

ORIGINAL ARTICLE

Open Access



Are asylum seekers more likely to work with more inclusive labor market access regulations?

Michaela Slotwinski^{1,2}, Alois Stutzer^{1*}  and Roman Uhlig¹

Abstract

In the face of recent refugee migration, early integration of asylum seekers into the labor market has been proposed as an important mechanism for easing their economic and social lot in the short as well as in the long term. However, little is known about the policies that foster or hamper their participation in the labor market, in particular during the important initial period of their stay in the host country. In order to evaluate whether inclusive labor market policies increase the labor market participation of asylum seekers, we exploit the variation in asylum policies in Swiss cantons to which asylum seekers are as good as randomly allocated. During our study period from 2011 to 2014, the employment rate among asylum seekers varied between 0 and 30.2% across cantons. Our results indicate that labor market access regulations are responsible for a substantial proportion of these differences, in which an inclusive regime increases participation by 11 percentage points. The marginal effects are larger for asylum seekers who speak a language that is linguistically close to the one in their host canton.

Summary: Inclusive labor market access regulations substantially increase the employment chances of asylum seekers, in particular if the language distance is short.

Keywords: Asylum policy, Asylum seekers, Economic integration, Employment ban, Labor market access regulation

JEL classifications: F22, J61, J15

1 Introduction

Refugee migration is likely to challenge Western democracies for years and to spur discussions about humane as well as efficient asylum processes (see, e.g., Hatton 2017 or Hangartner and Sarvimäki 2017 for recent analyses). How asylum seekers make a living features prominently in this debate (see, e.g., Bansak et al. 2016). It colors the discourse beyond the treatment of refugees and seems to affect attitudes towards migrants in general¹. This is because the economic integration of asylum seekers faces a dilemma. On the one hand, there is the concern that easy access to the labor market attracts migrants²; on the other, restrictive policies preventing early economic integration might lead to high long-term costs for the receiving countries. In fact, a recent study finds large negative effects of

a long initial employment ban on long-term labor force participation (Marbach et al. 2018). In order to assess any trade-off, it is thus key to understand how regulation of the asylum process affects the employment of asylum seekers, i.e., the most fundamental resource for economic self-sufficiency.

In this paper, we analyze the effect of a more or less open labor market regulation on the labor force participation of asylum seekers, i.e., people who have applied for asylum but have not yet received a decision. Our index for labor market access considers four aspects: (i) the temporal expansion of an initial employment ban, (ii) the duration of the work permit process, (iii) whether there is restricted access to some sectors or strict application of the priority rule for domestic workers, and (iv) whether there are additional salary deductions for employed asylum seekers. The institutional setting in Switzerland is well-suited to learning about conditions fostering or hampering the economic integration of asylum seekers. First,

*Correspondence: alois.stutzer@unibas.ch

¹University of Basel, Faculty of Business and Economics, Peter Merian-Weg 6, 4002 Basel, Switzerland

Full list of author information is available at the end of the article

while there is national asylum legislation on labor market regulations, social assistance and integration, the Swiss federal system offers its states (the cantons) substantial discretion in the implementation of the law. This results in a significant variation in cantonal practices in labor market access regulations, integration measures, and social assistance, as documented by an in-depth survey undertaken by the Swiss Forum for Migration and Population Studies (SFM) (Wichmann et al. 2011). Second, the evaluation is not hampered by any self-selection of asylum seekers into different cantons, because they are as good as randomly allocated to the cantons and are not allowed to relocate until the end of their asylum application process³. Third, the asylum applications are decided at the federal (and not at the cantonal) level. Finally, it is very unlikely that asylum seekers look for employment outside the canton they were assigned to, as the probability of finding a position and getting the approval of the other canton is very low⁴. We can therefore compare the Swiss cantons as independent, closed economies when it comes to asylum seekers.

In Switzerland as in most Western countries, asylum seekers represent a small fraction of the foreign population⁵, but a prominent one in the public debate. During our study period from 2011 to 2014, the employment rate among employable asylum seekers varied between 0 and 30.2% across cantons (with a standard deviation of 6.0%). Our results indicate that labor market access regulations are responsible for a substantial fraction of these differences. An inclusive regime, on average, increases participation by 11 percentage points. In contrast, our results suggest that the activation and education of asylum seekers in integration programs is a substitute to early employment and related to slightly lower employment rates. We do not find any evidence that more or less generous social welfare payments are related to the take-up of employment. Further, our results indicate that inclusive labor market access regulations are more beneficial for asylum seekers who speak a language that is closer to the language in their canton of residence (the main languages in Switzerland being German, French, and Italian).

Our findings complement recent work on the economics and politics of refugee migration and integration. In an excellent review, Dustmann et al. (2017) emphasize the important role of the asylum process for economic integration, stating that “clear rules and support mechanisms are needed early on in the migration history, together with fast processing times, fast access to the labour market and active integration programs” (p. 501). Our evidence shows that small policy differences can play a decisive role in the economic inclusion of asylum seekers. Relatedly, Couttenier et al. (2016) report results indicating that more inclusive labor market regulations

mitigate the risk that victimized asylum seekers will commit crimes. The effect of foreign citizens’ language skills on the labor market integration of refugees has been studied by Auer (2018). He exploits the random placement of asylum seekers across cantons in Switzerland, and thus across language regions, as a natural experiment. For asylum seekers registered as jobseekers, Auer finds positive effects on the probability of being employed if initial placements include good language matches. In another study exploiting the Swiss institutional setting, Hainmueller et al. (2016) show that long-term employment chances of refugees are substantially reduced when asylum processes take longer. Further, Marbach et al. (2018) show that an extension of the employment ban for Kosovar refugees in Germany reduced their long-term employment prospects. These latter findings underscore the importance of labor market access regulations for asylum seekers.

The remainder of our paper is structured as follows. Section 2 describes the institutional setting and provides an overview of the policy options in the asylum process at the sub-federal level. The data used in our analysis are presented in Section 3. Section 4 presents the results of our empirical analyses. Section 5 closes with some concluding remarks.

2 Institutional setting

The asylum practices in Switzerland is a shared responsibility of the federal and the cantonal governments. We first describe the framework of the asylum process at the federal level and then highlight the variation in its implementation in the 26 Swiss cantons. The remarks on the institutional setting prepare for our detailed description of the data and the corresponding coding in Section 3.

2.1 Federal asylum process

People who seek asylum in Switzerland are initially brought to one of the six accommodation and provisioning centers run by the State Secretariat for Migration (SEM)⁶. The staff in these centers takes the initial decision on whether an asylum request is to be processed or dismissed. If an application is dismissed under Art. 31a of the federal asylum law (abbr.: AsylG), the applicant is obliged to leave the country⁷. If the prerequisites for processing the asylum application are met, the applicants are granted a residence permit N—*asylum seeker*—for the rest of the asylum process. After a maximum of 3 months in the accommodation and provisioning centers, the asylum seekers are assigned to one of the 26 Swiss cantons. The asylum seekers have no impact on this allocation process. It is solely determined by an allocation key based on the population size of the cantons according to Art. 21 of the asylum decree 1 (abbr.: AsylV

1). In consequence, this leads to an as good as random allocation⁸. The asylum seekers usually have no opportunity to relocate to other cantons until a final decision about their case is made. A change of cantons could be authorized by the SEM in cases of grave danger or family reunion and if both cantons involved give their consent. The right to family reunification usually only includes spouses and minor children/siblings (Hofmann et al. 2014, p. 18). How long the asylum procedure takes differs widely from case to case⁹. Importantly, the decisions about the applications are taken at the federal level. The cantons have no say in the decisions of the SEM¹⁰. If asylum is granted, the applicant receives *refugee* status with a right to stay (permit *B*). If the asylum application is rejected, the SEM has to examine whether it is possible to expel the asylum seeker from Switzerland. There might be humanitarian or technical reasons that prevent an expulsion. In such cases, the residence permit F—*provisionally admitted foreigners/refugees (PAFs)*—is given. It allows for temporary stay and subsidiary protection. The name of the permit might be confusing, since most PAFs will stay in Switzerland for a long time, if not for life (Wichmann et al. 2011, p. 84).

2.2 Cantonal asylum practices

There is a distinctly federal structure in the Swiss asylum system (see, e.g., Belser 2015; Kurt 2017 or Spörnli et al. 1998). The national law leaves the cantons substantial freedom in setting their regulations when implementing the law with respect to labor market access, social welfare, and integration. This has led to widely different asylum practices across cantons. In particular, the host cantons are responsible for the accommodation of asylum seekers, for the promotion of integration, for social welfare (partly financed by the federal government), for support in cases of personal hardship, and for regulation of access to the labor market. In order to understand any variation in the employment of asylum seekers, differences in integration measures, social welfare, and labor market access policies are potentially most important.

Labor market access

Asylum seekers are initially prohibited from participating in the labor market due to a federal employment ban of three months starting with the filing of the asylum application (Art. 43 para. 1 AsylG)¹¹. After the ban is over, a potential employer has to apply for a work permit from the cantonal immigration authorities prior to employing an asylum seeker. The differences in cantonal practices mainly result from the conditions and circumstances under which such permits are issued (Wichmann et al., 2011, p. 89). The differences primarily emerge along five dimensions: A first dimension relates to the time asylum seekers are formally excluded from the labor

market. Cantons have the right to extend the federal ban of 3 months to up to 6 months¹². Second, cantonal authorities can decide to grant work permits exclusively for certain industries with a shortage of labor (mainly agriculture, hospitality, construction, and other low-wage sectors). Nearly half of all cantons use such restrictions (Wichmann et al., 2011, p. 89). Third, Art. 21 of the Federal Act on Foreign Nationals (FNA) states that people in the domestic workforce should be given priority on the labor market (in German: *Inländervorrang*). This means that a foreign person can only be employed if a suitable domestic employee cannot be found—a regulation that also applies to asylum seekers (Hofmann et al., 2014, p. 16)¹³. Cantons differ widely in how strictly they implement this article. According to responses to the survey of Wichmann et al. (2011), there are cantons in which it is necessary to prove that an employment position was posted at the regional employment center but no suitable domestic candidate could be found prior to being able to employ an asylum seeker, while other cantons did not mention such restrictions. An important fourth dimension refers to the duration of the application process for a work permit. While it is rather simple to obtain a permit in some cantons¹⁴, it is a rather complicated process in others (Lindenmeyer et al., 2008, p. 42). Long and complicated application processes are especially unfavorable for asylum seekers, who are more likely to find work in sectors where a quick start of employment is essential. This might be of particular relevance in many of the industries to which the asylum seekers are granted access¹⁵. Fifth, some cantons impose some kind of salary deduction for employed asylum seekers, in order to cover their health insurance and/or rent. This deduction is subtracted on top of a special charge gainfully employed asylum seekers face under Art. 86 AsylG¹⁶.

Basic assistance

Asylum seekers are generally entitled to social welfare (Art. 81 AsylG). The cantons are responsible for the amount and distribution (Art. 82 AsylG). The social benefits are between 40 and 60% lower than the social benefits suggested by the Swiss Conference of Social Welfare (SKOS) for residents (Efionayi-Mäder, 2013, p. 58). The directive envisages that basic assistance is supplied in-kind rather than in the form of cash. Most cantons apply a two-stage process in which asylum seekers first spend a considerable time in collective housing before being allocated to an apartment. In many cantons, asylum seekers in the early stage of the asylum process get pocket money ranging from 1 to 3 Swiss francs a day. In the second stage, the cash transfer increases to between 320 and 768 Swiss francs per month, the mean transfer lying between 400 and 500 Swiss francs (Wichmann et al., 2011, p. 86). The cantonal expenses for the basic assistance of asylum seekers are at least partly

covered by the federal government¹⁷. In the year 2012, for example, cantons were compensated with 55.91 Swiss francs per day and asylum seeker, with some adjustments to the costs for rent and health insurance (SODK, 2012, Annex 1, p. 3). An inter-cantonal comparison of basic assistance to the asylum seekers shows strong heterogeneity in its generosity. While some cantons, for example, offer free tickets for public transport and support for exceptional expenses, other cantons only cover basic needs like food, housing, and health insurance (SODK, 2012, Annex 2)¹⁸.

Integration promotion

Since 2008, cantons receive an earmarked lump-sum transfer (a so-called *Integrationspauschale*) for every refugee (accepted asylum applicant) and PAF of 6000 CHF to cover at least part of the costs related to their integration (Wichmann et al. 2011). In contrast, there is no specific federal transfer for the integration of asylum seekers. If projects for the latter group are undertaken, they are financed by the cantons. Some cantons use some of the lump sums for cross-subsidization or spend own resources, while others refrain from additional expenditures. Wichmann et al. (2011) report that, according to self-statements, 11 cantons dedicate their own resources to the promotion of the integration of asylum seekers. Integration measures, for example, involve basic and advanced language courses, courses for general education, occupation programs, and specific integration measures to promote employment-relevant skills, such as (paid or unpaid) internships or job coaches.

3 Data

3.1 Cantonal asylum policies

The main explanatory and control variables on the different aspects of the asylum policies implemented in the cantons as of 2011 are based on unpublished raw data provided by the Swiss Forum for Migration and Population Studies (SFM). This data is, to our knowledge, the only available source gathering information about cantonal asylum policies in a systematic and comparable manner. It is based on a survey of representatives of cantonal immigration authorities and is extensively discussed in Wichmann et al. (2011)¹⁹. The cantons Nidwalden and Thurgau did not participate in the survey, leaving us with data for 24 cantons. While it is a challenge to compare multidimensional policy packages across cantons, we can rely on indexes based on the expert judgments by Wichmann et al. (2011). They propose indexes capturing the openness of a labor market, the generosity of social assistance, and specific integration policies. The construction of indexes is meaningful as the cantonal policy choices in the different dimensions are likely to be correlated. If single dimensions were considered separately

in a multiple regression analysis, degrees of freedom for the control variables would be lost and the risk would increase that specific partial correlations become particularly strong (but misleadingly so). Moreover, the different dimensions might interact and the independent effect of one component is thus difficult to identify. An index enables us to identify the most open and the most restrictive regime and allows us to estimate by how much the employment rate would be increased if the most restrictive cantons were to apply the most open policy mix observed.

The three main measures of cantonal asylum policies are defined as follows:

- *Labor market access* is an index quantifying the openness of the labor market for asylum seekers in a given canton, ranging from 0 (restricted access) to 1 (most inclusive access). The index captures four aspects: (i) the temporal expansion of the employment ban (yes/no), (ii) the duration of the work permit process, (iii) whether there is restricted access to some sectors or strict application of the priority rule for domestic workers (yes/no), and (iv) whether there are additional salary deductions for employed asylum seekers (yes/no). For each aspect, the score is 1 if a canton does not apply an additional restriction and 0 otherwise. For the duration of the work permit process, a canton scores a 0 for a duration exceeding a month, 0.5 for a duration of between 10 and 30 days, and a 1 for a shorter duration. The index is calculated as an unweighted average of the scores in the four categories²⁰. The labor market is thus considered to be more open, the higher a canton's score.
- *Basic assistance* is an index quantifying the amount of social welfare and assistance in a canton ranging from 0 (merely basic needs are covered) to 1 (most generous in supplying social welfare). The measure captures six aspects: (i) the monthly amount of social welfare a single asylum seeker receives excluding rent (over 600, between 400 and 599, or 300–399 Swiss francs), (ii) the monthly amount a married couple with two minor children would receive excluding rent (over 1500, between 1250 and 1499, or 1000–1249 Swiss francs), (iii) how the expenses for food, and (iv) cloths are covered (cash benefits, vouchers, or in kind), (v) how the canton covers health insurance expenses (by handing out the money, or by directly paying for the premium), and (vi) whether the asylum seekers receive free tickets for public transport (yes, only after assured necessity, or no)²¹. For each aspect, the score of 1 is given if the first (most generous) policy is applied for the respective aspect, a 0.5 for the intermediate cases, and 0 for the most restrictive

policy. A canton could thus score a maximum of 6 points. The index is calculated dividing the number of points of a canton by the maximum score possible.

- *Integration* is an index quantifying the integration efforts of cantons. It ranges from 0 (the canton does not offer any integration measures for asylum seekers) to 1 (comparatively large number of integration projects). This index captures three aspects: (i) what kind of social integration projects are offered for adult asylum seekers (0 points for none, 0.5 points for basic integration measures, and 1 point for advanced integration measures)²², (ii) what kind

of professional projects are offered for adult asylum seekers (0 points for none, 0.5 points for courses about the Swiss labor law, individual career counseling or coaching, and 1 point if mentoring projects, internship programs in the private or public sector or advanced trainings on the job are offered), and (iii) whether the canton dedicates own resources to the promotion of the integration of asylum seekers (1 point for yes, 0 points for no). A canton could thus score a maximum of 3 points. For the corresponding index, the number of points are again divided by the maximum score possible²³.

Table 1 Descriptive statistics

	No. of obs.	Mean	Std. dev.	Min	Max
Dependent variable					
Disaggregated by country of origin:					
Employment rate	4014	4.935	15.079	0	100
Employment rate [2011 only]	1028	5.589	15.848	0	100
Employment rate [in 2011; excluding cantons applying an employment ban]	1018	5.644	15.916	0	100
Aggregated by canton:					
Employment rate	96	7.692	6.026	0	30.2
Independent variables					
Labor market access	24	0.65	0.252	0.167	1
- High labor market access	6	0.979	0.051	0.875	1
- Medium labor market access	14	0.616	0.125	0.5	0.75
- Low labor market access	4	0.276	0.089	0.167	0.375
Integration	24	0.507	0.362	0	1
Basic assistance	24	0.554	0.117	0.42	0.75
Control variables					
Population size [in thousands]	96	324.7	334.0	15.7	1,446.4
Population size, ln	96	12.145	1.146	9.662	14.185
Share of foreign residents	96	21.460	7.14	9.82	40.95
Rate of unemployment	96	2.771	1.26	0.9	6.0
GDP per capita [in thousands]	96	76.6	28.0	50.7	167.0
GDP per capita, ln	96	11.197	0.292	10.833	12.026
Yes-share "against illegal immigration"	96	47.23	8.20	30.3	59.3
Fraction of employment in					
- Catering and lodging	96	5.524	2.649	2.7	14.6
- Agriculture	96	4.489	2.86	0.04	12.91
- Construction	96	7.883	2.085	4.157	12.038
Fraction of Romance language speakers	96	31.066	36.675	0	94.606
Interaction with language distance					
Language distance	3621	0.905	0.084	0.061	1

Note: Descriptive statistics of our estimation sample. If not stated otherwise, the data refers to the sample period 2011 to 2014

Data sources: Wichmann et al. (2011), Melitz and Toubal (2014), Swiss State Secretariat for Migration, and Federal Statistical Office

Table 1 provides descriptive statistics for the three independent variables. Regarding labor market access, one fourth of the cantons have a rather inclusive regime. These cantons refrain from imposing any further extension of the employment ban, do not restrict employment to specific sectors, apply no additional salary deductions, and have low administrative hurdles when it comes to the employment of asylum seekers. Half of the cantons qualify as applying some form of integration promotion for asylum seekers. None of the cantons in the sample scores the minimum in the index for basic assistance.

While the cantonal asylum policies are coded as of 2011 due to the available survey data, we will adopt a longer sample period—until 2014—in some specifications of our empirical analysis. Until 2014, the situation regarding asylum migration was rather stable letting us assume that there were few reforms in cantonal-level asylum policies. Regarding the large inflow of refugees coming to Europe in 2015, such an assumption would no longer be sensible after 2014. There are data restrictions with respect to our preferred control strategy before 2011, which is why we are not considering earlier years. We check whether our results are robust if we restrict the estimation sample to 2011 only.

3.2 Employment rates of asylum seekers

Our dependent variable captures the rate of employment of asylum seekers, i.e., individuals waiting for the decision on their asylum application (holding a residence permit N) who are employable by canton and country of origin. The rate is measured as of December 31 in the years

2011 to 2014. We thus study the employment situation for the stock of asylum seekers at a particular point in time (and not for the inflow of asylum seekers during a particular time period)²⁴. Figure 1 shows the variation in the participation rate of asylum seekers in paid employment across cantons in 2011 (i.e., the year the regulations are measured). The employment rate was highest in the canton of Grisons (30.2%) and lowest in the canton of Appenzell Innerrhoden, with no asylum seeker employed.

Table 1 provides descriptive statistics of the employment rate, once on the canton-year level, and also disaggregated to the canton-year-nationality level, leaving us with 4014 observations (= 26 cantons × 4 years × 10 nationalities). Employment rates vary substantially across nationalities²⁵. Additional file 1: Table S1 lists them for asylum seekers from the largest origin groups within the stock of asylum seekers holding permit N in Switzerland. While about 30% of the asylum seekers from Sri Lanka were employed in 2011, the corresponding rate for people from Eritrea was 1%.

3.3 Control variables

We incorporate a range of additional variables in our multiple regression analyses in order to capture further determinants of the employment rate of asylum seekers. Moreover, we want to control for factors that might be correlated with the cantonal policies as well as the participation of asylum seekers in the labor market. We concentrate on six factors: First, possible economies of scale in the economic integration of asylum seekers are

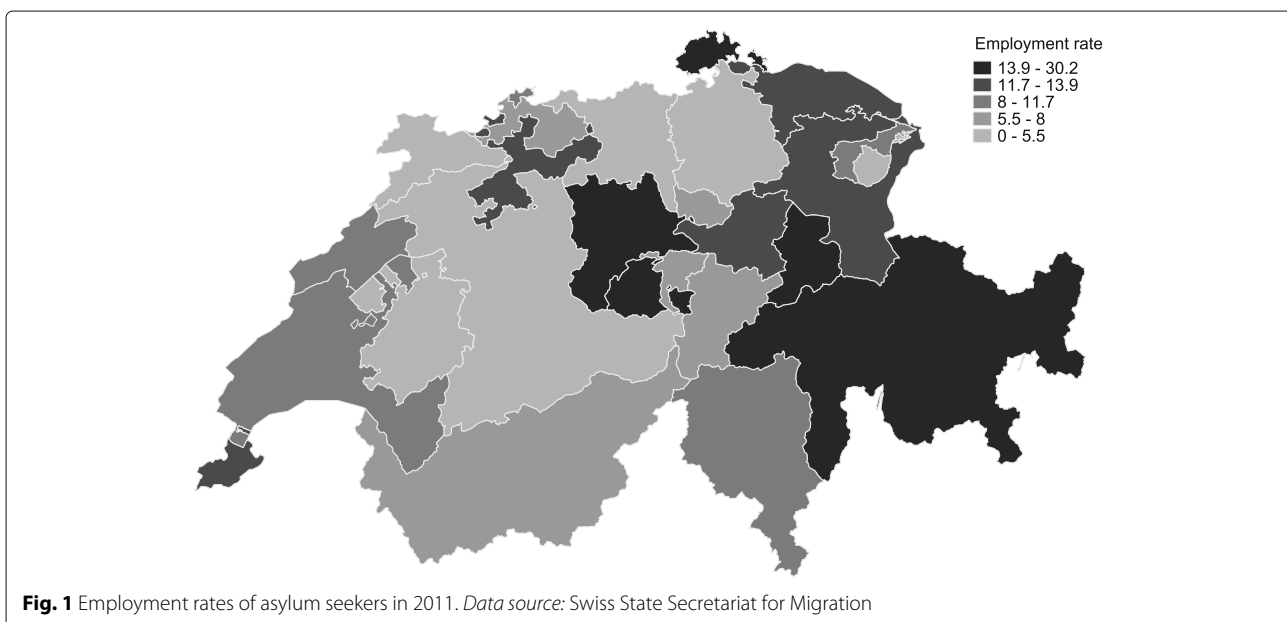


Fig. 1 Employment rates of asylum seekers in 2011. *Data source:* Swiss State Secretariat for Migration

captured by the logarithm of the size of the permanent resident population in a canton. The population size is the main variable in the allocation key of asylum seekers and therefore highly correlated with the absolute number of asylum seekers assigned to a canton. Second, we expect that it is more difficult for asylum seekers to find employment in cantons with a tight labor market. We therefore include the cantonal rate of unemployment as an additional explanatory variable²⁶. Third, as an additional measure for the state of the economy in a canton, we include the logarithm of the GDP per capita. Fourth, in order to control for more specific demand-side factors, we take the industrial composition of a canton into account. We do this by considering the sectors with a relatively high demand for unskilled workers, i.e., catering and lodging, agriculture, and construction. In particular, these are the industries to which some cantons restrict labor market access. We control for the size of these three sectors measured as the fraction of employment in percent of total employment in the canton. Fifth, we further control for the cantonal foreigner share in the population and a measure for attitudes towards asylum seekers. Together with the size of the construction, and the lodging and catering sector, these factors have been identified as the main determinants of cantonal asylum policies (see, e.g., Spörnli et al. 1998). Reservations towards asylum seekers are approximated by the share of yes votes in the popular vote “against illegal immigration” (in German: *Volksinitiative ‘gegen die illegale Einwanderung’*), which was held in December 1996 and was seeking for a more restrictive asylum law in Switzerland. The latter control factors help us to exclude that any effect we measure is driven by the fact that cantons in which voters hold stronger reservations towards asylum seekers have more restrictive policies and at the same time also employ fewer asylum seekers. The sixth factor captures the proportion of people in a canton who speak a Romance language, i.e., French, Italian, or Rhaeto-Romansh. This variable might capture some unobserved cultural differences across cantons in Switzerland. Descriptive statistics for the control variables are provided in Table 1.

3.4 Language distance

In order to explore the interaction between access regulation of the labor market and language barriers, we incorporate a variable capturing the language distance (which might well also be correlated with cultural distance). Language distance is an index meant to capture the closeness of the main language in the country of origin of an asylum seeker to the main language spoken in the host canton. The index takes a value of 0 if the languages in two places are perfectly congruent and 1 if there is no congruence at all (i.e., the language distance is maximal).

The source information is the common language index by Melitz and Toubal (2014)²⁷.

4 Estimation model

Our empirical strategy exploits the legal guideline that asylum seekers are as good as randomly assigned to cantons and can therefore not select into cantons depending on their employment prospects. If this condition holds, and our control strategy successfully captures most important confounders potentially driving the employment rate and the regulation in place, we should be able to come close to the causal effect an open labor market regulation has on the employment rate of asylum seekers.

In a first step, we validate the assumption of an as good as random assignment, and thus no selection with respect to our explanatory variable of interest. We check whether the allocation formula fixed by the law, prescribing a proportional assignment of asylum seekers with respect to the population size, is strictly enforced. Based on the inflow data of asylum seekers across cantons, Additional file 1: Figure S1 visualizes that the allocation formula closely corresponds to the share of asylum seekers that cantons receive. Thus, the law seems to be enforced. Coutenier et al. (2016, p. 49-50), who exploit the random allocation of asylum seekers in Switzerland as well, provide a test to show that the allocation across cantons is indeed as good as random with respect to age, gender, and past exposure to violence (their main explanatory variable of interest). In a similar vein, we test, in a second step, for a systematic correlation between the share of asylum seekers from a particular country received by a canton and our labor market access measure. We undertake this test for the 15 largest groups in our sample. The correlation coefficients are visualized in Additional file 1: Figure S2. As becomes evident from this exercise, we do not observe any systematic correlation. We conclude that the assignment of asylum seekers by country of origin to cantons seems to be orthogonal, at least, to our main policy variable and should thus not invalidate our empirical design.

We apply a simple linear model to empirically test whether a less restricted labor market access indeed leads to higher labor market participation of asylum seekers, and whether there are differences resulting from the heterogeneity in basic assistance and integration measures²⁸. For the basic estimates on the cantonal level, we proceed from the following model:

$$Y_{c,t} = \alpha + \tau_1 \text{Access}_{c,2011} + \tau_2 \text{Assistance}_{c,2011} + \tau_3 \text{Integration}_{c,2011} + \beta'_i X + u_t + \epsilon_{c,t}.$$

Thereby, $Y_{c,t}$ is the employment rate of asylum seekers in canton c and year t . *Access* captures the measure for

labor market openness, *Assistance* that for social benefits, and *Integration* that for integration promotion, respectively. As mentioned above, we additionally control for a set of control variables that might be correlated with the cantonal employment rate as well as the institutional arrangement. These variables are summarized in matrix X and comprise the log of the cantonal population size, the cantonal unemployment rate, the log of the cantonal GDP per capita, the employment shares in the catering and lodging, agriculture and construction industries, the foreigner share, a measure for attitudes towards asylum seekers, and the share of the population speaking a Romance language. In the estimates covering several years, we further control for a set of time fixed effects ν . Standard errors are clustered at the level where we measure our policy variable, i.e., the level of the canton.

We additionally estimate models based on disaggregated employment rates by country of origin and canton. These models additionally include country of origin fixed effects to control for the average level of employment for each nationality. Please note that the estimated effects for the institutional variables should remain stable because the assignment of asylum seekers to cantons is independent of the country of origin and thus exogenous to the cantonal policies. However, if there were any remaining selection driving the empirical findings, this extended specification should strongly change the estimated effects of our insti-

tutional variables. The disaggregated employment rates further allow us to explore any interaction effect between labor market access and language distance.

5 Results

5.1 Descriptive evidence

Figure 2 shows preliminary descriptive evidence about the potential relationship between labor market access regulations for asylum seekers and their employment rate. It visualizes the development of the employment rate of asylum seekers between 2011 and 2014 in the cantons which are grouped by the relative openness of their labor market towards asylum seekers. The dark gray dashed line at the top of the graph represents the six cantons with the most inclusive policies (*high* openness). These cantons do not have any additional restrictions when it comes to access to the labor market. The group with *medium* openness indicated by the dashed dotted line comprises fourteen cantons that partly restrict access to the labor market. Finally, the light gray dashed line at the bottom shows the employment rate for the group of cantons with *low* openness²⁹. It is revealed that, on average, the employment rates are considerably lower in cantons with low openness. The difference between the group of cantons with the highest openness and the lowest one amounts to about 10 percentage points in 2011. The figure also shows an overall drop in the employment rate for all groups after 2013. Various factors could be responsible

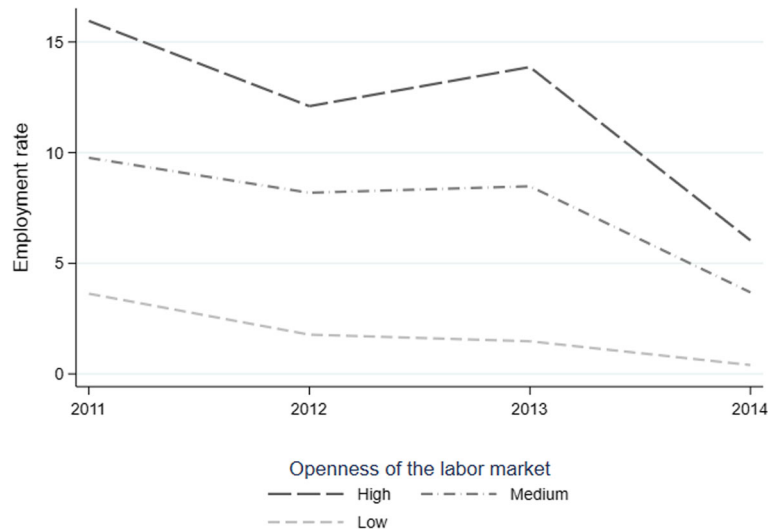


Fig. 2 Employment rates of asylum seekers across groups of cantons. *Notes:* This graph visualizes the employment rate of asylum seekers across cantons which are grouped by the openness of their labor market in 2011. *High* openness refers to a group of six cantons with a score for access to the labor market between 0.8125 and 1.00 (the upper quartile). *Medium* openness includes fourteen cantons with a score between 0.50 and 0.8125 (the two middle quartiles). *Low* openness refers to four cantons with a score between 0.00 and 0.50 (the lower quartile). The lines show the yearly average of the employment rate in each group. *Data sources:* Wichmann et al. (2011) and Swiss State Secretariat for Migration

for this. One might be a revision of the asylum legislation in 2013, meant to reduce the duration of the asylum process. The pool of asylum seekers in later years thus includes people with a shorter duration of stay in Switzerland, who are more likely to face a binding employment ban and have had less time to seek for work. While this first descriptive finding is interesting, taking into account other potential determinants and confounders

can help to evaluate how likely it can be interpreted causally.

5.2 Average effects of cantonal asylum policies

Table 2 presents the estimation results when the full range of variation in all three cantonal policy measures is exploited and when potential confounders are simultaneously controlled for. In column (1), using data

Table 2 Determinants of the employment rate of asylum seekers

Dependant variable	Employment rate [0–100%]				
	2011–2014 (1)	2011–2014 (2)	2011–2014 (3)	2011 (4)	2011* (5)
Mean dep. variable	7.692	7.692	4.935	5.589	5.644
Labor market access [0–1]	10.658*** (2.144)	12.268*** (2.339)	10.623*** (1.813)	11.203*** (3.633)	10.705*** (3.361)
Basic assistance [0–1]		– 3.280 (5.641)	0.090 (3.263)	2.682 (4.222)	4.824 (4.346)
Integration [0–1]		– 2.537* (1.358)	– 2.329* (1.302)	– 2.474 (1.954)	– 3.427* (1.973)
Population size, ln	– 2.199*** (0.651)	– 2.112*** (0.618)	– 0.585 (0.510)	– 0.501 (0.958)	– 0.570 (0.887)
Share of foreign residents	0.117 (0.143)	0.176 (0.154)	0.029 (0.109)	0.162 (0.237)	0.211 (0.218)
Rate of unemployment	– 3.042** (1.133)	– 2.336* (1.270)	– 0.038 (1.236)	– 1.475 (1.983)	– 0.062 (2.347)
GDP per capita, ln	– 7.276** (2.931)	– 7.517*** (2.662)	– 2.649 (2.742)	– 6.329 (4.440)	– 2.855 (5.136)
Yes-share “against illegal immigration”	– 0.181* (0.098)	– 0.182 (0.109)	– 0.150* (0.080)	– 0.131 (0.114)	– 0.019 (0.117)
Fraction of employment in					
- Catering and lodging	0.831*** (0.285)	0.842*** (0.289)	0.321 (0.231)	0.188 (0.371)	0.367 (0.372)
- Agriculture	– 1.644*** (0.358)	– 1.448*** (0.402)	– 0.214 (0.530)	– 0.302 (0.806)	0.704 (1.137)
- Construction	– 0.053 (0.577)	– 0.046 (0.531)	0.230 (0.517)	– 0.006 (0.757)	– 0.231 (0.722)
Fraction of Romance language speakers	– 0.003 (0.030)	– 0.024 (0.034)	– 0.025 (0.035)	0.010 (0.054)	– 0.010 (0.056)
Year FE	Yes	Yes	Yes	No	No
Country-of-origin FE	No	No	Yes	Yes	Yes
No. of observations	96	96	4014	1028	1018
No. of clusters	24	24	24	24	23
Adj.R ²	0.736	0.745	0.181	0.197	0.203

Notes: Columns (1) and (2) use data at the cantonal level, and columns (3) to (5) exploit disaggregated data at the canton-nationality level

*The specification in column (5) excludes cantons stating to apply a total ban. Standard errors are clustered at the cantonal level and are reported in parentheses

Significance levels: * .05 < p < .1, ** .01 < p < .05, *** p < .01

Data sources: Wichmann et al. (2011), Swiss State Secretariat for Migration, and Federal Statistical Office

on the cantonal level between 2011 and 2014, we find that the employment rate of asylum seekers in cantons with the most liberal labor market access policy (index score of 1) is, on average, 11 percentage points higher than in cantons with the most restrictive policy (index score of 0). While taking potential confounders into account, this finding is very similar to the difference observed in the graphical representation. In column (2), we additionally include the two other policy indicators for basic assistance and integration. They barely change the coefficient of our main variable of interest. Basic assistance as such is not systematically related to asylum seekers' labor market participation. In contrast, extended integration programs are related to a 2.6 percentage points lower employment rate of asylum seekers. However, note that the negative effect when in status N does not necessarily mean that integration measures have no positive (long-term) effect on the chance of being employed. Early integration measures initially compete with paid employment and the impact might be slow to take effect but long lasting. Hence, the potentially positive impact would not materialize in the employment rates of asylum seekers, but rather in those of PAFs and refugees.

Column (3) presents the resulting estimates using the disaggregated data on the canton-nationality level (including fixed effects for the country of origin). The coefficient of our main variable of interest is now more precisely estimated. Moreover, it remains stable. This result is not surprising given the as good as random assignment of asylum seekers with regard to nationality and cantonal asylum policies. In column (4), we concentrate exclusively on data from 2011, as our policy measures were only collected in that year, and policies might have changed later on. The coefficient for labor market access again barely changes. Finally, to check whether our results are driven by the fact that one canton reports not granting labor market access to refugees at all, we exclude this canton in column (5)³⁰. The effect remains very similar³¹.

As mentioned before, our setting does not allow us to include fixed effects for cantons in order to control for unobservable cantonal characteristics, as the policy measures were only collected for 1 year. This might, of course, pose a challenge to the causal interpretation of the results presented. If there are unobserved factors correlated with both the employment rate of asylum seekers and the labor market access granted by the cantons, our results might be biased. However, we control for those factors that are most likely to partly determine employment and asylum practices, i.e., the size of the economy relying on low-skilled workers, the foreigner share, the state of the economy, and general attitudes towards asylum seekers (Spörnli et al. 1998). Importantly, the

partial correlation for our main explanatory variable is rather similar independently of the inclusion of control variables³².

In order to assess the sensitivity of our results to bias from *unobservables*, we apply the method suggested in Oster (2017) to our basic specification (1). Under the assumption that the unobservables are as informative as the observables ($\delta = 1$), the corrected coefficient of the labor market access index results to be 7.71 with a p value of 0.047. According to this approach, the unobservables would need to be about twice as informative to render a treatment effect equal to zero ($\delta = 1.92$). As we include the control variables that should capture the most obvious and important confounders, we conclude that these results suggest that our evidence is quite robust.

Overall, we find a sizable positive effect of an open labor market policy on the employment rate of asylum seekers. We can exclude that our main result is driven by a self-selection of asylum seekers into cantons, which is the main concern for the identification of the effect of labor market access policies.

5.3 Interaction between the effect of labor market access and language distance

After finding that a more open-access type of regulation increases asylum seekers' employment rate, we explore whether there is heterogeneity in the effect of openness depending on the language distance between the language spoken in the country of origin and the one spoken in the canton the asylum seeker is assigned to. To give an impression of language distances, for example, a person from Kongo DR or the Ivory Coast assigned to a French speaking canton would face a language distance of 0.875, while somebody from Georgia in a French-speaking canton would be confronted with a language distance of 0.974.

In an extended estimation model, we interact the variable labor market openness with language distance³³. The sample is now restricted to asylum seekers from those countries for which information about language distance is available. The estimation results are reported in Additional file 1: Table S3. The main finding is summarized in Fig. 3. It shows the marginal effects of an open labor market for different levels of language distance when the whole range of distance measures in our sample is considered (based on the coefficients reported in column (1) of Table S3. While the marginal effects are overall positive, we observe a clear negative relationship with increasing language distance, i.e., the greater the language distance, the lower the positive effect of labor market openness on asylum seekers' employment rate. This seems intuitive, as individuals with a higher language distance likely face more difficulties to

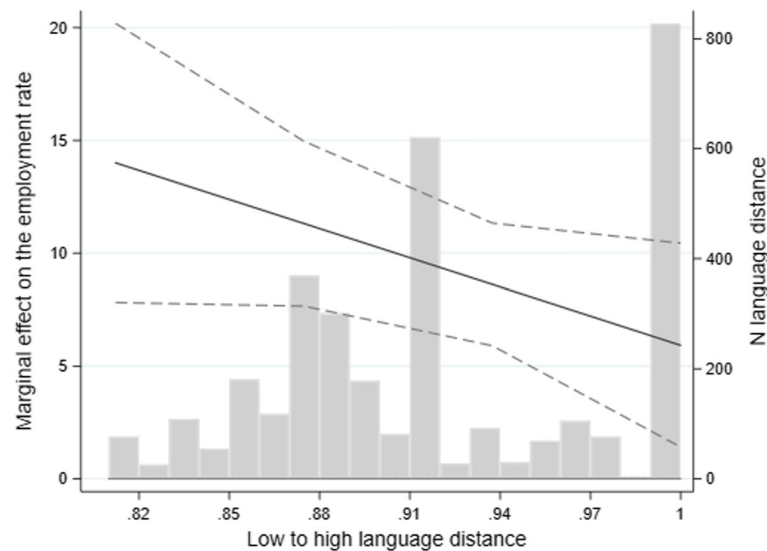


Fig. 3 Marginal effects of an inclusive labor market access regime for different levels of language distance. *Notes:* This figure visualizes the marginal effect of the interaction between the labor market access index and language distance for the whole sample. In order to make the graph readable, we only visualize it for the top 90% of language distances. The graph for the complete range can be found in Additional file 1: Figure S5. For a language distance of 0.875 (bottom quartile), the marginal effect of an open labor market amounts to a 11.30 percentage point higher employment rate. The corresponding figure for a high language distance of 0.974 (top quartile) is 7.04 percentage points. The corresponding estimates are reported in column (1) of Additional file 1: Table S3

interact and to integrate in a company, further they can potentially be employed only for a more limited range of tasks.

We undertake a few robustness checks as language distance is unequally distributed in our sample. Additional file 1: Figure S4 shows a histogram for the distribution of language distances, revealing that only a few observations are characterized by a very short language distance. The mass of observations lies at values of 0.7 and above. To make sure that our finding is not driven by these potential outliers, we repeat our estimate excluding the lowest 5 percent and the lowest 10 percent of observations in terms of language distance. The results are reported in columns (2) and (3) in Table S3, and the marginal effects are visualized in Additional file 1: Figure S6 and S7, respectively. The relationship remains rather stable and the systematic negative interaction also remains, suggesting that the positive effect of a liberal labor market access policy is strongest for asylum seekers facing a relatively short language distance.

6 Conclusion

Many Western countries struggle with the integration of refugees into the labor market (Fasani et al. 2017). This is not only a tragedy for the migrants themselves, who might be living in a precarious economic situation and miss opportunities for meaningful engagement. It is also a threat to social cohesion in the host countries, as it might challenge the support for redistribution. Recent

evidence on employment bans shows that the absence of economic integration in an early phase of the asylum process can have large negative effects on long-term labor market participation (Marbach et al. 2018). In the absence of employment bans, there are potentially many other factors that affect the economic integration of asylum seekers. However, there is little quantitative evidence about what determines employment take-up during the initial phase of stay in the host country and how effective any regulation of participation is. This is probably due to the lack of high-quality data and the difficulty of comparing different asylum policies across jurisdictions.

In our analysis, we focus on the early economic integration of asylum seekers and provide a macro evaluation of the experiences in Swiss cantons applying different asylum policies. We thus learn about the effects of asylum policies from the institutionalized trial and error process in the Swiss federal system (Mahnig and Wimmer 2003; Gundelach and Manatschal 2017). We can rely on detailed information about labor market access regulations, integration measures, and social welfare provisions for asylum seekers across Swiss cantons. All these policies are developed to implement the same federal law. Furthermore, in our setting, a potential self-selection of employable asylum seekers into regions where employment is easier can be excluded, as asylum seekers are exogenously assigned to their canton of residence (and are normally not allowed to move to a different canton). We find that during the period between 2011 and 2014,

with a medium inflow of asylum seekers, cantons offering the most inclusive access to their labor market are able to successfully integrate many more asylum seekers into the local economy, as reflected in a 11 percentage point higher employment rate compared to cantons with the most restrictive regime. Integration programs compete in the short run with employment and reduce its rate among asylum seekers by 2.6 percentage points. We do not find a systematic effect on participation in the labor market related to the incentives generated by specific provisions regarding social welfare. The immediate effects of an inclusive regime are found to be greater for asylum seekers originating from a country where the main language is relatively closer to the one in their host canton. While language skills are hypothesized to be important for successful economic integration per se, they seem to work in a complementary manner to the inclusive labor market access regulations.

Employment during the asylum process might be related to systematic long-term consequences for those asylum seekers who are granted refugee status. Employment experience seems particularly valuable if asylum seekers have gone through a lengthy application process. According to the results in Hainmueller et al. (2016), the penalty of a 1-year longer process on the probability of being employed (a year after getting refugee status with subsidiary protection) is about 5 percentage points. They further find that employment during the application phase is a strong predictor of later employment. Employment in the year before the decision increases the likelihood of employment in the subsequent year by 48 percentage points. Further, in the German context, Marbach et al. (2018) document that being exposed to a 7-month longer employment ban during the application period reduces the employment probability after admission by about 20 percentage points. Thus, our findings are particularly important if the admission of asylum seekers or their temporary stay is likely (a conclusion very similar to that in a recent report of the OECD 2016).

Our results and considerations lead to several follow-up questions. First, we would like to better understand the conditions under which efforts to integrate asylum seekers into the labor market at an early stage of the asylum process lead to an increase in the inflow of asylum seekers. This is a pressing issue in the political discourse. Second, one might ask what motivates the different regulations of labor market access across cantons. What is the political economics behind it? And third, there are the interactions with migration policy more generally. In particular, it would be important to understand how inclusive labor market access regulations moderate the perception of asylum seekers and attitudes towards immigration. These issues must be left to future research.

Endnotes

¹ An analysis in the context of the UK debate on immigration is, for example, provided by Mulvey (2010).

² Despite its prominence in the policy debate (Mayblin 2016), in a recent review of the empirical literature only limited evidence has been found for this claim however (James and Mayblin 2016). Specifically for the Swiss experience, Holzer et al. (2000) offer an evaluation of the asylum policy during the 1980s and 1990s, finding that the more restrictive recognition practice after the urgent federal resolution in October 1990 reduced applications from the traditional origin countries but not for people fleeing from the Balkan conflict.

³ Couttenier et al. (2016, 49-50) provide a formal test to show that the allocation across cantons is indeed as good as random with respect to age, gender and past exposure to violence (their main explanatory variable of interest). In a similar vein, we test whether there is a statistical relationship between our labor market access measure and the allocation of asylum seekers from different countries of origin in Section 4.

⁴ Wichmann et al. (2011, p. 89) report on emerging tensions between cantons if, for example, an asylum seeker from the canton of Basel-Stadt wants to start working in the neighboring canton Basel-Land. Asylum seekers are subject to the rules in the canton they have been assigned to which they are not allowed to leave before a decision on their case has been made. Further, their labor market participation status is registered in their residence canton. Spatial sorting can therefore be ignored as a possible driver of our results.

⁵ Between 2011 and 2016, on average, 27,190 individuals applied for asylum in Switzerland per year. This amounts to about 0.33% of the Swiss population of permanent residents, including roughly 25% foreigners.

⁶ These centers (Ger.: Eidgenössische Empfangs- und Verfahrenszentren) are in Basel, Bern, Chiasso, Vallorbe, Kreuzlingen, and Altstätten. For a more detailed description of the Swiss asylum procedure visit <https://www.sem.admin.ch/sem/en/home/asyl/asylverfahren.html>

⁷ An asylum application will be dismissed if the request is clearly unjustified or abusive. This is often the case if the applicant is able to return to a safe home or third country, or if asylum was already requested in a safe third country under the Dublin Procedure.

⁸ In Section 4, we provide a validation of this assumption in our context (see also Auer 2018 and Couttenier

et al. 2016, p. 49-50 for a longer discussion on the aspect of randomness).

⁹The main focus of recent revisions of the asylum legislation was to reduce the waiting period for asylum seekers. In 2016, the SEM reported that it takes, on average, 174 days until the official hearing for non-Dublin, and non-fast-track procedures, takes place (see <https://www.nzz.ch/schweiz/aktuelle-themen/beschleunigte-asylverfahren-gerechter-guenstiger-schneller-ld.7501>).

Note that the SEM decides after further hearings on whether asylum is granted. Couttenier et al. (2016, p. 45) mention a period of, on average, about 300 to 400 days for the completion of credible asylum requests between 2008 and 2010. Hainmueller et al. (2016, p. 2) document an average waiting time of 664 days (std. dev. 478 days) in their sample between 1994 and 2004. In extreme cases, applicants had to wait for several years until a final decision was reached (Lindenmeyer et al., 2008, p. 53).

¹⁰See <https://www.sem.admin.ch/sem/en/home/asyl/asylverfahren.html>.

¹¹In principle, the employment ban should account for the time the authorities need to investigate the main motivation behind an asylum request. Thus, there should be no incentive for economic migrants to apply for asylum (Dustmann et al., 2017, p. 513).

¹²In a statement from the Conference of Cantonal Directors of Social Affairs (SODK) on a revision of the asylum legislation in 2012, four cantons (AI, JU, UR, ZH) stated that they might lengthen the time of the ban after which asylum seekers can obtain a work permit, while one canton (NW) gave no answer (SODK, 2012, Annex 2).

¹³For the future, it is planned to consider PAFs as domestic employees, see <https://www.admin.ch/opc/de/federal-gazette/2016/8917.pdf>.

¹⁴For example, cantons like Vaud offer close guidance and information on how to effectively apply for the permits (Wichmann et al., 2011, p. 89).

¹⁵Wichmann et al., (2011, p. 89) document that it takes more than 10 days until a permit is granted for asylum seekers in six cantons. In some of them the waiting period is even longer than a month (Lindenmeyer et al., 2008, p. 42).

¹⁶The article states that asylum seekers are obliged to pay a special charge of up to 10% of their salary to cover the cost of the asylum procedure, a possible expulsion, and social assistance.

¹⁷This also applies to PAFs in their first 7 years of stay.

¹⁸A detailed list of the benefits paid by cantons to asylum seekers can be found in Annex 2 of SODK (2012).

¹⁹The SFM promised confidentiality to the cantonal administrations for sharing information about the de facto application of the law that is reflected, for example, in a shorter or longer approval process when firms want to employ asylum seekers. For this reason, we are not allowed to display the values for the individual policy measures on a cantonal basis.

²⁰If data for one of the four aspects is missing (which is the case for the cantons of ZH and BL), we use the average of the remaining aspects in order not to lose these two cantons from our sample.

²¹In this, we follow Wichmann et al. (2011). The construction that the welfare received by singles and couples is considered separately in the index gives this aspect a relatively large weight. However, our results are not affected if we instead only consider the average score for the answers to the two questions. The results including this alternative definition of the index are available upon request.

²²Basic social integration projects include basic language courses, general education courses, courses in civic education, some kind of daily structure schemes and paid or unpaid community work. Advanced integration measures include advanced language courses as well as the promotion of integration in the first or second job market. If a canton offers all of the mentioned basic social integration projects, it receives 1 point as well.

²³This index is capturing whether cantons offer asylum seekers any access to their integration programs. This is not required by federal law. However, the index does neither allow us to evaluate the quantity and quality provided, nor which portion of asylum seekers is able to benefit from the programs offered. In order to address this obstacle, an alternative indicator could consider the total amount spent on integration per asylum seeker. However, this data is not available separately for asylum seekers with status N in a comparable way.

²⁴The data is publicly available and provided by the SEM. The data for 2011 is available at <https://www.sem.admin.ch/sem/de/home/publiservice/statistik/asylstatistik/archiv/2011/12.html>.

We draw on yearly inflow data in the validation of our identifying assumption, i.e., the quasi-random assignment of asylum seekers to cantons, in Additional file 1:

Figure S1 and S2. The use of inflow data is indicated in the notes of the respective tables and figures.

²⁵ Please note that an employment rate of 100% is possible and might, for example, occur if a small canton hosts only one asylum seeker from a particular country of origin and this asylum seeker is employed.

²⁶ The corresponding data is provided by the State Secretariat for Economic Affairs (SECO) in their monthly publication on the labor market situation (in German: Die Lage auf dem Arbeitsmarkt) and includes all registered unemployed people in a canton.

²⁷ There are, of course, several different ways to capture the linguistic distance. According to Melitz and Toubal (2014), it is not sufficient to just include an indicator for a common official language to capture all the different channels through which linguistic proximity might facilitate, for example, labor market integration. They argue that besides a common official language, common spoken languages, common native languages, and the proximity of two languages are jointly important. They propose a common language proximity index based on the common official, and native languages in addition to the lexical similarity between 200 words of the spoken languages between two countries. Depending on the language spoken by the majority of the population in the host canton, we define the used language distance proxy as $(1 - \text{LanguageProximity})$, where *LanguageProximity* is the common language proximity for the country of origin to Germany, France or Italy, respectively. Thus, it captures the distance to the spoken language in the canton of assignment. The used data is freely available for download at http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=19.

²⁸ Note that the fact that we observe the policy measures only for 1 year, i.e., 2011, prevents us from including canton fixed effects in the estimation specification.

²⁹ These groups are defined on the basis of the quartiles of the labor market access indicator. The *high* openness group corresponds to the upper quartile, the *medium* group is composed of the second and third quartile, and the *low* group is composed of the lowest quartile. The distribution of the values of the index and the grouping is visualized in Additional file 1: Figure S3.

³⁰ This information is drawn from section “travail” in (SODK 2012).

³¹ As becomes evident from our descriptive statistics, asylum seekers from Sri Lanka are the second largest group of employable asylum seekers in the sample and exhibit by far the highest average employment rate of the top nine origin countries. In order to assess whether our results might be driven by this particular group, we rerun all the estimations excluding asylum seekers from Sri Lanka from the sample. The coefficient for labor market access is only slightly smaller and still statistically significant. Asylum seekers from Sri Lanka are thus not driving the overall finding. The results of this exercise are available upon request.

³² Additional file 1: Table S2 presents the estimation results including the covariates one by one. The last column is equivalent with our main specification presented in Table 2 column (2). As becomes evident, the inclusion of the most relevant potential driving forces, or omitted variables, does barely affect the economic and statistical significance of the main coefficient of interest for the index capturing labor market access. This suggests that it is rather unlikely that other factors, not as obviously related to asylum policy, might drive the overall effect. The labor market access regulation seems rather to be unrelated with potential confounders. This is also holds for the other asylum policy measures, i.e., basic assistance and integration measures. Their inclusion does not seem to affect the effect of labor market access regulations strongly, suggesting that they do not capture the same variation. Cantons with an open labor market thus do not necessarily also have a generous social welfare regime or extended integration policy measures.

³³ Please note that we do not include country of origin fixed effects in this specification. The language distance measure does hardly vary by origin country across Swiss cantons leaving little variation to estimate its effect on employment.

Supplementary information

Supplementary information accompanies this paper at <https://doi.org/10.1186/s41937-019-0046-2>.

Additional file 1: Table S1 Employment rates of the nine largest groups in terms of the stock of employable asylum seekers in the sample; **Figure S1** Comparison between the actual share of asylum seekers received by cantons and the share required by law; **Figure S2** Correlation between the labor market access index and the cantonal proportion of asylum seekers from a particular country; **Figure S3** This figure shows the distribution of the cantonal openness of the labor market; **Table S2** Step-wise inclusion of the determinants of the employment rate of asylum seekers; **Figure S4**

Histogram for the distribution of language distance across groups of asylum seekers in our sample; **Table S3** Interaction between labor market access and language distance; **Figure S5** Marginal effects of the interaction between the labor market access index and language distance; **Figure S6** Marginal effects of the interaction between the labor market access index and language distance (without lowest 5%); **Figure S7** Marginal effects of the interaction between the labor market access index and language distance (without lowest 10%).

Acknowledgements

We are grateful to Christin Achermann, Daniel Auer, Didier Ruedin, Stefanie Kurt, Anita Manatschal, and Severin Zimmermann for helpful comments. Data on labor market access regulations was kindly provided by Denise Efonayi and Didier Ruedin from the Swiss Forum for Migration and Population Studies (SFM).

Authors' contributions

All authors contributed to the design of the study, the empirical analysis, and the writing of the manuscript. All authors read and approved the final manuscript.

Funding

We acknowledge financial support from the Swiss National Science Foundation and its National Center of Competence in Research - The Migration-Mobility Nexus.

Availability of data and materials

Our main explanatory variables are based on proprietary data of the Swiss Forum for Migration and Population Studies (SFM) and can thus not be posted on the SJES's website. However, the data set could be obtained from this institution for a replication of our analysis.

Competing interests

The authors declare that they have no competing interests.

Author details

¹University of Basel, Faculty of Business and Economics, Peter Merian-Weg 6, 4002 Basel, Switzerland. ²ZEW – Centre for European Economic Research, L7,1, 68161 Mannheim, Germany.

Received: 6 November 2018 Accepted: 20 June 2019

Published online: 16 December 2019

References

- Auer, D. (2018). Language Roulette - The Effect of Random Placement on Refugees' Labour Market Integration. *Journal of Ethnic and Migration Studies*, 44(3), 341–362.
- Bansak, K., Hainmueller, J., Hangartner, D. (2016). How Economic, Humanitarian, and Religious Concerns Shape European Attitudes Toward Asylum Seekers. *Science*, 354(6309), 217–222.
- Belser, E.M. (2015). Das föderalistische Migrationsrecht der Schweiz - vom Umgang mit Einheit und Vielfalt bei der Gestaltung einer Verbundaufgabe. In *Europäisches Zentrum für Föderalismus-Forschung Tübingen (EZFF) (Ed.), Jahrbuch des Föderalismus 2015: Föderalismus, Subsidiarität und Regionen in Europa* (pp. 117–132). Baden-Baden: Nomos.
- Couttenier, M., Preotu, V., Rohner, D., Thoenig, M. (2016). *The Violent Legacy of Victimization: Post-Conflict Evidence on Asylum Seekers, Crimes and Public Policy in Switzerland*. CEPR Discussion Paper No. DP11079.
- Dustmann, C., Fasani, F., Frattini, T., Minale, L., Schönberg, U. (2017). On the Economics and Politics of Refugee Migration. *Economic Policy*, 32(91), 497–550.
- Efonayi-Mäder, D. (2013). In Ministerium für Integration Baden-Württemberg (Ed.), *Asylpolitik und mögliche (Des)Integrationseffekte*, (pp. 57–61). Stuttgart: Ministerium für Integration Baden-Württemberg: Integrationspolitik im internationalen Vergleich.
- Fasani, F., Frattini, T., Minale, L., et al. (2017). *The Struggle for Labour Market Integration of Refugees: Evidence from European Countries*. CReAM Discussion Paper Series No. 1716.
- Gundelach, B., & Manatschal, A. (2017). Ethnic Diversity, Social Trust and the Moderating Role of Subnational Integration Policy. *Political Studies*, 65(2), 413–431.
- Hainmueller, J., Hangartner, D., Lawrence, D. (2016). When Lives are Put on Hold: Lengthy Asylum Processes Decrease Employment Among Refugees. *Science Advances*, 2(8), e1600432.
- Hangartner, D., & Sarvimäki, M. (2017). *Dealing with the Refugee Crisis*. Background Report for Finland's Economic Policy Council. <https://www.talouspolitiikanarviointineuvosto.fi/wordpress/wp-content/uploads/2017/04/dealing-with-the-refugee-crisis-policy-lessons-from-economics-and-political-science.pdf>. Accessed 28 Oct 2019.
- Hatton, T.J. (2017). Refugees and Asylum Seekers, the Crisis in Europe and the Future of Policy. *Economic Policy*, 32(91), 447–496.
- Hofmann, A., Buchmann, K., Trumme, M. (2014). *Fluchtland Schweiz. Informationen über das Asylrecht und Menschen im Asylverfahren* (6 ed.): Bern: Schweizerische Flüchtlingshilfe SFH. <https://www.fluechtlingshilfe.ch/assets/hilfe/1501-fluchtland-schweiz-d.pdf>. Accessed 05 Nov 2018.
- Holzer, T., Schneider, G., Widmer, T. (2000). The Impact of Legislative Deterrence Measures on the Number of Asylum Applications in Switzerland (1986–1995). *The International Migration Review*, 34(4), 1182–1216.
- James, P., & Mayblin, L. (2016). *Factors Influencing Asylum Destination Choice: A Review of the Evidence*. University of Sheffield, AsylumDewarwork.com. Working paper No 04/16.1.
- Kurt, S. (2017). A Modest Start: Integration Policies in the Field of Asylum. *E-Magazine of the nccr - on the move. Highlights*, 2, 12–16.
- Lindemeyer, H., von Glutz, B., Häusler, F., Kehl, F. (2008). *Arbeitsmarktintegration von Flüchtlingen und Vorläufig Aufgenommenen. Studie über erfolversprechende Faktoren*. Zurich: KEK-CDC Consultants Zürich.
- Mahnig, H., & Wimmer, A. (2003). Integration without Immigrant Policy: The Case of Switzerland. In F. Heckmann & D. Schnapper (Eds.), *The Integration of Immigrants in European Societies. National Differences and Trends of Convergence* (pp. 135–160). Stuttgart: Lucius & Lucius.
- Marbach, M., Hainmueller, J., Hangartner, D. (2018). The Long-Term Impact of Employment Bans on the Economic Integration of Refugees. *Science Advances*, 4(9), eaap9519.
- Mayblin, L. (2016). Complexity Reduction and Policy Consensus: Asylum Seekers, the Right to Work, and the 'Pull Factor' Thesis in the UK Context. *The British Journal of Politics and International Relations*, 18(4), 812–828.
- Melitz, J., & Toubal, F. (2014). Native Language, Spoken Language, Translation and Trade. *Journal of International Economics*, 93(2), 351–363.
- Mulvey, G. (2010). When Policy Creates Politics: The Problematic of Immigration and the Consequences for Refugee Integration in the UK. *Journal of Refugee Studies*, 23(4), 437–462.
- OECD (2016). *Making Integration Work*. Paris: OECD Publishing.
- Oster, E. (2017). Unobservable Selection and Coefficient Stability: Theory and Evidence. *Journal of Business & Economic Statistics*, 1–18.
- SODK (2012). Asylgesetzrevision (10.052): Unterstützungsleistungen der Kantone im Asylbereich. Online at <http://sodk.ch>. Accessed 5 Nov 2018.
- Spörnli, M., Holzer, T., Schneider, G. (1998). Diener dreier Herren? Kantonalbehörden und die Vollzugsvielfalt der arbeitsmarktlichen Bestimmungen im schweizerischen Asylrecht. *Swiss Political Science Review*, 4(3), 53–77.
- Wichmann, N., Hermann, M., D'Amato, G., Efonayi, D., Fibbi, R., Ruedin, D. (2011). *Les marges de manoeuvre au sein du fédéralisme: La politique de migration dans les cantons*. Bern: Commission fédérale pour les questions de migration.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.