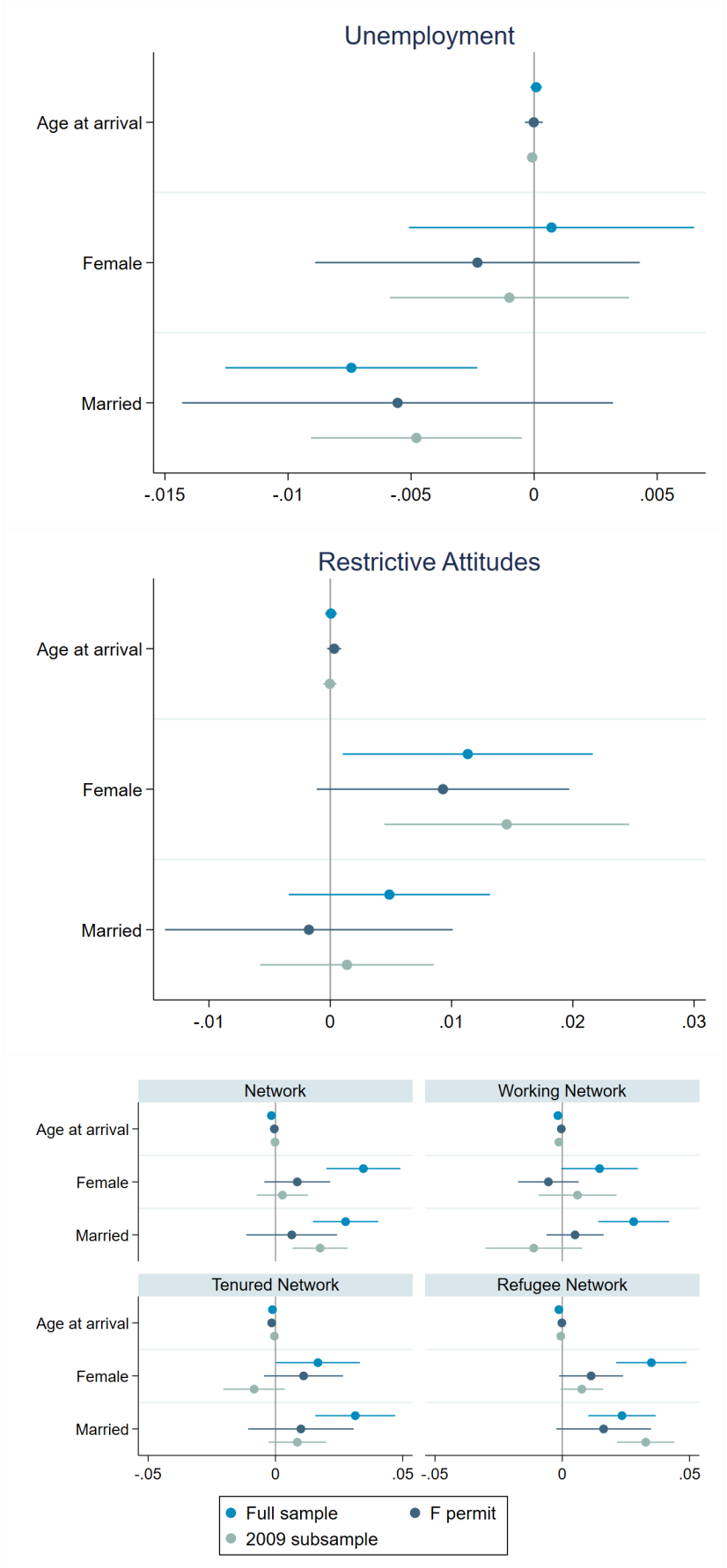


Figure 2.14: Balancing check: Correlation between Initial Conditions and Refugee Characteristics

Note: The figures show the correlations between the three local conditions and different characteristics of the refugees in our data. The figures plot the coefficients of the regressions of unemployment, restrictive attitudes and networks (including different definitions) on age at arrival, female and married controlling for canton of arrival FE, year of arrival FE and country of birth FE. Standard errors are clustered at the level Canton of arrival X Year of arrival. In all three figures the analysis is done for the full sample, for a subsample including all refugees that had an F permit at some point and a subsample including refugees that arrived after the year 2008.

B. Reverse Causality: Attitudes and Refugees' Employment

Could the employment rates of refugees in a canton influence natives' attitudes towards refugees and migrants, and thereby bias our results? We cannot exclude the possibility of reverse causality in principle and we are not aware of a convincing instrumental variable that would address this problem. In this Appendix, we present arguments and empirical evidence that lead us to believe that reverse causality is not a major issue in our context.

First, if there is reverse causality, the mechanism operates at the aggregate level (i.e., at the level of the canton): attitudes in a canton depend on the aggregate employment rates of refugees. Moreover, due to the presence of canton of arrival fixed effects in our baseline regressions in Table 2.3, we only have to worry about reverse causality that may arise between *changes over time* in the dependent and the explanatory variables; simultaneity between the time-constant component of variables does not affect our estimations. This addresses the major worry about reverse causality, for example if refugees' employment rates are higher in some cantons for structural reasons (e.g., the availability of low-skilled jobs in agriculture or tourism), causing less restrictive attitudes towards refugees and migrants in these cantons.

Second, if there is reverse causality, there are long lags involved since the relevant employment rates of refugees can only be observed several years after their arrival in Switzerland. Upon arrival, refugees' employment rates are close to zero and it takes a few years before employment rates rise to meaningful levels and observers are able to judge whether a cohort of refugees can be seen as well integrated in the labor market. In the context of reverse causality, these lags operate on both sides of the causal mechanism. On the one hand, natives' attitudes in year τ influence the employment probability of refugees who arrived in year τ over their entire lifetime (i.e., several years *after* year τ, say $\tau + \ell_1$). This mechanism underlies our estimating equations (2.1) and (2.2), and the main effect of attitudes operates with a lag of several years. On the other hand, reverse causality would imply that natives' attitudes in year τ depend on the (aggregate) employment rate of refugees arrived several years *earlier*, say $\tau - \ell_2$, for the

reason outlined above. Therefore, the lag between the (aggregate) employment rates at each end of the causal chain is $\ell_1 + \ell_2$. In practice, this important lag, combined with the presence of canton of arrival fixed effects leads us to conclude that if there is a problem of reverse causality, we would not expect it to cause a large bias.

Nevertheless, it is useful to analyze the correlation at the aggregate (canton) level between natives' attitudes and refugees' employment rates, taking these lags into account (see Table 2.17).[31] We regress our indicator of attitudes on different measures of refugees' employment rates, using canton and year fixed effects and controlling (or not) for the other initial conditions (unemployment rates and co-national networks). In columns (1) and (2) of Table 2.17, we use the average employment rate of refugees that can be measured at the same time as attitudes. The coefficient is negative but not significant, whether we control for unemployment and networks or not. This measure of the employment rate has the disadvantage that it might be subject to composition effects since it is an average over different cohorts of refugees. Therefore, it might seem more meaningful for (native) observers to evaluate the labor market integration of refugees by looking at employment rates of successive refugee cohorts x years after their arrival in Switzerland. As it is not clear how natives might choose x, we include a range of time intervals in the regressions (see columns (3) to (10) of Table 2.17). It turns out that employment rates measured shortly after arrival are not significantly correlated with the indicator of attitudes (this holds true especially for employment rates measured less than 2 years after arrival). Remarkably, the partial correlation between refugees' employment rates and natives' attitudes is negative and significant when employment rates are measured between 6 and 10 years after arrival (to a lesser extent, this holds also true for employment rates between 3 and 5 years after arrival). Although this result should be taken with a grain of salt (it relies on a reduced sample due to the long lags involved), it seems to indicate that if there is a simultaneity bias, our estimates of the effect of attitudes on refugees' employment probabilities might actually be a lower bound of the real effect.

This leads us to our final piece of empirical evidence. In the baseline regressions, the indicator of attitudes we use is based on popular votes on issues related to migration

[31] To do this, we aggregate our data at the level of Canton $\times$ Year, associating natives' attitudes in year t with refugees' employment in the same year (by contrast to our original dataset, where natives' attitudes in year τ are associated with refugees' employment in years $t > \tau$).

and asylum. As there were far fewer votes on asylum than on migration, it is impossible to construct a time-varying indicator based on asylum votes only. On the other hand, we can define an indicator based solely on migration issues, which should arguably be less subject to reverse causality than our original indicator. Indeed, we would expect attitudes towards migrants to depend less on the past employment rates of refugees than attitudes towards refugees and asylum. Therefore we define an alternative indicator of attitudes, based solely on votes about migration issues.[32] The results for the baseline regressions with this alternative indicator of attitudes are given in Table 2.18. It turns out that the coefficients of (restrictive) attitudes have the same (positive) sign and are about 50% larger than the coefficients in our original regressions in Table 2.3. This tends to confirm that simultaneity bias, if it exists in our estimates of (2.1), would be negative, thereby reducing the effect of natives' attitudes on refugees' employment probabilities

[32]From the list of votes given in Table 2.5, we exclude all votes related to asylum: No. 454, 455, 491, 525, 571 and 604. Note that the partial correlation (conditional on year and canton fixed effects) between this redefined indicator and the original indicator of attitudes is equal to 0.76.

Table 2.17: Relation between Natives' Restrictive Attitudes and Refugees' Employment Rates at the Aggregate Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Employment Rate (average)	-0.333	-0.420								
	(0.269)	(0.277)								
Employm. Rate ($\leq$ 2 years after arrival)			0.183	0.112					0.333	0.334
			(0.202)	(0.204)					(0.279)	(0.279)
Employm. Rate (3–5 years after arrival)					-0.350*	-0.362*			-0.294	-0.347
					(0.193)	(0.203)			(0.249)	(0.258)
Employm. Rate (6–10 years after arrival)							-0.871***	-0.854***	-0.795***	-0.768***
							(0.268)	(0.275)	(0.281)	(0.286)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls (Unemployment rate, Network)	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	519	519	519	519	468	468	390	390	390	390

Dependent variable is indicator of Restrictive Attitudes. Network is defined as log (nb of co-nationals+1). Robust standard errors between parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01

Table 2.18: The Impact of Initial Conditions on Employment of Refugees: Estimates With Alternative Indicator for Restrictive Attitudes

	(1)	(2)	(3)	(4)
Unemployment rate			-0.0225***	-0.0236***
			(0.00666)	(0.00655)
Network			-0.000424	-0.000462
			(0.00242)	(0.00242)
Restrictive Attitudes	0.0424***	0.0419***	0.0409***	0.0398***
	(0.00856)	(0.00821)	(0.00820)	(0.00776)
Country of birth FE	Yes	Yes	Yes	Yes
Arrival year FE	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes
Current canton X Current year FE	Yes	Yes	Yes	Yes
Time varying canton controls	No	Yes	No	Yes
Observations	606152	606152	606152	606152

Dependent variable is Employment dummy. Network is defined as log (nb of co-nationals+1). All regressions also include age, age squared, gender, marital status. Time varying canton controls include the log of population and the log of real median wage measured at the level of 7 greater regions. Standard errors are clustered at the level Canton of arrival × Year of arrival. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

C. Indicator of Attitudes and European Social Survey

This appendix addresses the question how to interpret the two dimensions (cross-section and over time) of our indicator of attitudes/votes. To do this, we analyze the correlation between our indicator based on cantonal results of popular votes and items in the European Social Survey (ESS). There are six items on attitudes towards immigrants in the ESS that have been included in the questionnaire in all nine rounds of the ESS (2002-2018). The first three items deal with the desirable number of (different types of) immigrants in Switzerland:

Q_1: To what extent do you think Switzerland should allow people of the same race or ethnic group as most Swiss people to come and live here?

Q_2: How about people of a different race or ethnic group from most Swiss people?

Q_3: How about people from the poorer countries outside Europe?

There are four possible answers, coded as follows: "many"=1, "some"=2, "few"=3, "none"=4. The three other items in the ESS that were asked throughout the entire period concern the impact of immigration on the receiving country:

Q_4: Would you say it is generally bad or good for Switzerland's economy that people come to live here from other countries?

Q_5: Would you say that Switzerland's cultural life is generally undermined or enriched by people coming to live here from other countries?

Q_6: Is Switzerland made a worse or a better place to live by people coming to live here from other countries?

Answers are coded on a scale ranging from 0 (e.g., "Good" for Q_4) to 10 (e.g., "Bad" for Q_4). To facilitate interpretation, we code all ESS items such that higher values indicate more restrictive attitudes.[33] Moreover, we standardize the scores of each item in order to make regression coefficients comparable. To relate the ESS scores and our indicator of attitudes, we attribute to each respondent in the ESS the value of our indicator in

[33]This corresponds to the original coding of items Q_1 to Q_3 in the ESS. In contrast, the original scales of answers to items Q_4 to Q_6 were inverted to facilitate the interpretation of our results.

her canton of residence during the year of the ESS round. We consider cross-section correlations (by regressing our vote indicator on an ESS item and year fixed effects) and correlations in terms of changes over time (by regressing our vote indicator on an ESS item, as well as year and canton fixed effects).

We begin by looking at cross-section correlations between our indicator of attitudes (votes) and attitudes towards immigration as measured by the six items in the ESS. If we consider correlations between our indicator and one ESS indicator at the time, the correlations are all positive and highly significant.[34] This suggests that, in the cross-section, there is a common component to all these indicators, which indicates whether an individual (or the population of a canton) have a positive or negative general attitude towards migrants and refugees. The ESS item that exhibits the strongest association with our indicator of attitudes is Q_5, which suggests that the difference in vote outcomes between cantons, at a given moment in time, is mainly related to differences in perceptions of migrants and refugees as representing a cultural threat or opportunity. This result is confirmed when we consider partial correlations between our indicator of attitudes and the six items in the ESS: including all six items in a same regression with year fixed effects confirms the strong cross-section association between our indicator of attitudes and the "cultural threat" item Q_5 in the ESS (see columns (1) and (3) in Table 2.20). The other item which is significantly correlated with our indicator of attitudes is Q_2: the willingness to restrict immigration of people who are racially or ethnically different from the majority. In Switzerland, respondents might associate this category of migrants with asylum seekers since the large majority of other migrants originate from EU countries.

If we turn our attention now to the correlation in terms of changes over time (by including canton fixed effects in the regression, see columns (2) and (4) of Table 2.20), the picture is very different. By contrast to the cross-section results, the "cultural threat" item Q_5 is not a significant determinant of changes over time in attitudes. It seems that cantonal differences in cultural beliefs related to migration are stable over time (their effect is

[34] This holds whether we take individual characteristics of respondents in the ESS into account or not. Results of these regressions can be found in Table 2.19. These regressions are run with individual ESS data, with or without individual controls (which include age, gender and dummies for eight education categories). Standard errors are clustered at the level canton $\times$ year.

absorbed by the canton fixed effects). However, item Q_2 remains significant: changes over time in our indicator of attitudes are correlated with changes in the willingness to allow only few immigrants from a different race or ethnic group. It is worth noting in this context that during our sample period, the progressive introduction of the free movement of persons with the EU after 2002 was accompanied by more restrictive admission of immigrants from other origins. Moreover, the partial correlation between item Q_6 and our indicator in attitudes becomes significant in the regressions that include canton fixed effects, and this correlation is negative.[35] This means that changes in our indicator towards more restrictive attitudes in a canton are associated with a growing belief that immigrants make Switzerland a better place to live. Put together, these two significant coefficients highlight the fact that there has been a change in the content of referendums and popular initiatives up for vote, where a shift towards more restrictive attitudes reflects a willingness to limit in particular the arrival of ethnically different migrants, while designing migration policy in a way that makes immigration beneficial for the country.

[35]Interestingly, the partial correlation between item Q_6 and our indicator of attitudes is negative even in the cross-section regressions (columns (1) and (3) Table 2.20). It appears that the presence of the "cultural threat" item Q_5 (which is highly correlated with our indicator in the cross-section) in the regression has a similar effect as the inclusion of canton fixed effects.

Table 2.19: Conditional correlation between our indicator of attitudes (votes) and attitudes towards migration in ESS: 2002 to 2018

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Regressions with year fixed-effects						
Allow many/few immigrants of same race/ethnic group as majority	0.0757***					
	(0.0134)					
Allow many/few immigrants of different race/ethnic group from majority		0.120***				
		(0.0176)				
Allow many/few immigrants from poorer countries outside Europe			0.106***			
			(0.0174)			
Immigration good/bad for country's economy				0.0936***		
				(0.0152)		
Country's cultural life enriched/undermined by immigrants					0.193***	
					(0.0265)	
Immigrants make country better/worse place to live						0.0986***
						(0.0155)
Panel B: Regressions with year and canton fixed-effects						
Allow many/few immigrants of same race/ethnic group as majority	0.00244					
	(0.00457)					
Allow many/few immigrants of different race/ethnic group from majority		0.00673*				
		(0.00395)				
Allow many/few immigrants from poorer countries outside Europe			0.00350			
			(0.00428)			
Immigration good/bad for country's economy				0.00319		
				(0.00392)		
Country's cultural life enriched/undermined by immigrants					0.00183	
					(0.00403)	
Immigrants make country better/worse place to live						-0.00472
						(0.00381)

(Table continued on next page).

Table 2.19: Conditional correlation between our indicator of attitudes (votes) and attitudes towards migration in ESS: 2002 to 2018 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Panel C: Regressions with year fixed-effects and individual controls						
Allow many/few immigrants of same race/ethnic group as majority	0.0522***					
	(0.0128)					
Allow many/few immigrants of different race/ethnic group from majority		0.0982***				
		(0.0168)				
Allow many/few immigrants from poorer countries outside Europe			0.0865***			
			(0.0166)			
Immigration good/bad for country's economy				0.0692***		
				(0.0143)		
Country's cultural life enriched/undermined by immigrants					0.175***	
					(0.0255)	
Immigrants make country better/worse place to live						0.0772***
						(0.0143)
Panel D: Regressions with year and canton fixed-effects and individual controls						
Allow many/few immigrants of same race/ethnic group as majority	0.00193					
	(0.00475)					
Allow many/few immigrants of different race/ethnic group from majority		0.00686				
		(0.00422)				
Allow many/few immigrants from poorer countries outside Europe			0.00338			
			(0.00455)			
Immigration good/bad for country's economy				0.00239		
				(0.00401)		
Country's cultural life enriched/undermined by immigrants					0.00148	
					(0.00402)	
Immigrants make country better/worse place to live						-0.00548
						(0.00409)

Dependent variable: indicator of attitudes (votes) at cantonal level. For the dependent variable and ESS items, higher values indicate more restrictive attitudes.
Scores for all ESS items are standardized. The precise wording of the items is given in the text. Individual controls include age, gender and dummies for eight education categories.
Standard errors are clustered at the level Canton × Year. * p < 0.10, ** p < 0.05, *** p < 0.01

Table 2.20: Conditional correlation between our indicator of attitudes (votes) and attitudes towards migration in ESS

	(1)	(2)	(3)	(4)
Allow many/few immigrants of same race/ethnic group as majority	-0.0219	-0.00288	-0.0261	-0.00320
	(0.0194)	(0.00686)	(0.0190)	(0.00677)
Allow many/few immigrants of different race/ethnic group from majority	0.0475**	0.0120**	0.0423**	0.0123**
	(0.0197)	(0.00571)	(0.0198)	(0.00580)
Allow many/few immigrants from poorer countries outside Europe	0.00959	-0.00246	0.0111	-0.00222
	(0.0179)	(0.00553)	(0.0175)	(0.00554)
Immigration good/bad for country's economy	-0.0197	0.00621	-0.0281**	0.00526
	(0.0134)	(0.00510)	(0.0139)	(0.00509)
Country's cultural life enriched/undermined by immigrants	0.197***	0.00203	0.188***	0.00237
	(0.0324)	(0.00522)	(0.0316)	(0.00502)
Immigrants make country better/worse place to live	-0.0204	-0.0123**	-0.0221*	-0.0122**
	(0.0126)	(0.00543)	(0.0126)	(0.00532)
Year FE	Yes	Yes	Yes	Yes
Canton FE	No	Yes	No	Yes
Individual Controls	No	No	Yes	Yes
Observations	14123	14123	14085	14085

Dependent variable: indicator of attitudes (votes) at cantonal level. Individual controls include eight education dummies, age and gender. Standard errors are clustered at the level Canton × Year. * p < 0.10, ** p < 0.05, *** p < 0.01

Chapter 3

The gender dimension of refugees' integration in the labor market

3.1 Introduction

The global refugee crisis is posing unprecedented challenges. According to the most recent statistics of the United Nations High Commissioner for Refugees, around 117 million individuals were forcibly displaced at the end of 2023 (UNHCR 2024), and the number of refugees has tripled over the last decade.[1] Not only the number of refugees has increased over time, but also the socio-demographic composition of these migratory flows has changed over the past decades. Globally, women and girls represent approximately 49 percent of the refugee population (UNHCR 2024).

A fundamental aspect regarded as an indicator of the integration of migrants in the host countries is their participation in the labor market. Gender gaps in labor force participation and labor market outcomes persist among international migrants (Lee et al. (2022b)). Women's labor force participation in the host country is not only affected by institutional factors and economic conditions but is also shaped by gender-specific social norms, attitudes, and beliefs on the appropriate role of women in society. Understanding these dynamics is fundamental for both academics and policy-makers in light of the magnitude of the current stocks and forecasted flows of refugees for the coming decades.

[1] https://www.unhcr.org/global-trends.

Yet, there is very limited evidence about gender differences in labor market integration and labor market decisions of female refugees, their dynamics over the life-cycle, and the role of different factors that affect their trajectories.

The aim of this paper is to advance our understanding of the gender differences in labor market integration of refugees and their determinants in a high-income country context. In order to address these fundamental research questions, the study focuses on the universe of refugees in Switzerland from 1998 to 2018. Switzerland provides a prominent example of a multi-cultural and multi-linguistic society, with more than 30 percent of its resident population that is foreign-born (Swiss Federal Statistical Office 2024.[2]) It also has an important history and a long-standing tradition in hosting refugees, and has played an important role as a leading host nation of refugees in Europe (E. Piguet (2019)). The study employs a unique dataset, which is constructed by relying on different administrative sources including social security records and population censuses, and which provide information about refugees' socio-demographic characteristics. The dataset presents the longitudinal dimension, which makes it possible to follow the same individuals over time and examine the evolution of refugees' labor market integration since arrival in the host country.

The core of the analysis of our paper is organized as follows. The study first provides an analysis of the role of cultural values and gender-related social norms in affecting the dynamics of gender gaps in labor market outcomes. We provide the first test – to the best of our knowledge – of the "epidemiological approach" that focuses on refugees. That is, building on previous research that focuses on migrants in general (e.g., Antecol (2000) Fernández and Fogli (2009)), we analyze to what extent refugees bring with themselves cultural values and attitudes from their country of origin, and to what extent these cultural preferences have an effect on women's labor force participation and on the employment gap between refugee women and men.

The paper then examines the role of the local initial conditions in the Swiss cantons in affecting gender gaps in labor market integration. We focus on three local aspects in the swiss cantons: unemployment rates, co-ethnic networks and natives' attitudes towards

[2]https://www.bfs.admin.ch/bfs/en/home/statistics/population/migration-integration/by-migration-status.html.

gender equality. To measure these attitudes toward gender equality, we construct a time-constant indicator based on cantonal vote outcomes related to gender equality. Although all three votes considered relate to gender equality, their differing contents make it challenging to capture the time-varying aspects of local attitudes. Our analysis also sheds light on the interplay between refugees' "culture from the country of origin", and "local culture" in the host cantons, and its role in shaping their labor market outcomes. The methodology employed in this part of the analysis to identify causal effects builds on our previous study (Müller et al. (2023)). It relies on the government dispersal policy adopted by the Swiss government, which consists of the quasi-random allocation of refugees across cantons, which are different in terms of local initial conditions such as macroeconomic factors, co-ethnic networks, cultural values, and gender-related social norms.

Our paper makes three main contributions. First, we present new facts over gender gaps in labor market integration for the universe of the refugee population in a high-income country, which is also a prominent example of a multicultural society, and document these facts over an extended time that covers 20 years. Specifically, we document gender gaps in labor market integration for the universe of refugees in Switzerland over a 20-years period, from 1998 until 2018. We rely on the longitudinal dimension of our dataset to advance knowledge on how the effects vary over the life-cycle, when the gender gaps emerge, and how they evolve over 20 years.

Second, our paper examines the role of culture, both in terms of culture from refugees' country of origin and local culture of the native population in the host country, in shaping the dynamics of gender gaps in labor market integration. To the best of our knowledge, this is the first study that presents an analysis and a test of the "epidemiological approach" in the framework of refugee migration.

Third, we complement our analysis of culture with an examination of the heterogeneity in local initial conditions – in terms of macroeconomic factors, co-ethnic networks, and attitudes of the native population towards migrants and refugees – to identify the causal effect of these initial local conditions, their relative importance with respect to other factors like culture, and how their relative importance changes over time and shapes the dynamics of gender gaps in labor market integration among refugees.

Our baseline analysis demonstrates that both indicators of source country culture significantly influence refugee women's socioeconomic integration, aligning with findings in the broader migration literature. Specifically, women from countries with higher female-to-male labor force participation have a higher probability of employment and higher earnings in Switzerland. Conversely, coming from a country with higher fertility rates negatively impacts their labor market integration. We also observe that both dimensions of these cultural indicators are persistent over time, with the negative impact of fertility rates diminishing and approaching zero about 10 years after arrival in Switzerland. Furthermore, our findings indicate that local conditions within host cantons play a crucial role in shaping gender disparities in employment. Placement in cantons with more open attitudes toward gender equality and larger co-national networks is associated with a reduction in the gender employment gap. On the other hand, being assigned to cantons with higher unemployment rates increases the gender gap in employment, with women being more negatively affected than men. For women from high-fertility countries, the canton to which they are allocated is particularly important: arriving in a canton with more positive attitudes toward gender equality significantly reduces the gender employment gap for these women.

The remainder of the paper is organized as follows. Section 2 presents a review of the literature as well as an overview of the institutional background in Switzerland, which is relevant for the analysis, with a specific focus on the government spatial dispersal policy of asylum seekers and an overview of major institutional changes related to gender equality. Section 3 discusses the methodology, as well as the data sources, construction of the data set and the empirical strategy. Section 4 presents the empirical findings and positions them within the existing literature. Section 5 provides concluding remarks.

3.2 Literature Review and Background

3.2.1 Literature Review

Our paper contributes to three main areas of the existing literature: gender differences in labor market outcomes among international migrants; the long-lasting role of culture in

affecting labor market integration of international migrants; the role of local conditions in affecting refugees' labor market integration (both economic conditions and cultural factors). This review focuses on the literature that examines labor market integration in high-income countries.

The literature that has examined gender gaps in labor market integration among international migrants has mainly focused on economic migrants. The main findings of this literature suggest that gender gaps exist at the time of arrival in the host country, with heterogeneity regarding the magnitude of the initial gaps and the speed of convergence. Existing research provides heterogeneous evidence on whether convergence is completed after 10 (or 20) years since arrival. Existing studies also highlight the role of individual-level characteristics such as age at arrival, level of educational attainment, skills and experience in affecting the patterns of convergence and the closing of the gender gaps in labor market integration (e.g., Schoeni (1998); Adsera and Chiswick (2007); Lee et al. (2022b)). Evidence related to gender differences in labor market integration for refugees is limited to a few stylized facts documented in recent studies, which show to what extent overall labor force participation of women's refugees seems to be lower than the male counterparts (e.g., Brell et al. (2020b); Fasani et al. (2022b)). Whether the dynamics of gender gaps in labor market integration among refugees will follow a similar pattern as international migrants and how they change over time is an empirical question. On the one hand, refugees are not self-selected in the host country as economic migrants but on the other hand, they likely were exposed to shocks (e.g., conflict, natural disasters, etc.) which may affect their labor market outcomes and put them at a disadvantage at the time of arrival in the host country (e.g., Battisti et al. (2022a)).

The literature that has examined the fundamental role that cultural values and gender-specific social norms play in shaping labor market integration among international migrants has also mainly focused on international migrants. A fundamental contribution to this literature was made by Fernández and Fogli (2009) who tested the "epidemiological approach" in economics and examined the long-lasting effects of cultural values in shaping women's decisions concerning labor force participation and fertility. In this context, the underlying mechanisms are represented by the intergenerational transmission of cultural values within the family. Other studies have adopted a similar methodology

and examined the role of cultural values from migrants' country of origin and how they affect women's labor force participation and other outcomes (e.g. Blau et al. (2011); Nollenberger et al. (2016); Erman (2022); excellent reviews of the literature include Fernández (2011); Giuliano (2020)). Whether the cultural values, beliefs, and attitudes over what is appropriate in terms of women's labor force participation outside the household also have a long-lasting effect and shape the refugee population labor market integration is an empirical question. Moreover, another fundamental aspect that remains to be examined is related to how culture changes over time; the core of the economic literature in economics has focused on the persistence of culture whereas more recent studies have examined the process of cultural change (e.g., Bastian (2020); Bursztyn et al. (2020); Fernández et al. (2024)).

The role of local conditions in affecting refugees' labor market integration has been examined in recent studies focusing on refugees' integration in high-income countries. The core of the existing research has examined the role of macro-economic factors, co-ethnic networks, and attitudes of the native population towards migrants. Overall, existing studies have documented the negative impact of high unemployment and economic downturns (e.g., Åslund and Rooth (2007b); Aksoy et al. (2023)). Mixed evidence has been found concerning the role of networks, with some studies showing the positive effects that ethnic enclaves may have, whereas others showing to what extent in the long-run it may play a negative role in labor market integration, as well as others finding a non-significant impact (e.g., Edin et al. (2003b); Lori A Beaman (2012); Martén et al. (2019b); Battisti et al. (2022a)). More limited research has examined the role of attitudes of the native population in affecting refugees' integration in the host country (e.g., Jaschke et al. (2022b); Aksoy et al. (2023)), with only Müller et al. (2023) who examined the effects of attitudes towards refugees by relying on an objective measure of attitudes derived from voting data. Further analysis is needed to develop a better understanding of the role that both local economic conditions and cultural factors play in shaping refugees' integration; in the framework of the analysis of this study, it is especially important to examine both attitudes towards refugees and attitudes towards women, given that more restrictive attitudes in these categories have been found to represent a "double penalty" for immigrant women in the labor market (e.g., Hayfron

(2002); Sanchez-Dominguez and Guirola Abenza (2021)), and refugee women could face an additional disadvantage.

3.2.2 Background

Two aspects of the Swiss institutional context characterize the time-period under study and are central to the design of the empirical analysis. First, the government spatial dispersal policy of asylum seekers, namely the quasi-random allocation of asylum seekers across Swiss cantons. Second, the legislation related to important dimensions of gender equality such as voting on a constitutional amendment related to gender equality, or on legislation concerning maternity leave policies and retirement age. The next sub-sections present a brief summary of this institutional background.

The Government Spatial Dispersal Policy of Asylum Seekers This sub-section presents a short summary of the allocation process of refugees in Switzerland, for a more detailed description please refer to Müller et al. (2023). The Swiss State Secretariat for Migration is responsible for the design of the refugees-related policies and management of the allocation process of asylum seekers and refugees on the Swiss territory. The allocation process and resettlement policies of refugees during the period under study are regulated by the Federal Act of Asylum of 1998.[3] According to the procedure documented in this Asylum Act, after filing an asylum application and being hosted in one of the national reception centers, asylum seekers are assigned to one of the 26 Swiss cantons where they are required to reside. The assignment of asylum seekers across cantons is carried out centrally by the State Secretariat for Migration. The spatial assignment is exogenous with respect to the asylum seekers' socio-demographic characteristics and is also independent of their preferences; the allocation across cantons is established based on quotas that are related to the cantons' population size (Müller et al. (2023); Ahrens et al. (2023b); Martén et al. (2019b); Couttenier et al. (2019)). This exogenous spatial dispersal policy provides an ideal setting and a natural experiment to identify the causal effects of the local initial conditions on the asylum seekers' trajectory

[3]The 1998 Asylum Act was revised in the framework of the Asylum Act of 2019, which in general aimed at accelerating the existing procedures.

of labor market integration.

The Gender Equality Legislation This sub-section presents a short summary of key institutional changes related to gender equality that took place in Switzerland and are relevant to the analysis in this paper. Globally, Switzerland ranks 20th in the 2024 Global Gender Gap Index of the World Economic Forum, and with respect to the sub-indexes focusing on "Political Empowerment" and "Economic Participation and Opportunity"[4] ranks n. 19 and n. 53 respectively.[5] Important institutional changes with effects on the role of women in society and their participation in the labor force have taken place over the past decades, in particular in the framework of three key referenda. A fundamental institutional change related to equality between men and women was introduced as a result of the 1981 referendum based on a popular initiative for gender equality, which was approved by the electorate with 60.3 percent of votes.[6] The related principle of gender equality was introduced as an amendment to the Swiss Federal Constitution in 1981, with Article 8, paragraph 3 stating that: "Men and women shall have equal rights [...] Men and women shall have the right to equal pay for work of equal value". [7] This constitutional amendment led to other legislative changes aiming at protecting women's rights and fostering gender equality. In this framework, paid maternity leave was introduced in Switzerland relatively later than in other high-income countries (Girsberger et al. (2023)). In the referendum of 1999 the electorate was asked to decide on the introduction of paid maternity leave, which would grant women a minimum of 14 weeks' leave at 80% of their previous salary. This referendum was unique in that it was the only legislative proposal solely focused on maternity insurance put forward by the government since the acceptance of a constitutional article in 1945.[8] It aimed at providing a minimum nation-wide coverage of maternity insurance, which prior to the legislative change did not exist in the majority of the cantons. It was

[4]The "Economic Participation and Opportunity" sub-index includes indicators such as labor force participation, wage equality and estimated earned income.

[5]https://www3.weforum.org/docs/WEF$_G$GGR$_2$024.*pdf*.

[6]https://www.ebg.admin.ch/en/facts-and-figures-on-gender-equality.

[7]https://www.fedlex.admin.ch/eli/cc/1999/404/ena8.

[8]In contrast, the accepted 2004 vote included a combined proposal for several benefits within the employment compensation regulations.

rejected by the electorate with 61 percent of the votes.[9] The third referendum relevant to our analysis took place in the framework of pension reforms, with the 2022 vote on equalizing the retirement age (as part of the AVS21 reform), which proposed raising the retirement age for women from 64 to 65, aligning it with that for men. Voters approved with the majority required this referendum (i.e., the electorate approved it with 50.5 percent of votes).[10]

3.3 Research Design

In the next section, we will describe the data used in the analysis, the empirical approach and provide some descriptive statistics of our sample and indicators.

3.3.1 Data Sources

The refugee data is combined from different administrative databases, provided by the Swiss Federal Statistical Office. This approach allows us to construct a comprehensive longitudinal dataset that spans 20 years, from 1998-2018, and covers the universe of refugees in Switzerland. To identify asylum seekers who arrived before 2010, we rely on the AUPER (Automatisierte Personen Registratursystem) database, which records asylum seekers (holding N or F permits) entering Switzerland up to the year 2010. This dataset maintained by the State Secretariat for Migration (SEM) is exhaustive and includes details on residence permits, year of arrival, canton of arrival, country of origin and other sociodemographic characteristics. Starting in 2010, asylum seekers are documented in the yearly population census (Statpop) from the moment they enter Switzerland and their data continues to be tracked through all permit changes. For the pre-2010 period, we supplement our data with the ZAR (Zentrales Ausländerregister) dataset, which allows us to monitor asylum seekers after their status changes. Once an individual transitions from an N (asylum seeker) or F (temporary admission) permit to any other residence permit, they are no longer registered in AUPER but in ZAR. This dataset provides comprehensive information on all foreigners residing in Switzerland,

[9] https://www.parlament.ch/en/%C3%BCber-das-parlament/political-women/portraits/history-maternity-insurance

[10] https://www.bk.admin.ch/ch/f/pore/va/20220925/can660.html

akin to the AUPER. By integrating these three data sources we can accurately identify and track all asylum seekers who arrived in Switzerland during our analysis period. For our study, we focus on the years 1998-2018, as labor market outcomes are available from 1998 onwards.

The analytical sample includes all refugees, defined as foreign-born individuals who went through an asylum process, who arrived in Switzerland between 1998 and 2018. We focus on individuals aged between 18 and 59, ensuring that our sample captures those that are of working age and are not yet retired, independent of different statutory retirement ages. Additionally, we restrict the sample to refugees who arrived after the age of 17 to exclude individuals who may have accessed primary or secondary education in Switzerland. We further refine the sample by excluding individuals coming from countries with fewer than 30 refugees (and less than 100 observations) and from European Union member countries Moreover, three countries of origin are excluded due to the absence of an ISO3 code, as they no longer exist in their original form: Yugoslavia, the Soviet Republic, and Serbia and Montenegro. Consequently, we lack source country characteristics for these regions. The final sample consists of 84 798 refugees from 72 different origin countries (see Table 3.12).

Our main outcomes of interest to capture refugees' socio-economic integration are their labor force participation and earnings. This information is sourced from the Swiss Social Security data provided by the Federal Compensation Office. Every Swiss resident contributing to old-age and survivor's insurance (OASI) is included in this dataset, which records the size and nature of contributions, along with various sociodemographic characteristics. Using the social security number, we match this data to our refugee data. We define an individual as employed in a given year if they have made contributions to old-age provisions through either salaried or independent work. Additionally, from the same data source, we extract information on earnings. It is important to note that the earnings data is reported as annual earnings, without details on work hours or periods of non-employment. Therefore, the results should be interpreted with caution, knowing that still predominantly women are employed part-time. [11]

[11] https://www.bfs.admin.ch/bfs/en/home/statistics/work-income/employment-working-hours/labour-force-characteristics/full-time-part-time.html

The administrative dataset we combined includes information on the refugee's sociodemographic characteristics, as well as some characteristics of their partners. We use this information as control variables in our regressions. We include age, age squared, marital status, and whether they potentially speak the language of the arrival canton. Speaking the language of the canton where an individual will eventually seek employment is a crucial determinant, but this information is not contained in the register data. Therefore, we augment our main sample with data on official and most spoken languages in the countries of origin, sourced from Negret et al. (2022). This allows us to define a variable for cantonal language proficiency based on an individual's country of origin. Additionally, individuals from former French colonies are considered potential French speakers. For the partners, when identifiable, we control for age, age squared, employment, and earnings (contributions to old-age provision). We include the partners' characteristics in the specifications where we use a subsample of married women. The partner's information is only available in the Statpop dataset, which means these characteristics are accessible from 2010 onward.

Finally, to incorporate information on educational attainment, we use a subsample of individuals who participated in the Swiss Structural Surveys. The Swiss Structural Survey is available for the years 2010-2018 and includes permanent residents from 15 years old. However, this dataset has certain limitations: it is cross-sectional, sampling approximately 200,000 individuals at random per year, participation is voluntary, and the variables are self-reported. We extract the highest education level achieved by an individual and treat this variable as constant over time to maintain the panel structure of our data.

In the following subsections, we will elaborate on the key explanatory variables used to identify the effects of: 1) source country culture, and 2) local conditions within the Swiss cantons.

Source Country Characteristics In the first part of the analysis, we focus on how the cultural values that refugees bring with them impact the labor market integration of refugee women and influence the employment gap between female and male refugees. To analyze the cultural dimension in the socio-economic integration of refugees in Switzer-

land, we include two variables as proxies for gender attitudes in the source countries: the female-to-male labor force participation (LFP) ratio and the total fertility rate. Both indicators are time-varying and are assigned to refugees based on their country of birth and year of arrival. These two indicators reflect the economic, institutional, and cultural conditions for women in the labor market of the source countries. However, using the epidemiological approach described by Fernández and Fogli (2009), we can isolate the cultural dimension as the determinant of a woman's labor market decisions in Switzerland.

The female-to-male LFP ratio is the fraction of economically active women (aged 15 years or older) relative to men in a country, provided by the International Labour Organization (ILO). Consistent with recent literature on gender dynamics and labor market outcomes (e.g., Blau et al. (2011) and Bredtmann and Otten (2023)), we use the ratio of female-to-male labor force participation to capture gender disparities in the source countries more effectively than using female LFP alone. The ratio offers a more refined perspective on gender inequality by comparing the participation rates of women to men. This approach controls for general economic activity levels and provides a relative measure of gender disparity. In contrast, female LFP alone does not account for the broader context of gender inequality and may be influenced by factors such as overall economic conditions that affect both genders.

The total fertility rate estimates the potential number of births per woman based on the age-specific fertility rates for a specific year and country, assuming the woman survives through her entire reproductive years. This data is sourced from the World Bank. The fertility rate is chosen as an indicator because it provides insights into societal attitudes toward gender roles. High fertility rates are often associated with traditional gender norms and expectations that prioritize childbearing and domestic roles for women. Additionally, the fertility rate is influenced by other socioeconomic conditions such as access to education, employment opportunities and healthcare services.

While the female-to-male LFP ratio offers a snapshot of countries underlying beliefs about the role of women in the labor market, the fertility rate complements this by reflecting reproductive and familial expectations. Together, these indicators provide a comprehensive view of how cultural attitudes towards gender roles in the origin countries

can impact labor market integration for women in Switzerland.

Initial Local Conditions In the second step of our analysis, we examine the impact of the initial local conditions that refugees encounter upon arriving in the Swiss cantons on the gender employment gap. Additionally, we explore how these local conditions interact with the cultural values that refugees bring with them to Switzerland. To investigate this, we supplement our dataset with information on the initial unemployment rates and the presence of co-ethnic networks at the time of arrival in each canton, as well as a time-constant indicator of natives' attitudes towards gender equality.

The unemployment rate, provided annually by the State Secretariat of Economic Affairs (SECO), covers all unemployed individuals who are registered at a regional employment office.[12] The presence of co-ethnic networks is defined as the number of individuals from the same nationality residing in the canton at the time of the refugee's arrival.[13] We apply a logarithmic transformation (1 + the number of co-nationals) to ensure that individuals without a network upon arrival are not excluded. Furthermore, we are not counting the individual itself to its network.

To measure natives' attitudes towards gender equality, we construct a new variable based on cantonal vote outcomes related to this issue. A significant milestone toward gender equality in Switzerland was the 1981 popular vote aimed at embedding the principle of gender equality in the Swiss constitution. A second important referendum was held in 1999, marking the beginning of our analysis period. The electorate was asked to decide on the introduction of paid maternity leave, which would grant women a minimum of 14 weeks' leave at 80% of their previous salary. This referendum was unique in that it was the only legislative proposal solely focused on maternity insurance put forward by the government since the acceptance of a constitutional article in 1945.[14] The third referendum included in our analysis is the 2022 vote on a social security reform ("AVS21" reform), which proposed raising the retirement age for women to 65, aligning it with

[12]Except for asylum seekers (permit N) and temporarily admitted refugees (permit F).

[13]Including refugees and foreigners.

[14]The constitutional article provided the legal basis for the introduction of a law on maternity insurance. Previous proposals by the government to include paid maternity leave within a general revision of health insurance were rejected in 1984, as was the 1999 proposal. A new project was finally accepted in 2004, but this project also included revisions of several other benefits within the employment compensation regulations.

that for men.[15] The 1981 vote on gender equality and the 2022 vote on retirement age were approved by the electorate, with 60.3% and 50.5% support, respectively, whereas the 1999 vote on maternity insurance was rejected by 61%. For our indicator, we use the share of votes in favor of more gender equality in each canton as a proxy for attitudes toward gender equality (Yes-votes for the first two and No-votes for the third referendum) and calculate the average over all three votes. By including three votes spread over a long period (1981, 1999, and 2022), we aim to capture the persistent component of attitudes towards gender equality in the cantons.[16] However, as the three objects up for vote were very different, we are unable to measure the time-varying component of attitudes.

3.3.2 Descriptive Statistics

In this section, we present descriptive statistics for the analytical sample of refugees and the explanatory variables used in the two parts of the analysis: source country characteristics and initial local conditions.

Refugee sample Table 3.1 (only women) and Table 3.2 (whole sample) contain descriptive statistics for the refugees included in our sample, as well as their partners' characteristics. Panel A provides a snapshot for the year 2008, before we have partner information, and Panel B provides statistics for the year 2015 with the partners characteristics. Panel C shows the descriptive statistics for the Structural Survey subsample for the year 2015. In 2008, 44% of individuals in our sample are women, and on average, they are 29 years old upon arrival. In the same year, 48% of the female refugees are employed, while this number increases to 61% when considering the entire sample. By 2015, the employment data show that only 37 % of women in our sample are employed. However, it is important to note that these snapshots do not account for the varying

[15] Although the proposal to align women's retirement age with men's could be interpreted as a step towards more gender equality, feminist organizations and left-leaning parties strongly opposed this reform with the argument that this was a step backward since discrimination remained widespread within the social security system or in the labor market. In line with the Swiss political debate, we interpret a refusal of the reform as an expression of attitudes in favor of more equality between men and women. As this interpretation goes counter to a literal interpretation of gender equality, we will check the robustness of our results to the exclusion of this vote.

[16] Figure 3.6 in the Appendix illustrates the strong correlation between the outcomes of the three votes.

lengths of stay for refugees in the country. For instance, in 2015 many new refugees arrived from Syria, and they were not eligible to work immediately. Therefore, it is more informative to look at the employment rate by years since arrival and gender. The raw employment rates are depicted in Figure 3.1. The figure shows that the employment rate increases for both genders, and that the difference shrinks as individuals spend more years in Switzerland. However, women continue to have lower employment rates even 20 years after arrival. Figure 3.2 shows a similar pattern for earnings, where the differences in log earnings among employed refugees (right graph) in our sample do not decrease significantly over time. [17]

In Panel C of Table 3.1, we observe that in 2015, 12% of women in the subsample from the structural surveys have tertiary education, while 20% have a secondary II level degree. Individuals in this subsample exhibit, on average, higher employment rates and slightly higher earnings compared to the complete sample of women in 2015. As for the subsample including men, shown in Panel C of Table 3.2, the education level is somewhat higher, with 14% holding a tertiary degree.

Source Country Characteristics In Table 3.3 we report the descriptive statistics for the two source country indicators - female-to-male labor force participation ratio and total fertility rate - along with Female and Male LFP separately, organized by source country regions and over the whole period of analysis. It is worth noting that the majority of source countries within our dataset are located in Sub-Saharan Africa. Overall, refugees come from 72 different countries. [18] The average fertility rate across all countries is 3.82 with a standard deviation of 1.8, and the average LFP ratio is 0.65 with a standard deviation of 0.26. Both indicators show substantial variation across source country regions. For instance, the fertility rate is notably highest in Sub-Saharan Africa, with an average of 5.58 children per woman. In contrast, in Europe and Central Asia, the fertility rate is considerably lower, with an average of 1.88 children per woman. Overall, the fertility rate ranges from 1.08 to 7.7 births per woman on average. When examining the female-to-male LFP ratio, we also observe significant disparities between regions.

[17] This could be due to part-time work, which is especially common among women, but unfortunately is not directly coded in the AVS contributions data

[18] In Table 3.3, 71 countries are represented because China and Tibet share the same ISO3 code.

The ratio ranges from 0.09 in Yemen to 1.02 in Burundi. In countries located in South Asia and Middle East & North Africa, the ratio is below the average, with less than half of the women participating in the workforce compared to men. In East Asia & Pacific and Sub-Saharan Africa, on the other hand, the ratio stands at 0.81, indicating that for every 5 men in the workforce, approximately 4 women are also actively employed.

Figure 3.3 shows the average values of each indicator in our sample over the analysis period for each country. We categorize them into four groups based on high and low values of the two indicators, with the threshold set at the sample mean. These four groups will be used later in the analysis to examine how source country characteristics interact with local conditions in the Swiss cantons. The figure provides valuable insights into the distribution of the two source country characteristics. In the upper right quadrant, we observe mostly countries from Sub-Saharan Africa, which are characterized by both high fertility rates and high female-to-male labor force participation ratios. This indicates a region with relatively high female labor market participation despite high birth rates. Conversely, many countries from the Middle East and North Africa fall into the upper left quadrant, where high fertility rates are accompanied by low female-to-male LFP ratios. The lower right quadrant, representing countries with low fertility rates and high female-to-male LFP ratios, comprises a diverse group. These countries, which show potentially more favorable labor market conditions for women, include nations from all regions except Sub-Saharan Africa. Finally, the lower left quadrant, which includes countries with both low fertility rates and low female-to-male LFP ratios, is also heterogeneous. This group spans South Asia, North Africa, Europe, and the Middle East, reflecting a mix of regions where both fertility rates and female labor market participation are relatively low.

Initial Local Conditions In Table 3.4 we present the descriptive statistics for the local conditions grouped by greater region.[19] Similar to the source country characteristics, we observe substantial variation in the canton indicators. The composite vote indicator ranges from a minimum of 32.53 in Central Switzerland, which includes more conservative cantons, to a maximum of 74.08 in the Leman region, comprising more

[19] As defined and used by the Federal Statistical Office, equivalent to NUTS 2 regions by EUROSTAT.

progressive cantons in the French-speaking part of the country. The unemployment rate, averaged over the analysis period, is lowest in Central Switzerland at 1.98 % and highest in the Leman region at 4.57 %. As expected, the size of the co-ethnic networks is larger in cantons with bigger cities than in more rural cantons. Regions with major urban centers such as the Leman region (Geneva and Lausanne), Zurich and North-east Switzerland (Basel) have the largest co-ethnic networks on average. In contrast, Central Switzerland, characterized by more rural regions like Uri or small agglomerations like Schwyz, has the smallest co-ethnic networks.

Figure 3.4 illustrates the unemployment rate and network size by regions over time, as well as the vote results separately for all three votes by canton. Significant differences are evident in the vote outcomes by canton and for the three votes separately. While the 1981 vote on gender equality received broader acceptance, the vote on maternity insurance in 1999 was rejected by the majority, particularly in smaller, less urban cantons. Regarding the evolution of the unemployment rate over time, we see fluctuations that are similar across all regions, though the levels vary significantly, as previously noted. A similar trend is observed for the size of the co-ethnic network at arrival, which generally increases over time while regional differences persist. This temporal and spatial variation is crucial for analyzing the impact of arrival conditions on the socioeconomic integration of women refugees in the Swiss cantons.

3.3.3 Empirical Strategy

To analyze the impact of source country culture regarding gender equality on the labor market outcomes of refugees women, we employ the epidemiological approach to isolate the cultural component from the institutional setting. Using the sample of refugees over the period of analysis from 1998-2018 we estimate the following baseline equation:

$$Y_{ik\kappa t\tau c} = \delta_0 + \delta_1 S_{c\tau} + \delta_2 X_{it} + \delta_3 X_{it}^S + \phi_\tau + \phi_\kappa + \phi_{kt} + \varepsilon_{it\tau k\kappa c}, \tag{3.1}$$

where $Y_{ik\kappa t\tau c}$ denotes the labour market outcome (employment probability or earnings) in year t for a refugee i residing in canton k, who arrived in Switzerland in year τ from origin country c and was assigned by Swiss authorities to canton κ. The model focuses

on assessing the impact of cultural indicators from the origin countries $S_{c\tau}$ on the labor market outcomes of refugees. Specifically, $S_{c\tau}$ includes two key cultural dimensions: The female to male ratio of labor force participation, which captures the gender inequality in the labor market of the refugees' origin countries and the fertility rate, which reflects societal attitudes towards gender roles and family structure in the source countries. Due to the lack of information on when refugees left their country of origin, we rely on cultural indicators at the time of their arrival in Switzerland. This approach assumes that the cultural context of the source country at the arrival time reflects the relevant cultural influence. In addition, to account for potentially missing country-level variables related to the preparedness of refugees to work in Switzerland, we include the log of GDP per capita of the source country as a control variable.

We also include a set of individual-level control variables in X_{it}, such as age, age squared, marital status, language proficiency in the arrival canton, and education level for a subsample. X_{it}^{S} represents individual characteristics of the partner, including age, age squared, employment status and, log earnings, for the subsample of married women. The base specification also includes an extensive set of fixed effects to control for unobserved factors. ϕ_{τ} represents year of arrival fixed effects to account for different economic and social circumstances at the time of arrival that impact all refugees. ϕ_{κ} controls for characteristics specific to the canton to which the refugee was assigned, which may influence labor market outcomes. Lastly, ϕ_{kt} captures economic and social conditions in the canton of residence and at the time the refugee's employment is observed. This model structure enables us to isolate the impact of cultural factors from the refugees' source countries on their labor market integration in Switzerland, while controlling for both individual characteristics and contextual factors. The identification of the effects of cultural factors could, however, be threatened by the possibility that they might be correlated with other, unobserved factors at the source country level. To address this issue, we estimate a different version of our model, including both male and female refugees, which allows us to account for unobservable factors that influence men's and women's employment probabilities in a similar way. In this version of the model, to which we refer as the "*gender gap*" version, we interact all explanatory variables with the female dummy and use source-country fixed effects to capture unobserved factors

at the level of the source country. This version yields more reliable estimates of the determinants of the gender gap, i.e., of the impact of factors that determine the disparity in employment rates between women and men. More precisely, we estimate the following equation:

$$Y_{ik\kappa t\tau c} = \delta_0 + \delta_1 Female_i + \delta_2 S_{c\tau} + \delta_3 S_{c\tau} \times Female_i + \delta_4 X_{it} + \delta_5 X_{it} \times Female_i + \delta_6 X_{it}^S + \delta_6 X_{it}^S \times Female_i + \phi_\tau + \phi_\kappa + \phi_{kt} + \phi_c + \varepsilon_{it\tau k\kappa c} \tag{3.2}$$

where $Female_i$ is a dummy variable indicating whether an individual is a woman or not and $S_{c\tau} \times Female_i$ are the interactions between the source country cultural indicators and the female dummy. The interactions estimate the effect of the source country indicators on the gap in employment and earnings between female and male refugees in canton k at time t, for those who arrived in Switzerland in year τ and were assigned to canton κ. The advantage of this approach is that we are also able to control for country of origin fixed effects ϕ_c, which absorbs any inherent differences in the refugee's backgrounds related to their source country.

To investigate whether the effects of source country characteristics on labor market outcomes are persistent as refugees spend more time in Switzerland and whether the magnitude of the impact changes across various periods since arrival, we interact the source country characteristics with dummy variables representing groups of years since arrival in Switzerland. These groups are: 1-2 years, 3-5 years, 6-10 years, 11-15 years, and more than 16 years.

In all models, standard errors are clustered at the source country level to account for potential correlations within source countries. As a robustness check, we also cluster standard errors at the level of source country-arrival year, which corresponds to the level of variation of our explanatory variables of interest. Results are robust to this two-way clustering approach, confirming the reliability of our findings.

In the second part of this paper, we investigate the impact of initial local conditions in the arrival cantons on the gender differences in labor market outcomes. Building upon our prior research, where we explored the effects of variables such as the unemployment rate, co-ethnic networks, and native attitudes towards immigrants (Müller et al.

(2023)), we now extend our analysis to include an indicator of natives attitudes towards gender equality in the Swiss cantons. In our empirical approach we rely on the quasi random initial placement of refugees in the Swiss cantons. While our examination of source countries relies on two established indicators from the existing literature to reflect cultural beliefs or attitudes towards gender equality, at the cantonal level, we use an indicator that is more directly linked to natives' attitudes. This composite indicator is constructed from three different vote results related to gender equality in the Swiss cantons, as described in Section 3.3.1. The baseline specification estimates the impact of the initial local conditions on the labor market integration of refugees in Switzerland:

$$Y_{ik\kappa t\tau c} = \delta_0 + \delta_1 Female_i + \delta_2 I_{\kappa(\tau)} + \delta_3 I_{\kappa(\tau)} \times Female_i + \delta_4 X_{it} + \delta_5 X_{it} \times Female_i + \delta_6 K_{\kappa\tau} + \delta_7 K_{\kappa\tau} \times Female_i + \phi_{c\tau} + \phi_{c\tau} \times Female_i + \phi_\kappa + \phi_{kt} + \varepsilon_{it\tau k\kappa c} \tag{3.3}$$

where $I_{\kappa(\tau)}$ is the vector of initial local conditions including the vote indicator, co-ethnic networks and unemployment rate.[20] We explore how initial local conditions in the Swiss cantons impact the gender gap in employment probability of refugees. Specifically, we interact these local conditions, the individual characteristics X_{it} and the cantonal (time varying) characteristics $K_{\kappa\tau}$ with a female dummy variable using the entire sample, which includes both men and women. The advantage of this approach is that we are able to control for a broad range of unobserved factors by including fixed effects for the canton of arrival ϕ_κ, current canton by current year ϕ_{kt} and finally, $\phi_{c\tau} \times Female_i$ accounts for unobserved factors at the level of the country of birth at the time of arrival specifically for each gender.

Similar to the analysis of the cultural components described earlier, the main challenge is to avoid that the canton-level indicators capture spurious correlations with other, unobserved factors at the canton-of-arrival level. We address this challenges in two ways. First, we control for time-varying canton-level variables that can affect differently the labor market integration of men and women. These controls include the canton's population (log) and the log of the median wage in the canton. Second, the use of

[20] The two first indicators are time-varying, but the vote indicator is not, as explained above.

canton-of-arrival fixed effects allows us to account for all unobserved factors at the canton level that influence in a similar way the employment probabilities of men and women refugees.

Additionally, we concurrently examine local initial conditions and the two cultural indicators from the source countries. Specifically, we are interested in understanding how these local conditions, along with the cultural background refugees bring with them, influence women's integration into the labor market measured by the employment gap between refugee men and women. We hypothesize that initial local conditions such as unemployment rates, the presence of co-ethnic networks and attitudes towards gender equality in Swiss cantons may interact with the cultural norms regarding gender roles from the refugees' countries of origin, thereby affecting labor market integration. We analyze these possible interactions by using the two indicators of source-country cultural norms to create four groups of source countries and estimate equation (3.3) for each group.[21]

3.4 Results

The investigation into the role of gender inequalities on labor market outcomes of female refugees in Switzerland reveals several significant findings. By examining various indicators of gender inequality in both source countries and arrival cantons, the study provides insights into the factors influencing female labor force participation, their earnings, and the "gender gap" in both.

3.4.1 Source Country Characteristics

The main findings of the analysis regarding source country characteristics are summarized in the following subsection. Relying on the epidemiological approach to isolate the effect of the cultural background that refugees bring from their source countries to Switzerland, we present causal estimates of the impact on refugees' labor market outcomes, specifically in terms of employment probability and earnings of female refugees.

[21] This way of analyzing possible interactions between source-country and destination-canton effects is more transparent and easier to interpret than interacting all variables in a single regression.

The analysis reveals that a higher female-to-male labor force participation ratio in the source country significantly enhances labor market outcomes for female refugees in Switzerland. In contrast, higher fertility rates in the source country, which indicate limited labor market opportunities for women, have a detrimental effect on their outcomes.

Tables 3.5 and 3.8 present the results of the baseline regressions estimated with equation (3.1). In columns (1) and (2) we use the entire sample of refugee women, with the even and odd columns differing in their consideration of source country indicators. Specifically, the odd columns include the female-to-male LFP ratio only, while the even columns also account for the fertility rate. All estimates incorporate an extensive set of fixed effects, as discussed in section 3.3.3.

Our main findings reveal that women from countries with higher LFP ratios exhibit higher employment rates and earnings in Switzerland. This positive effect is consistent across all model specifications, underscoring the robustness of the results. Women from countries with higher fertility rates are less likely to be employed and have lower earnings compared to those from countries with lower fertility rates.

Columns (3) and (4) focus on a subsample of married women, allowing to control for spousal characteristics. This may be an important determinant of a woman's decision to engage in the labor market. We find that the effect of the female-to-male LFP ratio remains positively associated with better labor market outcomes for female refugees. The negative effect of fertility rates is of similar size but not statistically significant for married women, possibly due to imprecise estimation in the smaller subsample of married women.

Columns (5) and (6) analyze a smaller subsample drawn from structural surveys, which permits to control for the level of education. The positive impact of a higher female-to-male LFP ratio and the negative effect of fertility rates remain significant and robust, further confirming the reliability of the findings.

These effects are not only statistically significant but also economically meaningful. Specifically, a one standard deviation increase in the female-to-male labor force participation ratio in the source country is associated with a 4.8 to 7.3 percentage points increase in the probability of being employed in Switzerland. Conversely, a one standard

deviation increase in the total fertility rate is associated with a 3.6 to 5.5 percentage points decrease in the probability of being employed in Switzerland.[22]

In Table 3.6, we test the baseline model on male refugees. As expected, the source country indicators generally do not have a significant effect on male refugees, with one notable exception: the female-to-male labor force participation ratio has a positive and significant effect on the employment outcomes of married men. This suggests that the LFP ratio may be correlated with other unobserved characteristics of the source country. To account for these unobserved factors, which may have different impacts on women and men from the same country, we also employ a "gender-gap" specification. This model includes both men and women and involves interacting all variables with a female dummy. In these regressions, we are able to include fixed effects for the source countries, thereby controlling for all remaining gender-related, time-varying factors that could influence the observed outcomes.

Table 3.7 displays the results for the gender-gap analysis. These results are obtained by estimating equation (3.2). The findings across all subsamples indicate that a higher female-to-male LFP ratio in the source country helps to narrow the existing gender gap in employment among refugees. Specifically, an increase in one standard deviation of the Female/Male LFP ratio is associated with a decrease in the gender employment gap of 3.7 - 4.5 percentage points.

Conversely, higher fertility rates in the home country tend to widen the gender employment gap among refugees. This effect persists even when focusing on married women, suggesting that higher fertility rates contribute to greater disparities in labor market outcomes between male and female refugees. The effect size ranges from a 3.8 - 4.7 percentage points increase in the employment gap when the fertility rate increases by one standard deviation.

When using earnings as a measure of labor market integration, we estimate a Poisson pseudo-maximum likelihood model to account for the zero earnings observed among unemployed refugees. This specification allows us to estimate both the intensive and extensive margins of the indicators' effects on refugees' earnings. Table 3.8 displays the

[22]The mean (and standard deviation) of the female-to-male LFP ratio and the fertility rate in the full sample, which includes both women and men, are 0.525 (0.275) and 3.86 (1.74). For the female subsample, these values are: 0.556 (0.269) and 3.703 (1.75)

results from estimating equation 3.1, while Table 3.9 reports findings from estimating the gap equation (Equation 3.2). The analysis shows that the positive impact of the female-to-male labor force participation ratio and the negative impact of the fertility rate are also evident in women's earnings. However, the size of the effect is larger for the LFP ratio. A one standard deviation increase in the ratio is associated with an increase of 20.2 - 23.3 % in earnings, while a one standard deviation increase in the fertility rate decreases women's earnings by 10.8 - 16.3 %.

Lastly, we extend our analysis of source country indicators by incorporating the duration of stay in Switzerland, which is another crucial factor interacting with these indicators. The main regressions estimate the average effect of source country culture on the gender employment gap because this formulation has the advantage that we can control for confounders on the level of the source country that affect men and women.[23] To investigate this dynamic over the refugees' life cycle, we interact the source country characteristics with years since migration dummies as presented in Figure 3.5.[24] The positive effect of the LFP ratio on the gender employment gap is persistent in the long run and even strengthens over time. This finding suggests that the longer female refugees reside in Switzerland, the more they benefit from originating from a culture supportive of female labor market participation. The negative effect of the fertility rate on the gender employment gap increases first and reaches its peak up to ten years after arrival. However, this effect is less persistent and close to zero after 10 years. These findings suggest that a favorable initial situation, in terms of the female-to-male LFP ratio, continues to enhance women's employment prospects in Switzerland over the long term, while the negative impact of higher fertility rates from the source country does not have a lasting effect.

Our findings are consistent with other results from the literature. Fernández and Fogli (2009) demonstrate that individuals from countries with high female labor force participation work more hours per week, whereas a higher fertility rate in the source countries

[23] We also conduct the analysis by years since migration separately for men and women, estimating equation (3.1) and interacting the source country indicators with years since migration dummy variables. The results are presented in Figure 3.8 and the detailed results of the regressions are given in Table 3.15 in the appendix. Figure 3.8 illustrates the coefficients and their 95% confidence intervals.

[24] Detailed results of the regressions are given in Table 3.16 in the appendix. Figure 3.5 illustrates the coefficients and their 95% confidence intervals.

significantly reduces work hours. Similarly, Blau et al. (2011) report a positive effect of the source country's relative female LFP on hours worked, with the effect strengthening up to 20 years after arrival, which is consistent with our results. They also find that the negative impact of fertility rates reaches its maximum 10 years after migration. In addition, Bredtmann and Otten (2023) observe a strong positive impact of the female-to-male LFP ratio on employment probability for first-generation immigrants, a finding that corroborates our results. However, they do not find significant effects for source country fertility rates.

Robustness checks To assess the robustness of our results, we conduct several checks with different model specifications and subsamples.

In the baseline model, we use current canton interacted with current year fixed effects. This setup captures variation in employment probability from refugees changing cantons. In Tables 3.17 and 3.18 we replace the current canton with seven greater regions [25]. With this alternative specification, we still find a positive effect of the female-to-male labor force participation ratio and a negative effect of the fertility rate on women's employment probability and the gender gap.

We also test the robustness of our findings by including additional control variables. Tables 3.19 and 3.20 include controls for median wages (log) and population (log) at the cantonal level, instead of canton-of-arrival fixed effects, to account for time-varying cantonal characteristics. In Table 3.21, we add controls for geographic, linguistic, and religious distance from Switzerland (using measures from Spolaore and Wacziarg (2016)). The inclusion of additional control variables does not change the overall conclusion of the results, although the coefficients in the alternative specifications that include distance variables become smaller in magnitude.

Further sensitivity checks apply the baseline specification to various subsamples. Tables 3.22 and 3.23 focus on individuals aged 26-59, excluding younger individuals who may still be pursuing education. We also consider the robustness of results excluding all European countries[26] in Tables 3.24 and 3.25, finding that the results remain consistent. Finally, in the baseline regressions, we cluster standard errors at the level of the coun-

[25] As defined in Table 3.4

[26] In the baseline, we exclude countries from the European Union.)

try of birth. We also test an alternative specification by clustering standard errors at the country-arrival year level, which matches the level of variation in the explanatory variables. As shown in Tables 3.26 and 3.27, the standard errors are smaller with the alternative clustering method, hence all results remain significant.

3.4.2 Initial Local Conditions

In this section, we report the results regarding the effects of local conditions in the cantons of assignment on the probability of employment of men and women refugees. We exploit the quasi-random allocation of asylum seekers across cantons to identify the effects of the economic and social conditions that refugees experience upon arrival on their economic integration, as measured by their probability to hold paid employment. We use the "gender-gap" version of our estimation equation, where men and women refugees are included in the same regression and all variables are interacted with the female dummy (see equation (3.3)). This formulation allows us to analyze the impact of time-invariant (or slow-moving) factors, such as natives' attitudes towards gender equality, on the gender gap in employment probabilities, while including fixed effects for the canton of arrival. These fixed effects account for unobserved factors in the arrival cantons that affect the employment of men and women refugees in a similar manner (such as legal and institutional differences at the canton level, or attitudes towards migrants and refugees in general).

In all our regressions, we account for the influence of time-varying and gender-dependent source country factors by including a complete set of fixed effects of the refugee's country of birth, gender and year of arrival, and interactions between these fixed effects. These fixed effects completely absorb the gender-related indicators of origin country culture and account also for any other time-varying factors that may have different influences on men and women (such as variables measuring economic and social conditions, women's rights or gender differences in the origin country).

First, we consider the effects of local conditions in the arrival cantons, without taking interactions with source-country factors into account. Our main results are reported in Table 3.10. The first three columns use the main sample, whereas columns (4) to (6) rely

on the subsample that includes information on education from the Structural Surveys. In columns (1) and (4), we do not use any fixed effects for cantons but include canton-level variables measured at the time of arrival: time-invariant (natives' attitudes towards gender, as measured by popular votes) and time-varying (cantonal unemployment rate, co-national networks (log), population (log), median wage (log)). In columns (2) and (5), we add interactions between fixed effects for the current canton of residence and the current year, absorbing all variables that describe the current economic and social conditions in cantons. This allow us to isolate the effects of the *initial conditions* upon arrival from the influence of the subsequent evolution of these conditions. In columns (3) and (6), we further add fixed effects for the cantons of assignment, accounting for unobserved canton-level factors that have a similar effect on the employment of men and women refugees.

The main results of our basic regressions in Table 3.10 can be summarized as follows. First, natives' attitudes towards gender equality matter for the gender gap in refugees' employment probabilities and their impact is sizeable. Being assigned to the canton with the most open attitudes toward gender equality (Geneva) rather than the canton with the most conservative attitudes (Appenzell R.I.) decreases the gender gap in employment by 6.3 to 9.2 percentage points according to the estimates in Table 3.10. From the results in columns (1) and (4), it might seem that this difference in the gender gap is almost entirely due to the fact that men's employment probability decreases by arriving in an equality-preferring rather than a gender-conservative canton, but this result is less reliable due to potential omitted variables at the canton level.[27] Second, co-national networks decrease the gender gap in employment rates. In our basic regressions, these networks have a positive effect on female refugees' employment probabilities and no significant effect on male refugees' employment rates. Third, the state of the labor market, as measured by the cantonal unemployment rates at the moment of arrival, is an important determinant of subsequent labor market integration. Our results indicate that arriving in a canton with a higher unemployment rate has a greater impact on women than on men refugees, increasing thereby the gender gap.

We can take the analysis of the first two results further by performing a few additional

[27] In our robustness analysis below, we will discuss this issue in more detail (see footnote 29).

regressions. First, our vote indicator is a combination of the outcomes of three votes that took place at different moments in time and relate to slightly different dimensions of gender equality. It turns out that the 1981 vote related to a constitutional article on equal rights for men and women is the vote that captures the best natives' attitudes on gender equality. On the one hand, if we replace the combined vote indicator with the sole 1981 vote outcome in the regressions of Table 3.10, results remain qualitatively and quantitatively similar (see Table 3.28 in the Appendix).[28] On the other hand, if we use all three vote outcomes in a single regression, the 1981 vote is the only vote that significantly influences the gender differences in refugees' labor market participation (see Table 3.29).[29]

Second, if we distinguish, in the definition of the network variable, between co-nationals who are employed and those who are not, an interesting pattern emerges (see Table 3.32). For male refugees, the network of working co-nationals has a positive and significant effect on their probability of employment. In contrast, for women refugees it is the network of *not* working co-nationals that has a significant positive effect.[30] A possible interpretation of these results would be that professional networks matter more for men, whereas nonworking co-nationals could provide child care, which matters more for women.

Further robustness checks. To check the robustness of our results related to natives' attitudes towards gender equality, we perform two additional robustness checks. First, we run a regression where we include two of the three votes, excluding the 2022 vote on the increase in women's retirement age. As we discussed above, the question whether this vote represented a change toward more or less gender quality has been controversial

[28]The 1981 vote outcome is significant at the 1% level in all regressions of Table 3.28, and the quantitative implications are the following. Being assigned to the canton with the most open attitudes toward gender equality (Geneva) rather than the canton with the most conservative attitudes (Appenzell R.E.) decreases the gender gap in employment by 6.9 to 12.8 percentage points according to the estimates in Table 3.28.

[29]Interestingly, the negative impact on male refugees' labor market participation in regression (1) of Table 3.29 is significantly related to another vote indicator, the 2022 vote on the increase in women's retirement age. Arguably, this vote is not only related to attitudes towards gender equality but also to attitudes toward the welfare state (a similar argument can be made for the vote on maternity insurance).

[30]More precisely, these effects are significant in regressions (1) to (3), which rely on the entire sample. When we use the subsample of the Structural Surveys, which include controls for education, only the second effect remains significant at the 10 percent level.

in the political discussion. Table 3.30 reports the results of regressions that exclude this vote (but are otherwise identical to the regressions in Table 3.29, which include all three votes). The results of Table 3.29 are broadly confirmed: on the one hand, only the 1981 vote significantly influences gender differences in refugees' employment probabilities, on the other hand, the lower employment rates of male refugees in regressions (1) and (4) are related to the 1999 vote on paid maternity leave. The latter object also included a social insurance dimension and our result could indicate that in cantons where citizens are more favorable towards social insurance, there is less social pressure for (male) refugees to take up work as quickly as possible.[31]

Second, we use a different data source as a measure for attitudes towards gender equality. Among all available surveys for Switzerland, the Swiss Household Panel relies on a relatively large sample and includes one relevant item for our purposes. Respondents were asked to react to the affirmation *"Having a job is the best guarantee, for both women and men, of preserving their independence"* by indicating their disagreement/agreement on a scale of 0 to 10. We calculate the average response of Swiss citizens for each canton over the period 2002–2020 (the item was not included in all years of the survey) and use this variable to replace the vote indicator in our regressions. Figure 3.7 illustrates the correlation between the attitudes variable and the gender vote and Table 3.31 reports the results of our regressions. When using the entire sample of refugees (regressions (1) to (3)), this measure of attitudes has a significant impact on the gender gap in refugee employment, but the quantitative impact is a bit smaller than for the vote indicator. For the smaller Structural Survey sample, the coefficient has a similar value but is no longer significant. These differences might be due to measurement error in the attitudes variable, which is especially relevant for small cantons.

3.4.3 Initial Local Conditions and Source Country Characteristics

Before we discuss how local conditions in the arrival canton interact with the origin country indicators, it is worth summarizing the results obtained for these factors sepa-

[31] See Eugster et al., 2011 for an analysis of cultural differences in attitudes towards social insurance in Switzerland.

rately. Taking the perspective of the origin country, we find that our two indicators of origin country culture significantly influence the gender gap in refugees' labor market participation in Switzerland. There is one crucial difference between the two indicators: the impact of the fertility rate on refugees' employment probabilities vanishes over time, whereas the influence of origin countries' LFP ratios is much more persistent. It seems that the former indicator captures a dimension of origin country culture that is less persistent and assimilates more easily to the cultural norms of the destination country.[32]

Turning now to the point of view of the canton of arrival, we find that local conditions at the moment of arrival matter for the gender gap in refugees' subsequent labor market integration. According to our results, the two most important factors that influence the gender gap are natives' attitudes towards gender equality and networks of (working or not-working) co-nationals. Networks of working co-nationals increase men's employment, thereby increasing the gender gap. In contrast, the presence of not-working co-nationals increases women refugees' employment rates.

To address the question of how factors specific to the origin country and those related to the canton of arrival interact, we use our two source country indicators to create four groups of origin countries, according to labor force participation ratios (high/low) and fertility rates (high/low).[33] The four country groups are indicated by different colors in Figure 3.3. Table 3.11 shows the results of the local-conditions regressions for the four groups of origin countries. More precisely, we report results for regressions that include the widest set of fixed effects (corresponding to columns (3) and (6) in Table 3.10).

One result stands out in particular. Attitudes towards gender equality in the canton of arrival (as captured by the vote indicator) matter for refugees who come from high-fertility countries, but not for those from other countries. Indeed, the vote indicator has a significant impact on the gender gap in employment probabilities for refugees stemming from high-fertility countries (columns (2) and (4) of Table 3.11), but there is no significant effect of natives' attitudes for refugees from low-fertility countries (columns

[32]Interestingly, fertility rates are also more closely correlated with GDP per capita in the origin country than labor force participation ratios.

[33]To create our binary indicators of labor force participation ratios and fertility rates, the delimitation between high and low values of an indicator is set at the mean of the sample.

(1) and (3) of Table 3.11). For high-fertility countries, the effect is also quantitatively significant: arriving in the canton with the most favorable attitudes towards gender equality (as opposed to the least) reduces the gender employment gap by 11 percentage points.

In the discussion of our previous results, we had emphasized the fact that the fertility rate in the origin country seems to capture a less persistent dimension of gender norms than the labor force participation ratio. We can now add the finding that for this dimension of gender norms to evolve towards more equality, it is crucial that refugees are assigned to a canton where attitudes towards gender equality are more open. On the other hand, for refugees who come from countries where gender norms are more entrenched (as captured by a low LFP ratio), attitudes in the canton of arrival do not seem to matter.

For refugees from the low-fertility and low-LFP ratio group of origin countries, we find a significant influence of the unemployment rate and of networks. A higher unemployment rate in the arrival canton increases the gender employment gap, whereas co-national networks decrease this gap.

Finally, it is worth mentioning the role of language, as it is an important determinant of labor market integration and is related to the interplay between source countries and cantons of arrival. Throughout our analysis, we use as control a dummy variable indicating a refugee's (potential) knowledge of the language spoken in the canton to which they are assigned. In our estimations reported in Table 3.11, we obtain two results on the impact of language proficiency on employment probabilities. First, we find that a refugee coming from a Francophone country has a 9.2–9.4 percentage points higher probability of being employed if they are assigned to a French-speaking canton rather than a comparable German- or Italian-speaking canton.[34] Our second result is related to the gender dimension of labor market integration: we find no significant difference between men and women in the effect of language proficiency on the probability of

[34]This result confirms findings by Schmid (2023), who uses a similar setting but limits his sample to English- and French-speaking refugees with an F permit (temporary admission) and a period of five years after arrival. Note that in our sample, Francophone countries can only be found among the low LFP/low fertility and high LFP/high fertility groups of countries (with one exception, Mauritania, which concerns only 0.02% of our sample). Interestingly, Schmid (2023) results are close to ours: he finds that French-speaking refugees have a 10.5 percentage points higher probability of being employed if they are assigned to a French-speaking canton.

employment.

3.5 Conclusion

In this paper, we investigate the gender differences in labor market integration among refugees and the factors influencing these disparities. Our analysis focuses on the impact of source country culture and initial local conditions in Switzerland on female refugees' employment probabilities, earnings, and the gender employment gap.

We employ longitudinal data covering the universe of refugees in Switzerland spanning 1998-2018, and augment this with information on source countries' female-to-male LFP ratio and fertility rates. Additionally, we incorporate data on unemployment rates, co-ethnic networks and an indicator of local attitudes in the Swiss cantons, which is derived from vote results related to gender equality.

Our findings reveal that cultural factors from refugees' countries of origin significantly influence the labor market outcomes of female refugees in Switzerland. Specifically, higher female-to-male labor force participation ratios and lower fertility rates in the refugees' origin countries are associated with increased employment probabilities and higher earnings for women in Switzerland. Moreover, these cultural factors narrow the gender gap in employment and earnings. The effect of the female-to-male LFP ratio is persistent over time, while the influence of the fertility rate diminishes after the first decade post-arrival.

Furthermore, our investigation into local conditions highlights the importance of gender attitudes within Swiss cantons. Refugee women placed in the canton with the most progressive attitudes towards gender equality experience a substantially smaller gender employment gap—by at least 6.3 percentage points—compared to those in the most conservative canton. Co-ethnic networks also play a crucial role, particularly those consisting of non-working individuals for women and those consisting of working co-nationals for men, which contribute to reducing the gender gap in employment. Conversely, higher initial unemployment rates widen the gender gap, disproportionately affecting women.

The interaction between source country culture and local conditions further underscores the complexity of gendered labor market integration. We find that refugees from high-

fertility countries are especially sensitive to local gender equality attitudes, while those from low fertility and low LFP countries are more affected by unemployment and co-ethnic networks.

An area for future research that emerges from our study is the types of occupations that refugees, and particularly women, engage in within the Swiss labor market. However, due to current data limitations, we could not explore this aspect in detail, leaving it as a promising avenue for further investigation.

Tables and Figures

Table 3.1: Descriptive statistics: Women

	Mean	Std.Dev.	Min	Max	Obs
Panel A: Year 2008					
Individual characteristics					
Age	35.58	7.91	19	59	8241
Age at arrival	29.32	7.53	18	58	8241
Married	0.68	0.47	0	1	8241
Speaks language canton	0.06	0.24	0	1	8241
Years since arrival	6.26	2.95	1	10	8241
Employed	0.48	0.50	0	1	8241
Income (log)	9.60	1.18	4	13	3958
Panel B: Year 2015					
Individual characteristics					
Age	37.04	8.91	19	59	20469
Age at arrival	29.28	7.61	18	58	20469
Married	0.57	0.49	0	1	20469
Speaks language canton	0.04	0.19	0	1	20469
Years since arrival	7.76	5.40	1	17	20469
Employed	0.37	0.48	0	1	20469
Income (log)	9.78	1.10	4	13	7511
Partners characteristics					
Age spouse	42.12	8.21	19	81	6593
Spouse works	0.73	0.44	0	1	6593
Spouse income (log)	10.20	1.12	3	13	5675
Panel C: Year 2015, Structural Survey					
Individual characteristics					
Age	38.51	8.41	19	59	4484
Age at arrival	29.19	7.30	18	57	4484
Married	0.63	0.48	0	1	4484
Speaks language canton	0.04	0.20	0	1	4484
Years since arrival	9.32	5.24	1	17	4484
Tertiary education	0.12	0.33	0	1	4484
Secondary II education	0.20	0.40	0	1	4484
Employed	0.45	0.50	0	1	4484
Income (log)	9.84	1.06	4	13	2036
Partners characteristics					
Age spouse	42.89	8.14	20	78	1777
Spouse works	0.75	0.43	0	1	1777
Spouse income (log)	10.28	1.08	5	13	1544

Table 3.2: Descriptive statistics

	Mean	Std.Dev.	Min	Max	Obs
Panel A: Year 2008					
Individual characteristics					
Female	0.44	0.50	0	1	18851
Age	35.10	8.14	19	59	18851
Age at arrival	29.25	7.54	18	58	18851
Married	0.58	0.49	0	1	18851
Speaks language canton	0.06	0.24	0	1	18851
Years since arrival	5.86	3.04	1	10	18851
Employed	0.61	0.49	0	1	18851
Income (log)	9.97	1.10	3	13	11418
Panel B: Year 2015					
Individual characteristics					
Female	0.40	0.49	0	1	51530
Age	36.09	9.08	19	59	51530
Age at arrival	28.81	7.63	18	58	51530
Married	0.50	0.50	0	1	51530
Speaks language canton	0.03	0.18	0	1	51530
Years since arrival	7.28	5.15	1	17	51530
Employed	0.47	0.50	0	1	51530
Income (log)	10.09	1.05	3	13	24303
Partners characteristics					
Age spouse	38.14	8.76	17	85	14621
Spouse works	0.57	0.50	0	1	14621
Spouse income (log)	9.87	1.20	3	13	10456
Panel C: Year 2015, Structural Survey					
Individual characteristics					
Female	0.41	0.49	0	1	11001
Age	38.00	8.57	19	59	11001
Age at arrival	29.03	7.28	18	57	11001
Married	0.58	0.49	0	1	11001
Speaks language canton	0.04	0.20	0	1	11001
Years since arrival	8.97	5.02	1	17	11001
Tertiary education	0.14	0.34	0	1	11001
Secondary II education	0.22	0.41	0	1	11001
Employed	0.58	0.49	0	1	11001
Income (log)	10.21	1.00	4	13	6392
Partners characteristics					
Age spouse	38.76	8.64	19	78	4022
Spouse works	0.59	0.49	0	1	4022
Spouse income (log)	9.91	1.19	5	13	2912

Table 3.3: Descriptive Statistics: Source Country Indicators

	Mean	SD	Min	Max
All countries (71 countries)				
Fertility rate, total (births per woman)	3.82	1.80	1.08	7.70
Ratio of female to male labor force participation rate	0.65	0.26	0.09	1.02
Female LFP	0.46	0.20	0.06	0.87
Male LFP	0.72	0.08	0.47	0.90
East Asia & Pacific (4 countries)				
Fertility rate, total (births per woman)	2.15	0.43	1.59	2.93
Ratio of female to male labor force participation rate	0.81	0.09	0.62	0.92
Female LFP	0.62	0.08	0.48	0.73
Male LFP	0.76	0.07	0.63	0.83
Europe & Central Asia (16 countries)				
Fertility rate, total (births per woman)	1.90	0.49	1.08	3.30
Ratio of female to male labor force participation rate	0.70	0.15	0.30	0.91
Female LFP	0.50	0.11	0.23	0.73
Male LFP	0.69	0.06	0.56	0.84
Latin America & Caribbean (2 countries)				
Fertility rate, total (births per woman)	1.89	0.34	1.57	2.68
Ratio of female to male labor force participation rate	0.63	0.05	0.52	0.71
Female LFP	0.47	0.08	0.35	0.58
Male LFP	0.75	0.06	0.68	0.83
Middle East & North Africa (14 countries)				
Fertility rate, total (births per woman)	3.16	1.04	1.81	6.74
Ratio of female to male labor force participation rate	0.29	0.12	0.09	0.58
Female LFP	0.21	0.10	0.06	0.50
Male LFP	0.71	0.06	0.58	0.87
South Asia (6 countries)				
Fertility rate, total (births per woman)	3.49	1.51	1.92	7.61
Ratio of female to male labor force participation rate	0.43	0.24	0.19	0.97
Female LFP	0.26	0.07	0.15	0.41
Male LFP	0.76	0.09	0.54	0.88
Sub-Saharan Africa (29 countries)				
Fertility rate, total (births per woman)	5.58	0.88	3.49	7.70
Ratio of female to male labor force participation rate	0.81	0.17	0.39	1.02
Female LFP	0.59	0.16	0.21	0.87
Male LFP	0.74	0.10	0.47	0.90

Table 3.4: Descriptive Statistics: Initial Local Conditions

	Mean	SD	Min	Max
Leman region (GE, VD, VS)				
Indicator: Average over three votes	63.04	10.00	50.03	74.08
Vote Gender Equality (% Yes), 1981	66.73	16.17	46.10	85.20
Vote Maternity leave, 1999	62.44	10.46	49.02	74.27
Vote Retirement Age, 2022	40.07	3.54	37.24	45.02
Unemployment rate (%)	4.57	1.22	2.10	7.37
Network (log)	5.04	1.22	1.82	6.91
Mittelland region (BE, SO, FR, NE, JU)				
Indicator: Average over three votes	58.25	10.01	45.38	72.57
Vote Gender Equality (% Yes), 1981	65.22	6.38	57.60	76.50
Vote Maternity leave, 1999	50.37	15.91	28.37	70.34
Vote Retirement Age, 2022	40.85	8.29	29.12	50.39
Unemployment rate (%)	3.18	1.14	1.20	6.19
Network (log)	4.42	1.45	1.04	7.44
North-east Switzerland (AG, BL, BS)				
Indicator: Average over three votes	49.35	6.41	40.98	56.38
Vote Gender Equality (% Yes), 1981	64.37	8.89	52.10	72.40
Vote Maternity leave, 1999	34.74	7.11	26.22	43.49
Vote Retirement Age, 2022	51.05	3.55	46.76	55.38
Unemployment rate (%)	2.93	0.74	1.20	4.58
Network (log)	5.04	1.06	2.18	7.08
Zurich (ZH)				
Indicator: Average over three votes	48.24	0.00	48.24	48.24
Vote Gender Equality (% Yes), 1981	63.00	0.00	63.00	63.00
Vote Maternity leave, 1999	37.51	0.00	37.51	37.51
Vote Retirement Age, 2022	55.78	0.00	55.78	55.78
Unemployment rate (%)	3.25	0.77	1.70	4.50
Network (log)	6.20	1.20	3.50	7.82
Central Switzerland (LU, OW, NW, SZ, UR, ZG)				
Indicator: Average over three votes	37.38	2.95	32.53	41.39
Vote Gender Equality (% Yes), 1981	48.63	6.45	37.80	58.00
Vote Maternity leave, 1999	24.77	3.81	20.26	31.19
Vote Retirement Age, 2022	61.25	2.82	57.12	65.01
Unemployment rate (%)	1.59	0.71	0.40	3.61
Network (log)	3.68	1.18	0.79	6.48
Oriental Switzerland (SH, AR, AI, SG, GR, GL, TG)				
Indicator: Average over three votes	37.75	5.23	30.60	46.23
Vote Gender Equality (% Yes), 1981	46.41	8.38	31.80	58.30
Vote Maternity leave, 1999	23.53	5.25	14.05	30.37
Vote Retirement Age, 2022	56.69	4.45	49.98	64.45
Unemployment rate (%)	1.98	0.74	0.30	4.06
Network (log)	3.76	1.22	0.89	6.60

Table 3.5: Impact of source country characteristics on women's employment

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.209***	0.178***	0.250***	0.230***	0.269***	0.235***
	(0.0607)	(0.0606)	(0.0733)	(0.0749)	(0.0670)	(0.0716)
Fertility rate		-0.0323**		-0.0208		-0.0294**
		(0.0126)		(0.0133)		(0.0136)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	221201	221201	41560	41560	49365	49365
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.6: Impact of source country characteristics on men's employment

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	-0.0204	-0.0434	0.0826***	0.0794**	0.0489	0.0308
	(0.0467)	(0.0547)	(0.0239)	(0.0325)	(0.0499)	(0.0627)
Fertility rate		-0.0177		-0.00287		-0.0123
		(0.0127)		(0.00741)		(0.0139)
Sample	Men	Men	Married men	Married men	Men, Structural Survey	Men, Structural Survey
Observations	330620	330620	34031	34031	68408	68408
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.7: Impact of source country characteristics on the gender gap in employment

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.0506	0.0793	-0.771***	-0.625***	-0.417*	-0.304
	(0.190)	(0.198)	(0.126)	(0.145)	(0.216)	(0.228)
Female/Male LFP Ratio	-0.0938	-0.0805	0.0213	0.00819	-0.0515	-0.0565
	(0.236)	(0.252)	(0.222)	(0.226)	(0.307)	(0.324)
Fertility rate		0.0211		0.0156		0.0186
		(0.0139)		(0.0165)		(0.0196)
Female X LFP Ratio	0.153***	0.163***	0.138**	0.142***	0.132**	0.141***
	(0.0573)	(0.0417)	(0.0621)	(0.0488)	(0.0644)	(0.0503)
Female X Fertility Rate		-0.0271***		-0.0240***		-0.0221***
		(0.00594)		(0.00727)		(0.00714)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	551829	551829	285968	285968	117801	117801
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.8: Impact of source country characteristics on women's earnings

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.806***	0.749***	0.792***	0.770***	0.865***	0.818***
	(0.205)	(0.171)	(0.199)	(0.181)	(0.183)	(0.157)
Fertility rate		-0.0929***		-0.0615***		-0.0765***
		(0.0167)		(0.0186)		(0.0162)
Mean Earnings	10694.0	10694.0	14347.4	14347.4	13121.4	13121.4
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	221188	221188	41560	41560	49318	49318
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.9: Impact of source country characteristics on the gender gap in earnings

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-1.323***	-1.056**	-2.442***	-2.135***	-1.208**	-1.019**
	(0.440)	(0.447)	(0.491)	(0.429)	(0.502)	(0.510)
Female/Male LFP Ratio	-1.222	-1.213	-1.064	-1.088	-1.020	-1.094
	(0.789)	(0.837)	(0.682)	(0.872)	(0.851)	(0.924)
Fertility rate		0.0500		0.0424		0.0161
		(0.104)		(0.0930)		(0.0919)
Female X LFP Ratio	0.438**	0.483***	0.508**	0.540***	0.397*	0.428**
	(0.216)	(0.169)	(0.201)	(0.177)	(0.203)	(0.178)
Female X Fertility Rate		-0.0634***		-0.0527**		-0.0425*
		(0.0215)		(0.0216)		(0.0232)
Mean Earnings	16971.9	16971.9	19976.9	19976.9	21829.3	21829.3
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	551824	551824	285964	285964	117791	117791
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.10: Impact of local conditions in the canton of arrival on the gender gap in employment

	(1)	(2)	(3)	(4)	(5)	(6)
Vote indicator	-0.208***	-0.0154		-0.194***	0.0358	
	(0.0529)	(0.0666)		(0.0732)	(0.113)	
Unemployment rate	-0.00969*	-0.0102*	-0.0147**	-0.0171**	-0.0100	-0.0126
	(0.00539)	(0.00557)	(0.00691)	(0.00750)	(0.00963)	(0.0115)
Co-national network (log)	0.00221	-0.00424	-0.00576	0.00807	-0.000649	-0.00214
	(0.00441)	(0.00444)	(0.00447)	(0.00813)	(0.00858)	(0.00868)
Female X Vote indicator	0.150**	0.141**	0.148***	0.221**	0.212**	0.219**
	(0.0610)	(0.0561)	(0.0563)	(0.106)	(0.105)	(0.106)
Female X Unemployment	-0.00914	-0.0110*	-0.0115*	-0.0188*	-0.0207**	-0.0213**
	(0.00647)	(0.00589)	(0.00587)	(0.0105)	(0.0103)	(0.0104)
Female X Co-national network	0.0205***	0.0256***	0.0264***	0.0191	0.0262**	0.0271**
	(0.00658)	(0.00654)	(0.00645)	(0.0134)	(0.0132)	(0.0131)
Sample	All	All	All	Struct. Survey	Struct. Survey	Struct. Survey
Observations	551752	551752	551752	117779	117778	117778
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	Yes	No	No	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	No	Yes	Yes	No	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes

All regressions also include canton-of-arrival controls (interacted with Female): log Population, log Median wages.

Individual controls are: Age, Age squared, Female, Speaks local language.

Standard errors are clustered at the level Canton of arrival X Year of arrival

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.11: Impact of local conditions in the canton of arrival on the gender gap in employment

	(1)	(2)	(3)	(4)
Unemployment rate	-0.0183*	-0.00162	-0.0362**	-0.0165
	(0.00947)	(0.0117)	(0.0147)	(0.0105)
Co-national network (log)	-0.0108	-0.00200	-0.00494	-0.0111*
	(0.00708)	(0.00799)	(0.00709)	(0.00638)
Female X Vote indicator	0.108	0.256**	-0.0886	0.262***
	(0.0874)	(0.109)	(0.137)	(0.0872)
Female X Unemployment	-0.0234***	-0.0175	0.0108	-0.00164
	(0.00895)	(0.0111)	(0.0124)	(0.00879)
Female X Co-national network	0.0340***	0.0117	-0.00230	0.0117
	(0.00938)	(0.0143)	(0.0130)	(0.00974)
Speaks language canton	0.0940***	0.0194		0.0924***
	(0.0303)	(0.142)		(0.0201)
Female X Speaks language canton	-0.0250			-0.0161
	(0.0529)			(0.0289)
Sample	All	All	All	All
Observations	199145	125966	68863	157731
Subsample	Low LFP Low Fertility	Low LFP High Fertility	High LFP Low Fertility	High LFP High Fertility
Individual controls	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes
Education FE	No	No	No	No

All regressions include canton-of-arrival controls (interacted with Female): Unemployment, Network, Population, Median wages.
Standard errors are clustered at the level Canton of arrival X Year of arrival
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

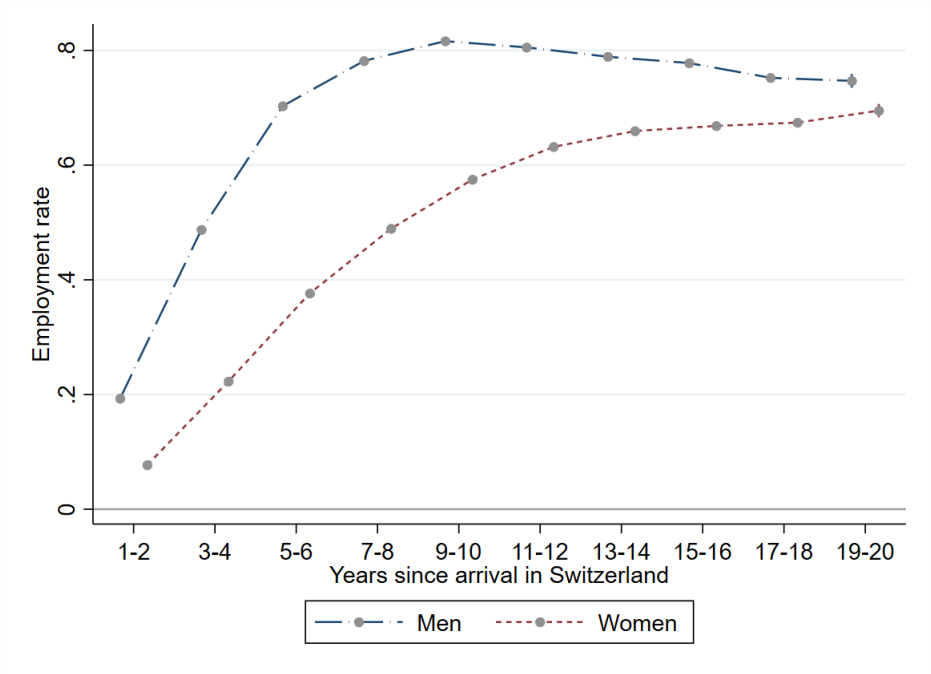


Figure 3.1: Employment rate by YSM and gender

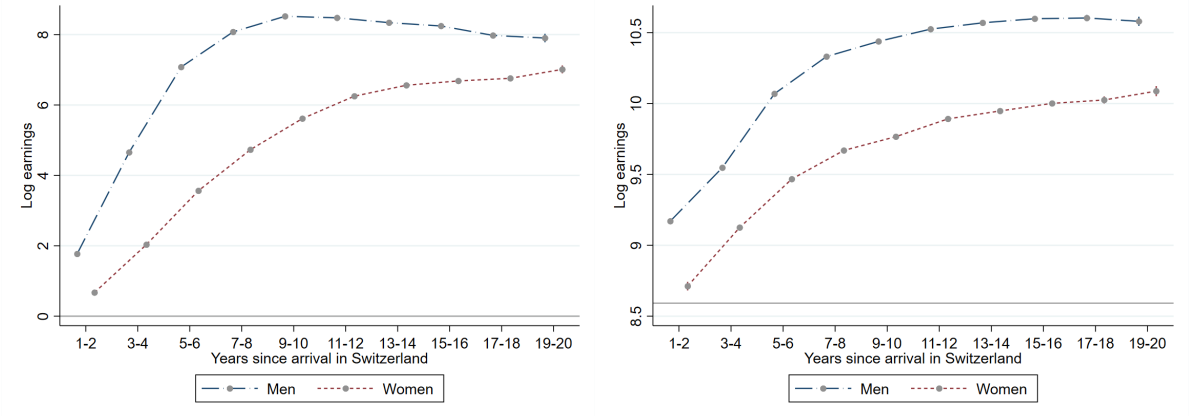


Figure 3.2: Earnings by YSM and gender: All refugees and only employed refugees

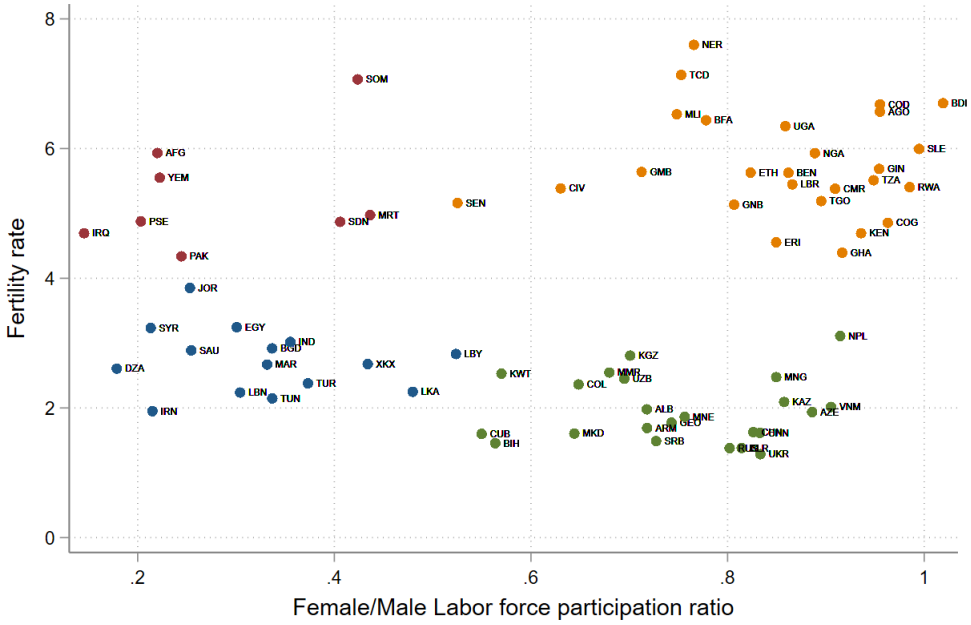
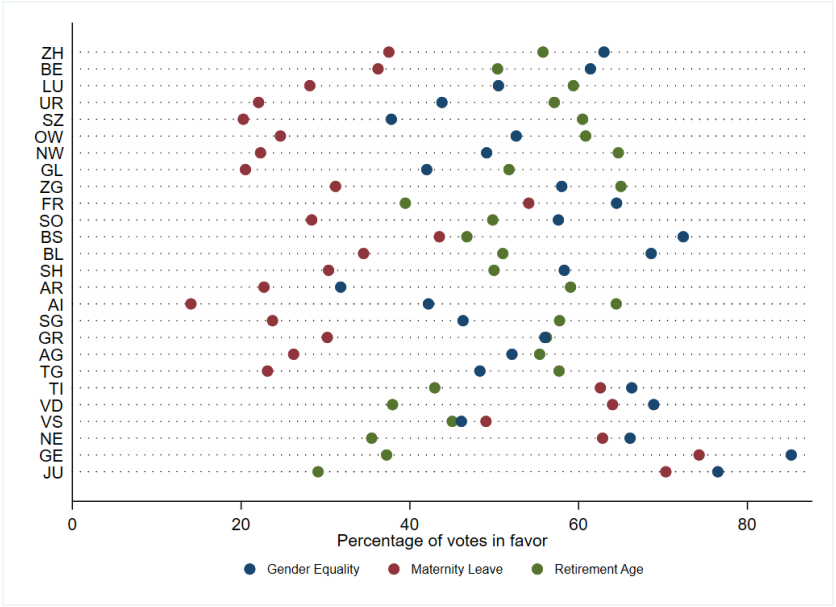
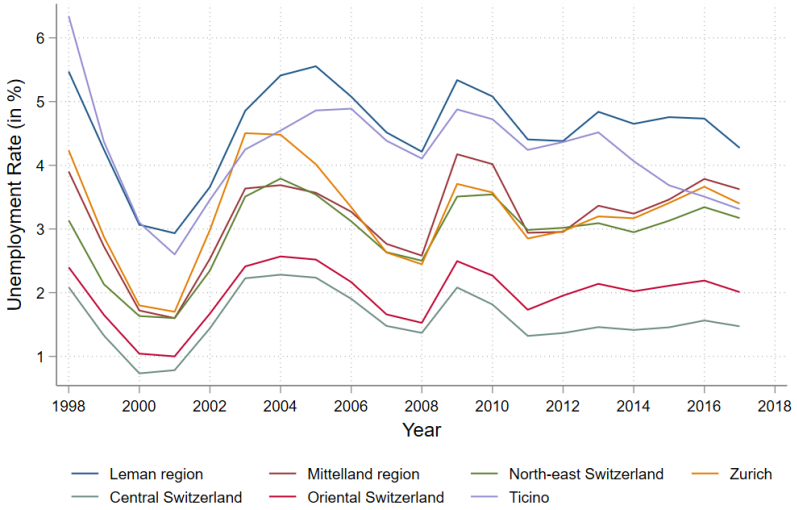


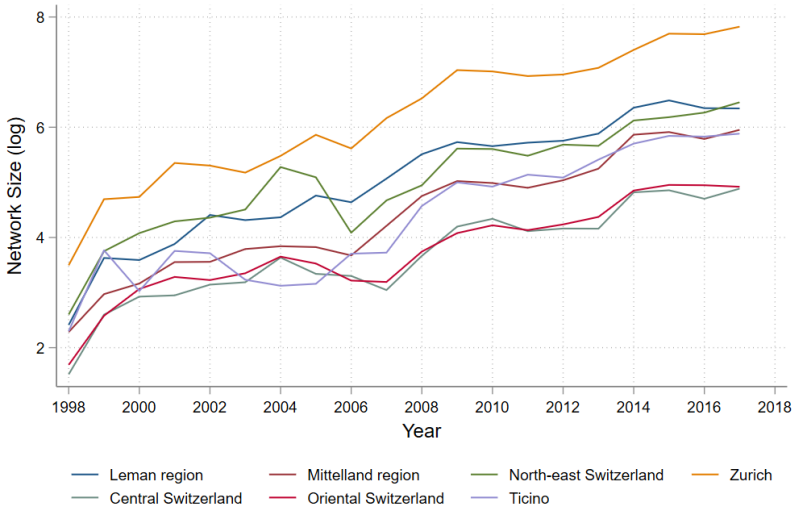
Figure 3.3: Grouping of countries by the two source country characteristics



(a) Vote Outcomes by Canton



(b) Unemployment Rate over Time by Region



(c) Network Size over Time by Region

Figure 3.4: Descriptive: Initial Local Conditions]

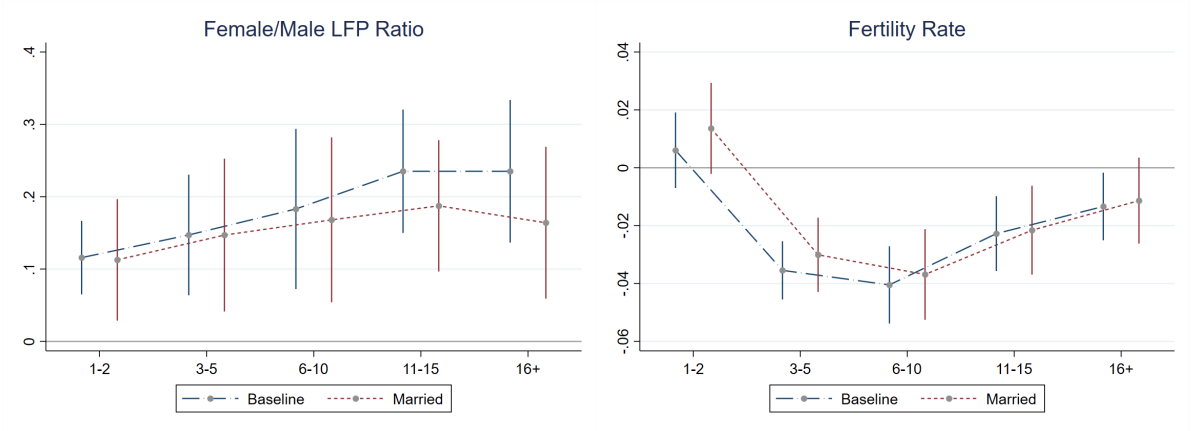


Figure 3.5: Impact of source country characteristics on the gender gap by YSM and gender

Appendix

Table 3.12: Countries in the sample

Country of birth	Frequency (in %)	Observations	Individuals
Afghanistan	7.276711	40155	8451
Albanie	.1263072	697	119
Algérie	.5550633	3063	447
Angola	1.504452	8302	764
Arabie saoudite	.0822719	454	103
Arménie	.2781659	1535	246
Azerbaïdjan	.1592885	879	135
Bangladesh	.2863206	1580	188
Bélarus	.0643315	355	65
Bénin	.0581702	321	51
Bosnie et Herzeg	2.312492	12761	1132
Burkina Faso	.0710365	392	49
Burundi	.142073	784	98
Cameroun	.5469086	3018	356
Chine	3.957929	21841	3394
Colombie	.4916378	2713	257
Congo (Brazzaville)	.293388	1619	148
Congo (Kinshasa)	2.101557	11597	1273
Côte d'Ivoire	.411903	2273	356
Cuba	.0797348	440	48
Egypte	.1226829	677	143
Erythrée	17.19826	94905	18081
Ethiopie	3.482057	19215	3062

Continued on next page

Table 3.12: Countries in the sample (Continued)

Country of birth	**Frequency (in %)**	**Observations**	**Individuals**
Gambie	.1080045	596	207
Géorgie	.2170962	1198	282
Ghana	.0382365	211	65
Guinée	.28922	1596	345
Guinée-Bissau	.0844464	466	170
Inde	.1165216	643	84
Irak	8.152163	44986	5396
Iran	3.517756	19412	3169
Jordanie	.0594387	328	42
Kazakhstan	.057989	320	41
Kenya	.0585326	323	49
Kirghizistan	.0380553	210	36
Kosovo	3.707489	20459	1998
Koweït	.0398674	220	33
Liban	.1634564	902	133
Libéria	.093326	515	83
Libye	.5316864	2934	359
Macédoine	.3655118	2017	297
Mali	.0599823	331	139
Maroc	.1667183	920	213
Mauritanie	.0164906	91	41
Mongolie	.1585636	875	195
Monténégro	.100031	552	59
Myanmar	.067231	371	51
Népal	.0927824	512	102

Continued on next page

Table 3.12: Countries in the sample (Continued)

Country of birth	**Frequency (in %)**	**Observations**	**Individuals**
Niger	.0494718	273	48
Nigéria	.4492334	2479	587
Ouganda	.0567205	313	59
Ouzbékistan	.0779227	430	53
Pakistan	.5204511	2872	582
Palestine	.0587138	324	42
Russie	.8682037	4791	634
Rwanda	.1900951	1049	89
Sénégal	.048747	269	74
Serbie	1.968001	10860	1091
Sierra Leone	.0991249	547	87
Somalie	5.412546	29868	4378
Soudan	1.017888	5617	1189
Sri Lanka	9.525596	52565	7034
Syrie	7.283597	40193	9240
Tanzanie	.0293569	162	33
Tchad	.0511028	282	37
Tibet	.6661484	3676	431
Togo	1.078957	5954	578
Tunisie	1.077508	5946	604
Turquie	8.893516	49077	4921
Ukraine	.1232266	680	152
Vietnam	.1759603	971	64
Yémen	.3745726	2067	236
Total	100	551829	84798

Table 3.13: Indicator list: Source Countries

Indicator list: Source Countries			
Indicator name	Definition	Source	Years available
Female-to-Male LFP Ratio	Ratio of female to male labor force participation rate (%) (modeled ILO estimate), Ratio of female to male labor force participation rate is calculated by dividing female labor force participation rate by male labor force participation rate and multiplying by 100.	ILO	1998-2018
Fertility Rate	Fertility rate, total (births per woman). Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year.	World Development Indicators	1998-2018

Table 3.14: Indicator list: Local Conditions Cantons

Indicator list: Local Conditions Cantons			
Indicator name	Definition	Source	Years available
Vote on gender equality	The average over the shares (in %) of votes in favor of the three referenda: 1) Volksinitiative «Gleiche Rechte für Mann und Frau» 2) Bundesgesetz über Mutterschaftsversicherung 3) Eidgenössische Volksabstimmung über die Änderung des Bundesgesetzes über die Alters- und Hinterlassenenversicherung	Federal Statistical Office Switzerland	1) 1981, 2) 1999, 3) 2022
Unemployment rate	At the cantonal level. This measure of the unemployment rate covers the universe of all unemployed individuals who are registered at a regional employment office. As it includes only permanent residents, asylum seekers (permit N) and temporarily admitted refugees (permit F) are not taken into account in this measure of the unemployment rate.	State Secretariat of Economic Affairs (SECO)	1998-2018
Co-ethnic networks	Number of co-nationals residing in the canton of arrival at the time of arrival. We take the logarithm of the number (1 + the number of co-nationals). In addition, we are not counting the individual itself to its own network.	Calculated from our dataset	1998-2018

Table 3.15: Impact of source country characteristics on women's employment by YSM

	(1)	(2)	(3)	(4)	(5)	(6)
Fertility Rate X 1-2 years	-0.0243**	-0.0424**	-0.0267**	-0.0316*	-0.0294**	-0.0370*
	(0.0111)	(0.0167)	(0.0106)	(0.0166)	(0.0141)	(0.0214)
Fertility Rate X 3-5 years	-0.0444***	-0.0233	-0.0474***	-0.0171	-0.0477***	-0.0198
	(0.0135)	(0.0150)	(0.0141)	(0.0121)	(0.0151)	(0.0174)
Fertility Rate X 6-10 years	-0.0403***	-0.0106	-0.0304**	-0.00500	-0.0366***	-0.00967
	(0.0120)	(0.0100)	(0.0143)	(0.00736)	(0.0127)	(0.0121)
Fertility Rate X 11-15 years	-0.0245**	-0.00406	-0.0194	-0.000745	-0.0221*	-0.00653
	(0.0112)	(0.00913)	(0.0117)	(0.00657)	(0.0125)	(0.0104)
Fertility Rate X 16+ years	-0.0148	-0.00226	-0.00921	-0.00171	-0.0125	-0.00758
	(0.0135)	(0.00921)	(0.0136)	(0.00732)	(0.0153)	(0.00989)
LFP Ratio X 1-2 years	0.0204	-0.129***	0.0232	-0.0518	0.0363	-0.111
	(0.0268)	(0.0404)	(0.0347)	(0.0662)	(0.0438)	(0.0688)
LFP Ratio X 3-5 years	0.138*	-0.135**	0.0863	-0.0476	0.166*	-0.0772
	(0.0704)	(0.0605)	(0.0816)	(0.0442)	(0.0892)	(0.0715)
LFP Ratio X 6-10 years	0.249***	0.0458	0.234**	0.0883***	0.254***	0.0712
	(0.0799)	(0.0488)	(0.100)	(0.0301)	(0.0886)	(0.0524)
LFP Ratio X 11-15 years	0.303***	0.0855*	0.305***	0.0875**	0.349***	0.130**
	(0.0627)	(0.0513)	(0.0632)	(0.0353)	(0.0660)	(0.0539)
LFP Ratio X 16+ years	0.321***	0.187***	0.328***	0.156***	0.401***	0.271***
	(0.0693)	(0.0586)	(0.0681)	(0.0476)	(0.0880)	(0.0549)
Sample	Only women	Only men	Only married women	Only married men	Only women	Only men
Observations	221201	330620	41560	34031	49365	68408
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.16: Impact of source country characteristics on the gender gap in employment by YSM

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	-0.0937	-0.0648	0.0183	0.00352	0.0851*	0.0525
	(0.234)	(0.244)	(0.217)	(0.221)	(0.0457)	(0.0584)
Female	-0.184	-0.138	-0.765***	-0.685***	-2.017	-1.835*
	(0.127)	(0.136)	(0.122)	(0.131)	(1.623)	(1.019)
Female X LFP Ratio X 1-2 years	0.259***	0.116***	0.275***	0.113***	-0.0166	-0.00440
	(0.0516)	(0.0255)	(0.0599)	(0.0421)	(0.0546)	(0.0414)
Female X LFP Ratio X 3-5 years	0.0773	0.147***	0.0979	0.147***	0.0907	0.121*
	(0.0522)	(0.0418)	(0.0675)	(0.0530)	(0.0945)	(0.0638)
Female X LFP Ratio X 6-10 years	0.0814	0.183***	0.0825	0.168***	0.183*	0.203***
	(0.0696)	(0.0555)	(0.0722)	(0.0571)	(0.0941)	(0.0714)
Female X LFP Ratio X 11-15 years	0.225***	0.235***	0.177***	0.187***	0.287***	0.295***
	(0.0486)	(0.0428)	(0.0460)	(0.0455)	(0.0640)	(0.0560)
Female X LFP Ratio X 16+ years	0.270***	0.235***	0.199***	0.164***	0.360***	0.355***
	(0.0502)	(0.0495)	(0.0513)	(0.0526)	(0.0928)	(0.0899)
Fertility rate		0.0348**		0.0277		-0.0108
		(0.0134)		(0.0175)		(0.0137)
Female X Fertility Rate X 1-2 years		0.00605		0.0136*		-0.0204**
		(0.00655)		(0.00789)		(0.00799)
Female X Fertility Rate X 3-5 years		-0.0355***		-0.0301***		-0.0393***
		(0.00505)		(0.00644)		(0.00799)
Female X Fertility Rate X 6-10 years		-0.0405***		-0.0369***		-0.0295***
		(0.00670)		(0.00786)		(0.00928)
Female X Fertility Rate X 11-15 years		-0.0228***		-0.0216***		-0.0140
		(0.00648)		(0.00770)		(0.00873)
Female X Fertility Rate X 16+ years		-0.0134**		-0.0114		-0.00379
		(0.00586)		(0.00745)		(0.0108)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	551829	551829	285968	285968	117801	117801
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.17: Robustness: Greater Region FE

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.211***	0.180***	0.254***	0.235***	0.269***	0.235***
	(0.0611)	(0.0610)	(0.0735)	(0.0754)	(0.0660)	(0.0710)
Fertility rate		-0.0323**		-0.0208		-0.0297**
		(0.0126)		(0.0133)		(0.0134)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	221206	221206	41561	41561	49375	49375
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Greater region X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.18: Robustness: Greater Region FE, Gap

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.0477	0.0820	-0.763***	-0.618***	-0.418*	-0.305
	(0.190)	(0.198)	(0.125)	(0.143)	(0.217)	(0.229)
Female/Male LFP Ratio	-0.0945	-0.0815	0.0220	0.00885	-0.0578	-0.0625
	(0.236)	(0.253)	(0.221)	(0.225)	(0.303)	(0.320)
Fertility rate		0.0210		0.0156		0.0186
		(0.0141)		(0.0166)		(0.0194)
Female X LFP Ratio	0.153***	0.163***	0.137**	0.142***	0.132**	0.141***
	(0.0573)	(0.0417)	(0.0622)	(0.0488)	(0.0634)	(0.0494)
Female X Fertility Rate		-0.0270***		-0.0239***		-0.0222***
		(0.00592)		(0.00727)		(0.00711)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	551829	551829	285969	285969	117802	117802
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Greater Region X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.19: Robustness: Canton control variables

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.211***	0.181***	0.253***	0.233***	0.270***	0.236***
	(0.0613)	(0.0611)	(0.0740)	(0.0755)	(0.0671)	(0.0721)
Fertility rate		-0.0321**		-0.0209		-0.0292**
		(0.0126)		(0.0132)		(0.0136)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	221201	221201	41560	41560	49365	49365
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	No	No	No	No
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.20: Robustness: Canton control variables, Gap

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.0495	0.0801	-0.767***	-0.622***	-0.420*	-0.307
	(0.190)	(0.198)	(0.127)	(0.145)	(0.216)	(0.228)
Female/Male LFP Ratio	-0.0923	-0.0795	0.0248	0.0117	-0.0423	-0.0491
	(0.236)	(0.254)	(0.224)	(0.228)	(0.304)	(0.321)
Fertility rate		0.0210		0.0156		0.0178
		(0.0141)		(0.0167)		(0.0193)
Female X LFP Ratio	0.154***	0.164***	0.138**	0.142***	0.133**	0.141***
	(0.0575)	(0.0419)	(0.0623)	(0.0490)	(0.0641)	(0.0503)
Female X Fertility Rate		-0.0270***		-0.0239***		-0.0220***
		(0.00596)		(0.00732)		(0.00716)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	551829	551829	285968	285968	117801	117801
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	No	No	No	No
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.21: Robustness: Distance controls

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.204***	0.115**	0.218***	0.220***	0.254***	0.222***
	(0.0525)	(0.0511)	(0.0649)	(0.0715)	(0.0508)	(0.0594)
Fertility rate		-0.0290**		0.000762		-0.00909
		(0.0121)		(0.0187)		(0.0167)
Geographic distance	0.0948***	0.139***	0.106***	0.105**	0.105***	0.119***
	(0.0304)	(0.0348)	(0.0378)	(0.0446)	(0.0304)	(0.0369)
Linguistic distance	-2.339***	-0.925	-2.593**	-2.630*	-2.071***	-1.563
	(0.724)	(0.887)	(1.137)	(1.433)	(0.726)	(1.046)
Religious distance	0.276**	-0.0653	0.162	0.171	0.303**	0.187
	(0.121)	(0.174)	(0.146)	(0.263)	(0.119)	(0.226)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	189096	189096	35158	35158	40544	40544
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.22: Robustness: Age range 26-59

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.229***	0.198***	0.260***	0.240***	0.279***	0.245***
	(0.0618)	(0.0623)	(0.0730)	(0.0747)	(0.0673)	(0.0715)
Fertility rate		-0.0318**		-0.0203		-0.0289**
		(0.0126)		(0.0131)		(0.0132)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	197367	197367	39843	39843	45955	45955
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.23: Robustness Gap: Age range 26-59

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.734***	-0.591***	-1.029***	-0.873***	-1.017***	-0.901***
	(0.199)	(0.202)	(0.113)	(0.117)	(0.231)	(0.235)
Female/Male LFP Ratio	-0.0830	-0.104	0.00207	-0.0170	-0.0761	-0.0626
	(0.229)	(0.244)	(0.223)	(0.227)	(0.307)	(0.322)
Fertility rate		0.0151		0.0149		0.0246
		(0.0159)		(0.0161)		(0.0219)
Female X LFP Ratio	0.134**	0.145***	0.136**	0.140***	0.118*	0.127**
	(0.0657)	(0.0490)	(0.0639)	(0.0506)	(0.0685)	(0.0554)
Female X Fertility Rate		-0.0275***		-0.0241***		-0.0213***
		(0.00656)		(0.00755)		(0.00769)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	471816	471816	273068	273068	108200	108200
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.24: Robustness: Without european countries

	(1)	(2)	(3)	(4)	(5)	(6)
Female/Male LFP Ratio	0.227***	0.204***	0.256***	0.242***	0.284***	0.259***
	(0.0654)	(0.0648)	(0.0768)	(0.0785)	(0.0733)	(0.0760)
Fertility rate		-0.0323**		-0.0206		-0.0280*
		(0.0130)		(0.0148)		(0.0140)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	170472	170472	31035	31035	36187	36187
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.25: Robustness: Without european countries, Gap

	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.114	0.226	-0.627***	-0.495***	-0.214	-0.135
	(0.183)	(0.193)	(0.162)	(0.169)	(0.222)	(0.241)
Female/Male LFP Ratio	-0.167	-0.184	0.00574	-0.0427	-0.0778	-0.0651
	(0.283)	(0.305)	(0.291)	(0.294)	(0.372)	(0.399)
Fertility rate		0.0190		0.0174		0.0226
		(0.0139)		(0.0157)		(0.0162)
Female X LFP Ratio	0.164***	0.174***	0.131**	0.144***	0.144**	0.151***
	(0.0516)	(0.0433)	(0.0574)	(0.0516)	(0.0558)	(0.0509)
Female X Fertility Rate		-0.0246***		-0.0224**		-0.0161*
		(0.00678)		(0.00896)		(0.00869)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	449571	449571	210077	210077	90235	90235
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.26: Robustness: Two-way clustering

	(Country)	(Country X year)	(Country)	(Country X year)	(Country)	(Country X year)
Female/Male LFP Ratio	0.178***	0.178***	0.230***	0.230***	0.235***	0.235***
	(0.0606)	(0.0230)	(0.0749)	(0.0300)	(0.0716)	(0.0336)
Fertility rate	-0.0323**	-0.0323***	-0.0208	-0.0208***	-0.0294**	-0.0294***
	(0.0126)	(0.00561)	(0.0133)	(0.00591)	(0.0136)	(0.00696)
Sample	Women	Women	Married women	Married women	Women, Structural Survey	Women, Structural Survey
Observations	221201	221201	41560	41560	49365	49365
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	No	No	No	No	No	No
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country-arrival year level.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.27: Robustness: Two-way clustering, Gap

	(Country)	(Country X year)	(Country)	(Country X year)	(Country)	(Country X year)
Female	0.0793	0.0793	-0.625***	-0.625***	-0.304	-0.304**
	(0.198)	(0.0886)	(0.145)	(0.106)	(0.228)	(0.124)
Female/Male LFP Ratio	-0.0805	-0.0805	0.00819	0.00819	-0.0565	-0.0565
	(0.252)	(0.135)	(0.226)	(0.152)	(0.324)	(0.185)
Fertility rate	0.0211	0.0211**	0.0156	0.0156	0.0186	0.0186
	(0.0139)	(0.00992)	(0.0165)	(0.0110)	(0.0196)	(0.0151)
Female X LFP Ratio	0.163***	0.163***	0.142***	0.142***	0.141***	0.141***
	(0.0417)	(0.0327)	(0.0488)	(0.0344)	(0.0503)	(0.0374)
Female X Fertility Rate	-0.0271***	-0.0271***	-0.0240***	-0.0240***	-0.0221***	-0.0221***
	(0.00594)	(0.00337)	(0.00727)	(0.00400)	(0.00714)	(0.00502)
Sample	All	All	Married	Married	Structural Survey	Structural Survey
Observations	551829	551829	285968	285968	117801	117801
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of arrival FE	Yes	Yes	Yes	Yes	Yes	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner controls	No	No	Yes	Yes	No	No
Education FE	No	No	No	No	Yes	Yes

All regressions include source country GDP (in logs).

Standard errors are clustered at the country of birth level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.28: Impact of local conditions in the canton of arrival on the gender gap in employment- Vote on gender equality

	(1)	(2)	(3)	(4)	(5)	(6)
Vote gender equality	-0.0996**	-0.0153		-0.0577	0.0460	
	(0.0431)	(0.0561)		(0.0608)	(0.102)	
Unemployment rate	-0.0202***	-0.0109**	-0.0159**	-0.0296***	-0.0108	-0.0129
	(0.00429)	(0.00480)	(0.00678)	(0.00563)	(0.00863)	(0.0112)
Co-national network (log)	0.00429	-0.00350	-0.00490	0.00985	0.0000985	-0.00107
	(0.00454)	(0.00446)	(0.00449)	(0.00829)	(0.00856)	(0.00865)
Female X Vote gender equality	0.129***	0.129***	0.132***	0.240***	0.232***	0.237***
	(0.0496)	(0.0454)	(0.0455)	(0.0869)	(0.0879)	(0.0882)
Female X Unemployment	-0.00526	-0.00815*	-0.00824*	-0.0167**	-0.0190**	-0.0194**
	(0.00505)	(0.00467)	(0.00462)	(0.00792)	(0.00794)	(0.00795)
Female X Co-national network	0.0181***	0.0237***	0.0244***	0.0158	0.0236*	0.0243*
	(0.00670)	(0.00663)	(0.00654)	(0.0134)	(0.0131)	(0.0130)
Sample	All	All	All	Struct. Survey	Struct. Survey	Struct. Survey
Observations	551752	551752	551752	117779	117778	117778
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	Yes	No	No	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	No	Yes	Yes	No	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes

All regressions also include canton-of-arrival controls (interacted with Female): log Population, log Median wages.

Individual controls are: Age, Age squared, Female, Speaks local language.

Standard errors are clustered at the level Canton of arrival X Year of arrival

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.29: Impact of local conditions in the canton of arrival on the gender gap in employment - All three votes separately

	(1)	(2)	(3)	(4)	(5)	(6)
Vote gender equality	-0.0217	-0.0167		0.0573	0.0863	
	(0.0482)	(0.0660)		(0.0702)	(0.136)	
Vote retirement age	0.316***	-0.00911		0.174	-0.0328	
	(0.0834)	(0.121)		(0.124)	(0.228)	
Vote maternity leave	0.0450	0.00107		-0.0871	-0.0516	
	(0.0602)	(0.0788)		(0.0910)	(0.164)	
Unemployment rate	-0.0132**	-0.0115**	-0.0165**	-0.0165**	-0.0114	-0.0164
	(0.00567)	(0.00570)	(0.00695)	(0.00786)	(0.00972)	(0.0114)
Co-national network (log)	0.00197	-0.00341	-0.00481	0.00620	0.000266	-0.000497
	(0.00442)	(0.00447)	(0.00450)	(0.00841)	(0.00859)	(0.00866)
Female X Vote gender equality	0.118**	0.134**	0.133**	0.272**	0.280**	0.285***
	(0.0582)	(0.0557)	(0.0554)	(0.109)	(0.110)	(0.110)
Female X Vote retirement age	-0.141	-0.122	-0.130	-0.184	-0.210	-0.244
	(0.104)	(0.0995)	(0.0995)	(0.183)	(0.180)	(0.180)
Female X Vote maternity leave	-0.0652	-0.0733	-0.0717	-0.160	-0.181	-0.203
	(0.0780)	(0.0744)	(0.0742)	(0.144)	(0.142)	(0.143)
Female X Unemployment	-0.00454	-0.00619	-0.00669	-0.00952	-0.0113	-0.0109
	(0.00686)	(0.00631)	(0.00630)	(0.0111)	(0.0111)	(0.0111)
Female X Co-national network	0.0184***	0.0232***	0.0240***	0.0143	0.0219*	0.0224*
	(0.00671)	(0.00671)	(0.00663)	(0.0136)	(0.0133)	(0.0132)
Sample	All	All	All	Struct. Survey	Struct. Survey	Struct. Survey
Observations	551752	551752	551752	117779	117778	117778
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	Yes	No	No	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	No	Yes	Yes	No	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes

All regressions also include canton-of-arrival controls (interacted with Female): log Population, log Median wages.

Individual controls are: Age, Age squared, Female, Speaks local language.

Standard errors are clustered at the level Canton of arrival X Year of arrival

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3.30: Impact of local conditions in the canton of arrival on the gender gap in employment: Two votes

	(1)	(2)	(3)	(4)	(5)	(6)
Vote gender equality	-0.0193	-0.0164		0.0641	0.0871	
	(0.0486)	(0.0661)		(0.0705)	(0.135)	
Vote maternity leave	-0.126***	0.00205		-0.191***	-0.0437	
	(0.0442)	(0.0558)		(0.0624)	(0.105)	
Unemployment rate	-0.00997*	-0.0111*	-0.0159**	-0.0138*	-0.0103	-0.0148
	(0.00583)	(0.00568)	(0.00692)	(0.00797)	(0.00973)	(0.0115)
Co-national network (log)	0.00125	-0.00344	-0.00490	0.00591	0.000225	-0.000611
	(0.00446)	(0.00448)	(0.00450)	(0.00841)	(0.00858)	(0.00866)
Female X Vote gender equality	0.118**	0.133**	0.132**	0.265**	0.269**	0.273**
	(0.0584)	(0.0556)	(0.0553)	(0.108)	(0.109)	(0.109)
Female X Vote maternity leave	0.00861	-0.00619	-0.000113	-0.0498	-0.0569	-0.0584
	(0.0528)	(0.0506)	(0.0503)	(0.0933)	(0.0927)	(0.0934)
Female X Unemployment	-0.00557	-0.00764	-0.00823	-0.0123	-0.0144	-0.0145
	(0.00689)	(0.00624)	(0.00624)	(0.0109)	(0.0108)	(0.0109)
Female X Co-national network	0.0186***	0.0235***	0.0244***	0.0146	0.0225*	0.0231*
	(0.00675)	(0.00671)	(0.00664)	(0.0136)	(0.0133)	(0.0132)
Sample	All	All	All	Struct. Survey	Struct. Survey	Struct. Survey
Observations	551752	551752	551752	117779	117778	117778
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	Yes	No	No	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	No	Yes	Yes	No	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes

All regressions also include canton-of-arrival controls (interacted with Female): log Population, log Median wages.

Individual controls are: Age, Age squared, Female, Speaks local language.

Standard errors are clustered at the level Canton of arrival X Year of arrival

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.31: Impact of local conditions in the canton of arrival on the gender gap in employment: Attitudes

	(1)	(2)	(3)	(4)	(5)	(6)
Attitudes	-0.0845***	-0.0200		-0.130***	0.00453	
	(0.0214)	(0.0299)		(0.0320)	(0.0504)	
Unemployment rate	-0.0121**	-0.00889*	-0.0153**	-0.00994	-0.00973	-0.0160
	(0.00469)	(0.00531)	(0.00684)	(0.00669)	(0.00896)	(0.0114)
Co-national network (log)	0.000856	-0.00466	-0.00616	0.00599	-0.000734	-0.00211
	(0.00453)	(0.00443)	(0.00448)	(0.00828)	(0.00860)	(0.00870)
Female X Attitudes	0.0623**	0.0597**	0.0598**	0.0633	0.0581	0.0554
	(0.0276)	(0.0257)	(0.0256)	(0.0491)	(0.0471)	(0.0471)
Female X Unemployment	-0.00758	-0.00999*	-0.00992*	-0.0119	-0.0133	-0.0128
	(0.00618)	(0.00566)	(0.00565)	(0.0103)	(0.00989)	(0.00990)
Female X Co-national network	0.0213***	0.0270***	0.0277***	0.0189	0.0266**	0.0272**
	(0.00665)	(0.00659)	(0.00650)	(0.0134)	(0.0132)	(0.0131)
Sample	All	All	All	Struct. Survey	Struct. Survey	Struct. Survey
Observations	551752	551752	551752	117779	117778	117778
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	Yes	No	No	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	No	Yes	Yes	No	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes

All regressions also include canton-of-arrival controls (interacted with Female): log Population, log Median wages.

Individual controls are: Age, Age squared, Female, Speaks local language.

Standard errors are clustered at the level Canton of arrival X Year of arrival

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.32: Impact of local conditions in the canton of arrival on the gender gap in employment - Networks of (not-)working co-nationals

	(1)	(2)	(3)	(4)	(5)	(6)
Vote indicator	-0.217***	-0.0211		-0.211***	0.0263	
	(0.0510)	(0.0668)		(0.0734)	(0.113)	
Unemployment rate	-0.00904*	-0.00954*	-0.0141**	-0.0161**	-0.00911	-0.0115
	(0.00523)	(0.00559)	(0.00699)	(0.00755)	(0.00962)	(0.0115)
Network of working co-nationals (log)	0.0246***	0.00964**	0.0109**	0.0148**	0.00520	0.00582
	(0.00499)	(0.00429)	(0.00422)	(0.00671)	(0.00672)	(0.00687)
Network of not working co-nationals (log)	-0.0279***	-0.0187***	-0.0215***	-0.0114	-0.0103	-0.0126
	(0.00552)	(0.00507)	(0.00499)	(0.00983)	(0.00989)	(0.00990)
Female X Vote indicator	0.157***	0.146***	0.154***	0.229**	0.217**	0.224**
	(0.0593)	(0.0554)	(0.0554)	(0.107)	(0.106)	(0.107)
Female X Unemployment	-0.00955	-0.0112*	-0.0117**	-0.0194*	-0.0209**	-0.0216**
	(0.00631)	(0.00585)	(0.00583)	(0.0105)	(0.0103)	(0.0104)
Female X Network of working co-nationals	-0.0170***	-0.0124**	-0.0132**	-0.00566	-0.00153	-0.00139
	(0.00611)	(0.00594)	(0.00592)	(0.0133)	(0.0127)	(0.0127)
Female X Network of not working co-nationals	0.0362***	0.0352***	0.0367***	0.0245	0.0265*	0.0274*
	(0.00730)	(0.00728)	(0.00723)	(0.0160)	(0.0157)	(0.0158)
Sample	All	All	All	Struct. Survey	Struct. Survey	Struct. Survey
Observations	551752	551752	551752	117779	117778	117778
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Canton of arrival FE	No	No	Yes	No	No	Yes
Current year FE	Yes	Yes	Yes	Yes	Yes	Yes
Current canton X current year FE	No	Yes	Yes	No	Yes	Yes
Country of birth X Year of arrival X Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes

All regressions also include canton-of-arrival controls (interacted with Female): log Population, log Median wages.

Individual controls are: Age, Age squared, Female, Speaks local language.

Standard errors are clustered at the level Canton of arrival X Year of arrival

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

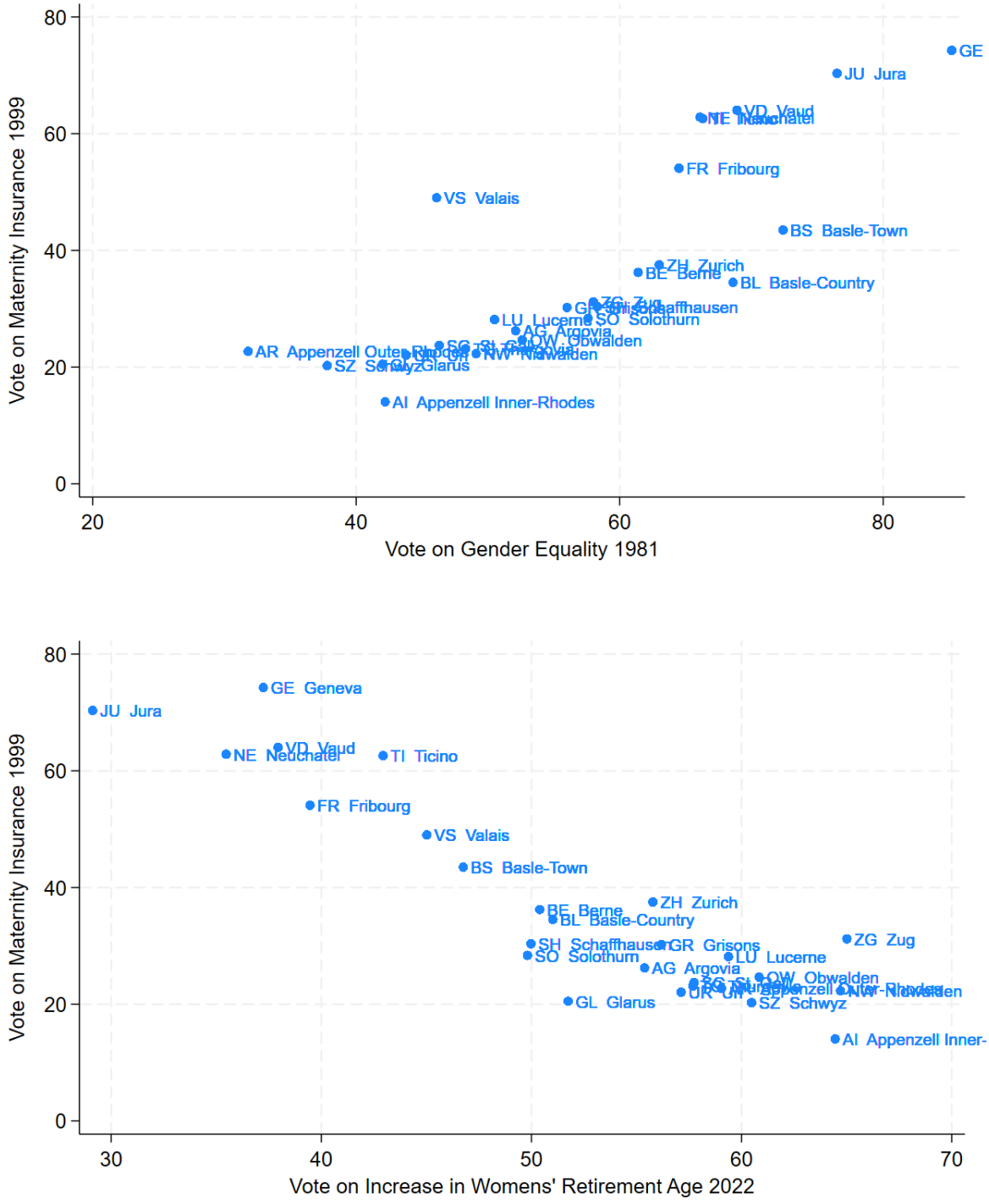


Figure 3.6: Votes on the issue of gender equality in Switzerland

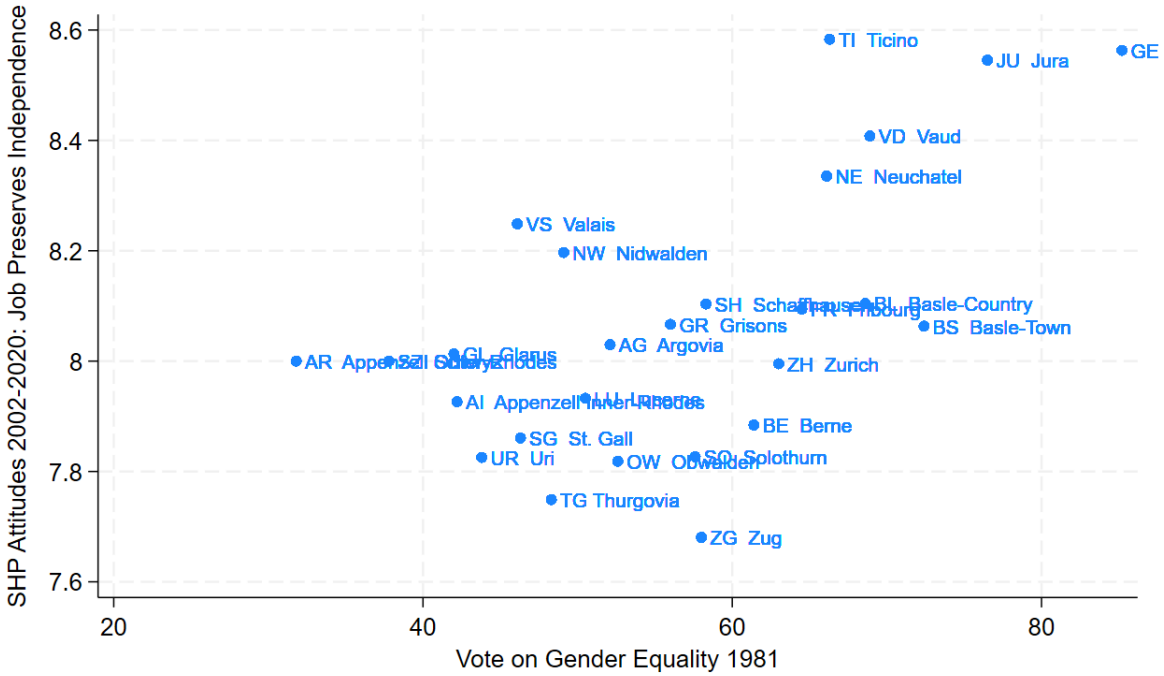
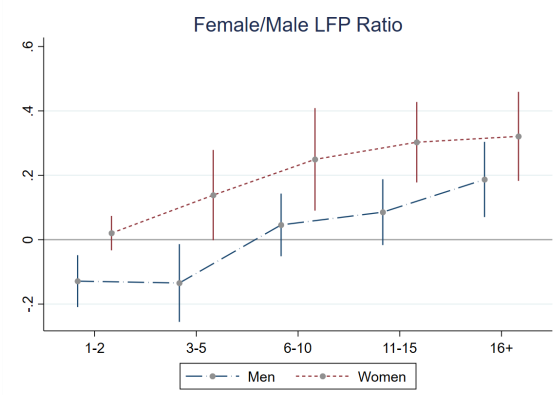
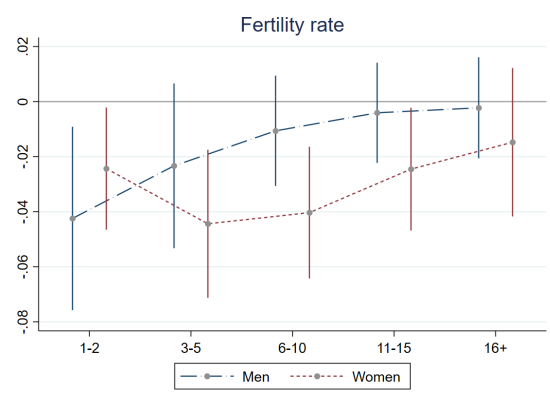


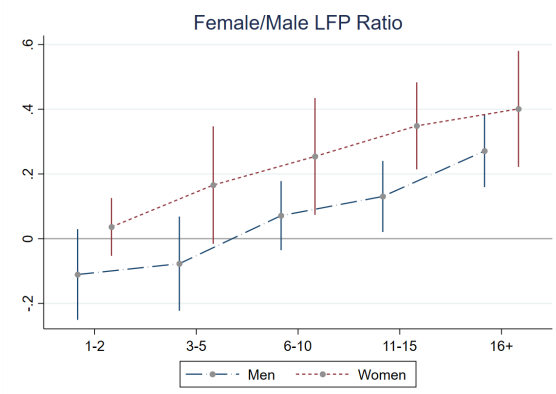
Figure 3.7: Votes and Attitudes related to gender equality in Switzerland



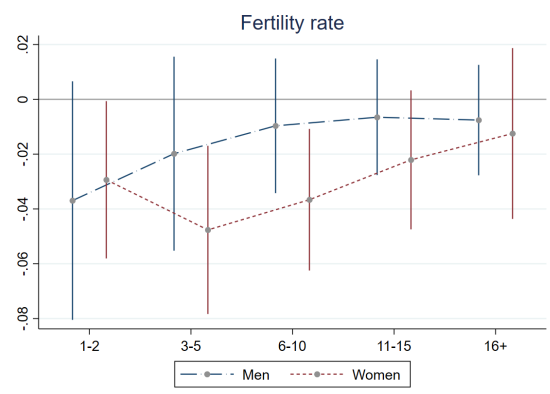
(a) Full sample



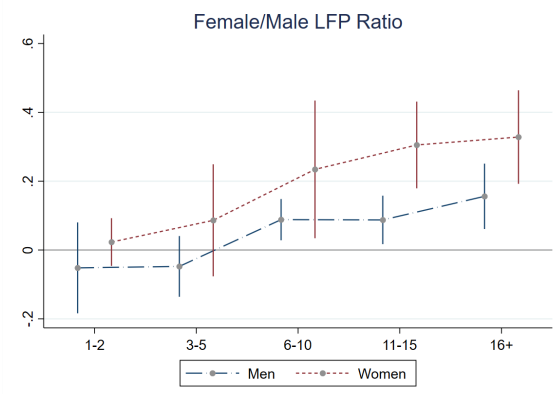
(b) Full sample



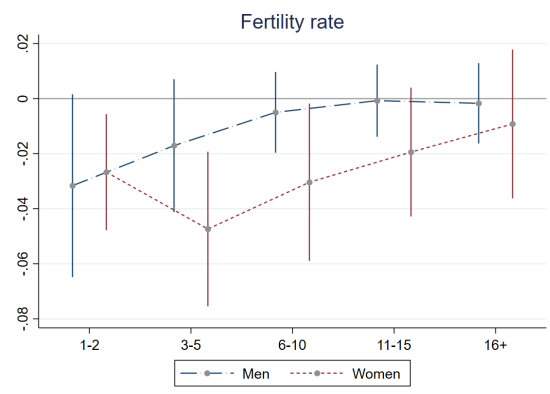
(c) Structural Survey Subsample



(d) Structural Survey Subsample



(e) Married subsample



(f) Married subsample

Figure 3.8: Impact of source country characteristics on employment by YSM

Conclusion

In this thesis, I examine various facets of labor market integration and adaptation within Switzerland, addressing how policy changes, local economic conditions, and cultural factors shape educational and employment outcomes for both native and refugee populations. Through three distinct studies, I highlight the complex dynamics between labor market access, competition, and the influence of cultural and local attitudes.

The first chapter reveals the long-term effects of policy reforms that eased labor market access for cross-border workers, particularly on the educational choices of young Swiss natives. Here, increased competition spurred a shift toward higher education, particularly for those entering university tracks in the years following the policy change, while apprenticeship completion declined. These findings suggest that competition from CBW pushed young natives to invest in higher education to improve their market prospects, though further research is needed to determine the full extent of this effect over time.

The second chapter provides insights into the labor market integration trajectories of refugees in Switzerland, emphasizing the role of initial unemployment rates, local attitudes, and co-ethnic networks. Initial unemployment has a lasting, cumulative effect on refugee employment probabilities, while restrictive local attitudes contribute to faster integration in the short term, possibly due to increased job search intensity. These results underscore how initial conditions shape the labor market integration of refugees over decades, with both unemployment and attitudes affecting their prospects long after arrival.

The third chapter explores gender disparities among refugees, focusing on how cultural backgrounds and local gender attitudes impact the employment outcomes of female refugees. The study finds that cultural factors, such as higher female-to-male labor force participation and lower fertility rates in refugees' source countries, positively influence women's employment and earnings in Switzerland and reduce the gender gap in employment. Furthermore, local gender attitudes within Swiss cantons amplify these effects, with progressive attitudes narrowing the gender gap significantly. This study emphasizes the importance of both origin-country culture

and local context in understanding the gendered dimensions of labor market integration for refugees.

Together, these chapters contribute to a nuanced understanding of labor market dynamics in Switzerland, illustrating how policies, economic conditions, and cultural attitudes intersect to influence the educational and employment trajectories of natives and refugees. The findings also point to important considerations for future policy, such as supporting educational adaptation among natives and addressing gender-specific integration challenges among refugees.

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